



Is the SME-instrument delivering growth and market creation?

Assessment of the performance of the first finalized phase II projects

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Is the SME-Instrument delivering growth and market creation?

Assessment of the performance of the first finalized Phase II Projects

Scope

This study is aimed at assessing whether and how the SME-Instrument (SME-I) achieved its targeted commercial impacts at the level of each supported company that reached the end of its Phase II activities. In total 70 Phase II projects were finalised since the beginning on the programme – up to the 1st of July 2017. The Expert Panel gathered by the Executive Agency for SMEs (EASME) answered the following two overarching questions:

- ▶ **Q1:** What are the proportions of projects showing: 1) demonstrated or 2) upcoming market success as well as 3) no particular or even 4) negative results?
- ▶ **Q2:** What is the contribution of the SME-I to the commercial success of Phase II Awardees?

Approach

1. **Classification.** The Expert Panel mandated positioned finalized Phase II projects in function of their commercial success. Making use of both quantitative and qualitative data, the Experts classified each of the selected projects according to a conceptual framework.
2. **Contribution Analysis.** The expert panel also undertook eight case studies oriented toward finalized Phase II projects and corresponding project holders (SMEs). The individual case study reporting was complemented by a cross-case analysis using triangulation principles. Both the individual and cross-case analysis highlight the positive results of the SME-Instrument Phase II support.

SME-I Phase II projects reach (highly) positive results

The categorization exercise led to conclude that the Phase II support was mainly associated with (highly) positive results as illustrated by Figure 1.

Figure 1: Mapping the commercial success of finalized SME-I Phase II projects



Source: the authors, based on EASME data (n=70)

The classification exercise also led to the following findings:

- ▶ **Finding 1** – More than a quarter of SME-I Phase II projects led to highly positive commercial success;
- ▶ **Finding 2** – A large share of positive to highly positive commercial success is observed among the finalized Phase II projects under the scope;
- ▶ **Finding 3** – The SME-I Phase II support led to a very limited number of negative commercial outcomes;
- ▶ **Finding 4** – The analysis should be nuanced by the fact that neutral ("C") projects do not show (yet) commercial success but can cover a (sometimes highly) promising potential;
- ▶ **Finding 5** – The first batch of finalized Phase II Projects shows that at this stage, younger companies show more SME-I Phase II commercial success;
- ▶ **Finding 6** – When considering the first wave of finalized Phase II projects, one can note that Small companies show more commercial success than medium and micro-companies.

The SME-I reaches out to relevant Small and Medium Enterprises (SMEs) with various needs and access channels

- ▶ **Finding 7** – SMEs access the SME-I through various channels. Apart from internet searches, events and the promotion of the programme done by another (public) organisation or private consultants were key channels for SMEs to learn about the SME-I.
- ▶ **Finding 8** – Awardees sought to address challenges and/or catch opportunities offered by the SME-I. Supported SMEs faced key obstacles hampering their commercial success, such as technological challenges or the need for close-to-market finance. Such obstacles motivated their application to Phase II support which was also seen as an opportunity to increase their pace, marketing and commercial capacity, as well as their human capital or relation(s) with the demand side.
- ▶ **Finding 9** – The SME-I was attractive to SMEs mainly because of its design and technical features. The possibility for single applicants to apply was attractive to applicants, as were the

scope of the programme (which mixes close-to-market innovation with market-oriented approaches) and funding modalities (the absolute funding amount, the possibility of an upfront payment and the co-funding rate).

The SME-I plays the role of an accelerator that very strongly contributes to the commercial success of Phase II awardees.

- ▶ **Finding 10 – The SME-I helps SMEs build the appropriate capacity to deploy their innovations to the market.** The contribution of the SME-I Phase II support was observed at different levels where it provided the SME awardee with additional or increased ways of pursuing its ambitions:
 - ▷ Acquiring or/and developing equipment, infrastructure, and human capital;
 - ▷ Acquiring or/and increasing market intelligence and expertise;
 - ▷ Building demand capacity;
 - ▷ Securing Intellectual Property Rights (IPR);
 - ▷ Remaining independent toward (potential) investors;
 - ▷ Operating mutations in the company business model.
- ▶ **Finding 11 – The SME-I Phase II support accelerates technology deployment.** Phase II support was instrumental in helping companies undertake proper Research and Development (R&D) to overcome critical challenges hampering the commercialization of their product(s)/service(s). In addition, the SME-I played a crucial role in accelerating the (usually costly and time-consuming) demonstration phase faced by the supported SMEs, helping them overcome the so-called “Valley of Death”.

- ▶ **Finding 12 – The SME-I creates unique network effects.** The SME-I provided Phase II awardees with visibility and outreach opportunities. It helped them build a strong international network. The Business Acceleration Services were instrumental in that respect. Most noticeably, the SME-I supported SMEs’ access to international markets where they could encounter relevant clients and/or partners.
- ▶ **Finding 13 – The SME-I leads to critical market achievements.** Phase II support led to a broad range of positive effects over SME awardees. These include in the first place:
 - ▷ Market Validation;
 - ▷ Accelerated commercialization and “first-mover” advantage;
 - ▷ New products and services;
 - ▷ Penetration of and growth on new markets;
 - ▷ Possible cases of market disruption.

The SME-I positively affects the economic performance of its Phase II awardees.

- ▶ **Finding 14 – Phase II support allows SMEs increase their company turnover.** SMEs having finalized their Phase II project experience an increase in turnover. The SME-I is seen as a key source of the company increases in turnover, the Phase II project under the scope being at the source of 85% to 100% of the company sales in almost all cases.
- ▶ **Finding 15 – The SME-I leads to more jobs.** All SMEs increased their human capacity and went through a growth in employment over the past years.
- ▶ **Finding 16 – The SME-I facilitates the investment process.** Phase II support brought SMEs additional outreach and leverage toward (potential) investors. It diminished investment risks and facilitated SMEs’ access to investors.

The SME-Instrument brings European Added Value (EAV) at different levels

- ▶ **Finding 17** – The design of SME-I is the source of its comparative added value. The value proposition of the SME-I consists first in a unique combination of key features including the market orientation, technical features (co-funding rate, support amount and the possibility for pre-payment), the possibility for single SMEs to apply without setting up any consortium, as well as the mix of 'soft' and 'hard' innovation support instruments.
- ▶ **Finding 18** – The SME-I has a unique "Label Effect". The reputational effect is a strong unique asset of the SME-I when compared to other public funding schemes. EU branding is in that sense a source of European Added Value.
- ▶ **Finding 19** – The international scope of the SME-I is source of its EAV. The SME-I is not bounded by any regional and national borders. It operates at an international scale and targets international markets. It therefore offers a unique value compared to regional and national support schemes, opening SME awardees to a broader market of competences.

- ▶ **Finding 20** – The SME-I remains complementary to other existing forms of public support. The SME-I remains complementary to other public funding schemes that either do not cover the same Technology Readiness Levels (TRL), and/or do not offer a similar mix of support tools, and/or do not operate at the same level.

The SME-I Phase II support therefore leads to strong positive effects on the supported SMEs, effects that spill over to other spheres of society (thanks to jobs creation, new medical treatments, environment-friendly solutions, etc.). It builds among other strengths upon its scope – both international and close-to-market – as well as on the integration of innovation and market concerns.

It offers critical amounts of funding as well as appropriate Business Acceleration Services and Coaching that not only support the company during the award's duration but also helps it in the sustainable development of its own capabilities. Finally yet importantly, it offers a flexible and adaptive form of grant and support management provided by EASME that was highlighted as a key strength by the company interviewees.

"The SME I is an accelerator of the SME technology deployment process and a network enabler toward international markets."

Dr. Pierre Padilla, Rapporteur of the Expert Panel

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1. Introduction

This introductory section provides contextual information allowing for a clearer positioning of the SME-I as well as of the present assignment. Further to a brief description of the policy context, the scope of the overall study is introduced before a description of the approach to this report.

1.1 Policy Context

Supporting SMEs in their efforts to overcome the “Valley of Death”

Obstacles to SME Innovation. Innovative firms play a key role in the knowledge-based economy as they can be a source of new jobs, radical innovations, productivity growth, as well as a key driver to the behaviour of established firms¹. Small and Medium Enterprises (SMEs) however face natural difficulties due to their limited financial and organisational capabilities and often face critical barriers to the commercialisation of their innovative ideas. The latest phases of the innovation process in particular (usually referred to as the latest stages of the Technology Readiness Level [TRL] scale²) are usually associated to higher costs for the SME and a lower concentration of available public support (see Padilla, 2016³). When trying to link post-prototyping activities such as industrial demonstration and upscaling to the market, innovative SMEs are thus

confronted to the lack of financial and market-oriented support.

Acting at the EU level. The “*Europe 2020 Strategy*” aims at creating smart, sustainable and inclusive growth, to bring Europe out of the economic crisis⁴. In that context the European Commission (EC) emphasized innovation as a major driver to overcome the uncertain economic situation and foster the economic recovery and growth in the European Union (EU). Following the previous Framework Programmes (FPs), Horizon 2020 (H2020) was designed in that context as “*the biggest EU Research and Innovation programme ever with nearly €80 billion of funding available over 7 years (2014 to 2020)*”⁵. It is now being implemented as an instrumental piece of the European policy mix to foster the innovation-based growth of Europe. It also builds upon other action lines such as (among others) the Investment Plan for Europe⁶, the Capital Markets Union Actions

¹ Joern H. Block, Massimo G. Colombo, Douglas J. Cumming, Silvio Vismara (2017), “*New players in entrepreneurial finance and why they are there*” Small Business Economics. <https://doi.org/10.1007/s11187-016-9826-6>

² See the European Commission Decision C(2014)4995, Part 19

³ Pierre Padilla (2016), “*Policy learning through strategic intelligence: the American small business innovation research program (SBIR) and British small business research initiative (SBRI)*” Enschede: Universiteit Twente DOI: 10.3990/1.9789036540575

⁴ See the European Commission Europe 2020 Strategy, available at https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/european-semester/framework/europe-2020-strategy_en

⁵ European Commission, “*What is Horizon 2020?*”, available at <https://ec.europa.eu/programmes/horizon2020/en/what-horizon-2020>

⁶ See the European Commission page on the Investment Plan for Europe at https://ec.europa.eu/commission/priorities/jobs-growth-and-investment/investment-plan-europe-juncker-plan_en

Plans⁷ and Open Innovation strand of H2020⁸.
'Leadership in enabling and industrial technologies'⁹.

EU Support to SMEs. SMEs have been put at the core of the European efforts to foster the relation between its knowledge base and the EU and world-wide markets. Different reference schemes are currently in place: they were made available for SMEs to be able to develop key capabilities and access the best possible networks and commercial channels. Examples include Europe's programme for small and medium-sized enterprises (COSME) programme¹⁰, the EUROSTARS programme¹¹, the Enterprise Europe Network (EEN)¹², but also non-dedicated support through the European Structural and Investment Funds (ESIF)¹³ or collaborative projects under H2020 sub-programmes such as the "*Nanotechnologies, Advanced Materials, Advanced*

Manufacturing and Processing, and Biotechnology" (NMBP) sub-programme.

Addressing the "Valley of Death". However, innovation support was for SMEs mainly directed to activities of which the centre of gravity is usually located around the TRL 5-6. Other streams addressed only partially the so-called "*European Paradox*" in an adapted fashion. Leaving the area of fundamental research traditionally covered by R&D support, the SME overcoming the prototyping stage would face the reduction of available public support while getting closer to the commercialisation stage; but the risks associated to the innovativeness of the SME project and the often "*young*" financial track record of the company would not allow the entrepreneur(s) to turn to corporate finance providers such as private banks, venture capitalists, etc.¹⁴

⁷ See the European Commission page on the Capital Markets Union at https://ec.europa.eu/info/business-economy-euro/growth-and-investment/capital-markets-union_en

⁸ European Commission, Directorate-General for Research and Innovation (2016), "*Better regulations for investment at EU level*", Commission Staff Working Document available at <http://ec.europa.eu/research/openinnovation/index.cfm>

⁹ REGULATION (EU) No 1291/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020) and repealing Decision No 1982/2006/EC http://ec.europa.eu/research/participants/portal/doc/call/h2020/common/1595116-h2020-eu-establact-oj_en.pdf

¹⁰ See the COSME web page at https://ec.europa.eu/growth/smes/cosme_en

¹¹ See the Eureka web page presenting the Eurostars programme at <https://www.eurostars-eureka.eu>

¹² See the EEN web page at <http://een.ec.europa.eu>

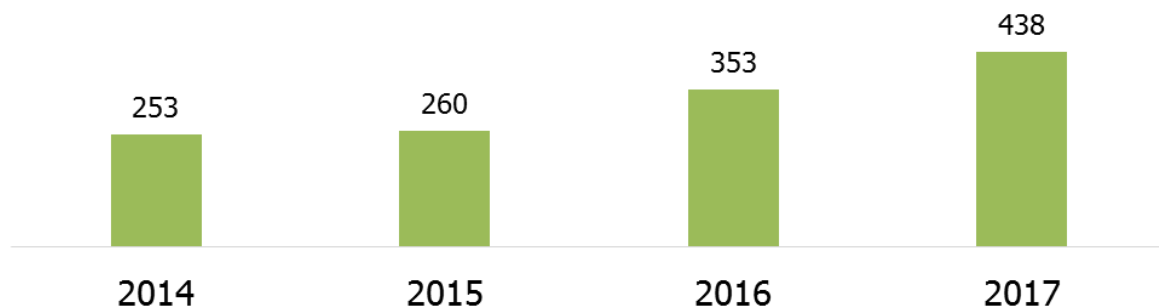
¹³ See the ESIF web page at http://ec.europa.eu/regional_policy/en/funding/

¹⁴ See Padilla (2017), Keynote Speech to the Budapest Industry 4.0 Conference organized by the European Commission (DG REGIO) in collaboration with the Hungarian Government – 20-21 of September 2017. Reference: Expert to the European Commission on Industry 4.0 and Smart Cities (Individual contract N°CCI 2017CE160AT055)

The SME-Instrument

Overview. The SME Instrument (hereunder referred to as "SME-I") was launched under H2020 and has been running for three years. The SME-I is provided with €3 billion over the period 2014-2020 (see also Figure 2).

Figure 2: SME instrument annual budget for Phase I and Phase II (in € million)



Source: EASME, 2017¹⁵

It aims at supporting high-potential SMEs to develop ground-breaking innovative ideas for products, services or processes that are ready to face global market competition¹⁶. Initially thought of as a pre-commercial procurement scheme, the SME-I was further developed as a hybrid instrument offering "smart money"¹⁷: equity-free funding accompanied by soft tools of importance to innovative SMEs such as coaching and market-oriented support to their commercialisation activities. In consequence, the SME-I does not act as a traditional innovation direct support tool: it bridges the so-called "Valley of Death" by acting as an innovation commercialisation

support scheme (Padilla, 2016) – switching focus from traditional project funding to companies development and growth.

Key process features. In practice, the SME-I provides financial support in 2 phases as well as business support services and coaching. It is managed by the Executive Agency for SMEs (EASME) which organises competitive calls¹⁸ with cut-off dates to structure the selection process for each of the first two Phases.

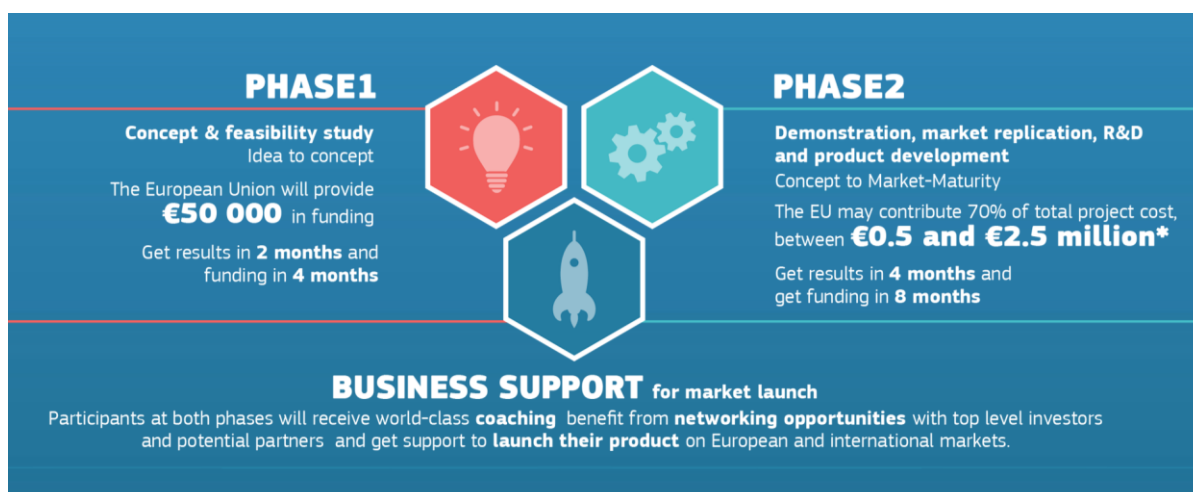
¹⁵ Executive Agency for Small and Medium-sized Enterprises (EASME) Unit A.2. Horizon 2020 SME Instrument (2017), "Accelerating innovation in Europe - Horizon 2020 SME Instrument impact report - 2017 Edition" https://ec.europa.eu/easme/sites/easme-site/files/accelerating_innovation_in_europe_horizon_2020_smei_impact_report.pdf

¹⁶ See the European Commission communication on SME Instrument at <http://ec.europa.eu/programmes/horizon2020/en/h2020-section/sme-instrument>

¹⁷ Executive Agency for Small and Medium-sized Enterprises (EASME) Unit A.2. Horizon 2020 SME Instrument (2017), "Accelerating innovation in Europe - Horizon 2020 SME Instrument impact report - 2017 Edition" https://ec.europa.eu/easme/sites/easme-site/files/accelerating_innovation_in_europe_horizon_2020_smei_impact_report.pdf

¹⁸ The process can be seen as highly competitive: 8.4% of Phase 1 applicants and 5.5% of Phase 2 applicants were eventually selected for funding (Source: EASME SME-I impact report, 2017)

Figure 3: Overview of the SME-I Process Structure



Source: EASME¹⁹

Single SME applicants but also consortia²⁰ are allowed to apply for direct funding (Phases 1 and 2) as well as an EU-wide pool of competences to source from (access to investors and corporate actors access to coaching competences, peer learning and sharing, participation to overseas and European trade fairs. Being part of the SME-I community, etc.).

Key instrumental features. The SME-I should not be reduced to a pure financial support scheme for Research and Development (R&D). Two main lines are at the core of its activities and focus:

- ▶ Direct support can take two main forms in that context. The first consists in feasibility assessment support which is offered in the context of an (optional) Phase 1. This Phase 1 support takes the form of a project-based lump

sum of up to €50.000 and a maximum of 70% of the project's total cost. The second consists in direct support to development and demonstration activities (Phase II support) which usually range between €500.000 and €2.5 million – still as a co-funding mechanism implying that the support represent around 70% of the total cost of the project²¹;

- ▶ Indirect support is brought through the provision of key coaching and mentoring services but also services aiming to support the capacity increase of SME awardees. These can thus relate to market strategy but also access to finance. Examples of support expertise include business planning, intellectual property, match-making with potential investors, as well as coaching and training in the areas of innovation, finance, organisation, business strategy, market intelligence, etc.).

¹⁹ EASME, "Horizon 2020's SME Instrument – Looking for Europe's next innovation leader", ISBN: 978-92-9202-126-9 ; DOI: 10.2826/35341

²⁰ The latest EASME SME-I impact report (2017) shows "94% of Phase 1 and 82% of Phase 2 applications were submitted by single companies" (instead of consortia)

²¹ European Commission, "The SME-Instrument", available at <http://ec.europa.eu/programmes/horizon2020/en/h2020-section/sme-instrument>

State of play. With more than 20 cut-off dates, the SME-I was reported to have received 31.377 applications in total (Phases 1 and 2) and having funded 2.690 individual SMEs for a total investment of €1100 million²²²³. The SME-I led up to now to six cases of Initial Public Offering (IPO) and 12 acquisitions (EASME, 2017). Progress was clearly shown in terms of the management of the scheme, leading to a more responsive and proactive

approach toward SME awardees. Although the time perspective remains limited, it is now possible to investigate the effects and first-range impacts the SME-I had over the supported SMEs. A comprehensive approach is therefore required as to analyse the contributions of the SME-I in view of its improvement and inclusion under the European Innovation Council (EIC)²⁴ key activity lines.

1.2 Scope of the study

Ambition. This study is aimed at assessing whether the SME-Instrument (SME-I) achieved its targeted commercial impacts at the level of each supported company that reached the end of its Phase II activities. In total 70 Phase II projects were finalised since the beginning on the programme – up to the 1st of July 2017.

The overall expert assignment is directed by an overarching research question which is the following: "*Is the SME-Instrument (SME-I) delivering growth and market creation?*" In order to address this key question, two main objectives and underlying sub- research questions were formulated which are presented in Box 1.

Box 1 – Key Objectives and Questions²⁵:

O1. Categorise the first finalised Phase II projects (70) using an evaluation framework according to their market/commercial success

- ▶ **Q1:** What are the proportions of projects showing: 1) demonstrated or 2) upcoming market success as well as 3) no particular or even 4) negative results?

O2. Understand the contribution of the SME-Instrument

In order to fulfil this first objective, the following guiding questions were

- ▶ **Q2:** What is the contribution of the SME-I to the commercial success of Phase II Awardees?

²² EASME (2017), "Horizon 2020 SME Instrument –Performance of the portfolio, Sept. 2017"

²³ The source also distinguished between the €990 million allocated in grants over €500k.

²⁴ See the European Innovation Council at <https://ec.europa.eu/research/eic/index.cfm>

²⁵ Based on the Expert Terms of Reference, p. 2 and reformulated in close collaboration with EASME

Working lines. Two main working lines were identified:

1. **Line 1 – Classification.**

First, the experts were asked to 1) finalise the taxonomy of (un-)successful SME-I Phase II projects in view of 2) operating a categorisation of the SME-I Phase II projects that were finalised by 01/07/2017. This categorisation of projects according to an operational framework was requested as to feed in the second Line of Work (see Line 2 below) but also as input to the reflection of both EASME and the European Innovation Council (EIC) over the possible quantified indicators and metrics that could be used to monitor the success of their initiatives targeting small business innovation. This categorisation should make use of the following qualitative and quantitative data: available review, coaching and Project Officer (PO) reports associated to each project, needs analyses, financial data, investment data, and web-based information).

2. **Line 2 – Contribution Analysis.**

Second, the experts were requested to conduct an analysis that would allow for a better understanding of the additionality and contribution of the SME-I to the commercial success of awardees. This analysis should support EASME, the European Commission and its institutions in their efforts to understand the SME-I and draw upon its strengths but also catch possible development opportunities. This implies an understanding of the factors attracting market-creating companies to the programme and of the mechanisms contributing to their success, including European Added Value of the SMEI in comparison with national and private funding. Such lesson-drawing exercise should help both EASME and the EIC not only with the current and future management of the SME-I but also with the design,

optimisation and improvement of other SME innovation support instruments. Building upon 7 project case studies, this second line of work should highlight the key contributions of the SME-I to the commercial success of its awardees. It should also highlight the additionality of the SME-I in comparison with other source of finance, either private or public (national/regional).

Defining impacts. Although the notion of impact is usually understood as the one of the “*long-term effects*” of a policy or programme, it is here to be understood as the effects induced by the SME-I in the targeted companies so that they reach “*commercial innovation*” success. Effectiveness is thus the main angle to analyse the SME-I on the basis of the material available and (qualitative) information still to be collected. Commercial success can in that context translate into market creation through the introduction of new products and services but also other types of innovations (process, marketing, etc.) resulting in an increased competitive position of the awardee and the creation of new market lines at either the company or/and market levels.

Time perspective. Due to the young age of the SME-I, this report focuses on a short time span and should therefore take into account emerging (or upcoming) commercial success(es). It was however acknowledged based on the experience of the Small Business Innovation Research Program (SBIR, U.S.) that commercially oriented innovations should be observed over time: it is now indeed widely agreed that SME innovation support can lead to commercial success on a medium- to long-run²⁶ and that short-term outcomes should not be the only ones to be considered.

²⁶ See Padilla, 2016

1.3 Approach to this report

Overview. The current deliverable is the final report of the study undertaken by an expert panel mandated by EASME and placed under the coordination of Dr. Pierre Padilla (rapporteur). This report integrates the two deliverables produced in the context of the expert assignment.

Line 1 – Classification. The writing of the Chapters 2 and 3 of the present report were based on 4 phases, their respective objectives and underlying 8 tasks. These sequential items are presented below:

► **Phase 1 – Scoping.**

The objective of this phase was to delineate the assignment and build upon a first exploration of the information available as to finalise the assessment framework.

- ▷ **T1.** Following the signature of a non-disclosure agreement, the first task consisted in an exploratory review of quantitative and the qualitative information available by the experts.
- ▷ **T2.** Brainstorming sessions were organised in order for the experts to finalise the “commercial success” taxonomy associated to the assessment framework used in the current deliverable.

► **Phase 2 – Data collection and aggregation.**

The objective of this phase was to collect and aggregate all necessary data for the assessment

- ▷ **T7.** Through the implementation of a dedicated workshop, an overall positioning of the 70 finalized SME-I Phase II projects

and categorisation of the first 70 finalised SME-I Phase II projects.

- ▷ **T3.** The experts cleaned and integrated the available quantitative and qualitative data provided by EASME ;
- ▷ **T4.** The experts complemented this aggregated overview with qualitative inputs gathered from the material delivered by EASME and selected external sources;

► **Phase 3 – Individual scoring.**

The objective of this phase was to implement the scoring model agreed upon by the experts in close collaboration with EASME.

- ▷ **T5.** A first round of individual scoring took place during which each expert scored a subset of finalised projects on the basis of the framework guidelines.
- ▷ **T6.** An interactive round took place as to harmonize all decisions and make sure all evidence and resulting arguments for each individual score were triangulated across the expert team, leading to a consensus over each single project score.

► **Phase 4 – Interim analysis and reporting.**

This phase was aimed at finalising the analysis according to the assessment framework. It eventually led to the synthesis of the results, the finalisation of the excel sheet containing all necessary information²⁷ and reporting the results in the present deliverable.

was operated and missing information was gathered to complement the remaining gaps;

²⁷ Attached to the present deliverable in line with the requirements from the Terms of Reference

- ▶ **T8.** Synthesize and report on the results of the overall exercise in view of the next stage of this study – the selection of contribution case studies for the final report.

Line 2 – Contribution Analysis. The second block was elaborated around 4 key phases grounded into 8 case studies:

▶ **Phase 5 – Case selection.**

This phase consisted in the selection of cases relevant for further research. Based on the classification exercise, this selection was carried out while taking into account the 3 following main

criteria: 1) Necessity to be a clear commercial success case; 2) Necessity to show an additional form of success besides sales or contract signature (a/merger, b/acquisition, c/additional investment, or d/market breakthrough); 3) Positive advice from the available report regarding the potential and/or achievements of the project.

- ▶ **T9.** The experts pre-selected a number of projects based on the above criteria.
- ▶ **T10.** The final selection was discussed with EASME services who validated the final selection of cases. The selected cases are presented in Table 1 below.

Table 1: Case Study - Selection

#	Company	Coaching
1	MOSAICOON S.P.A.	yes
2	OSAUHING ANF	yes
3	SWORD HEALTH SA	yes
4	ZenRobotics Ltd.	No
5	MULTIPOSTING	No
6	FRACTUS SA	No
7	KIOSKED OY AB	No
8	Xpand biotechnology	No

Source: the authors, 2017

▶ **Phase 6 – Case study preparation.**

This phase aimed to prepare the case study protocol, including the process, interview guidelines, reporting templates, and other relevant input and repository structures relevant to the preparation of the case studies. It also entailed the collection of relevant information, ranging from the collection of documentary evidence to the process of organizing the interviews.

- ▷ **T11.** Structuration of the information repository.
- ▷ **T12.** This task was dedicated to the structuration of the repository from where informative data would be collected and analysed. It was therefore carried out in combination with other tasks from Phases 7.

▶ **Phase 7 – Implementation of the data collection process.**

This task consisted in the implementation of the research methods. Following relevant analytical guidelines:

- ▷ **T13.** A documentary analysis was performed, based on the review of relevant analytical dimensions (attraction mechanisms, contribution of the SME-I Phase II support to the commercial success of awardees, and its European Added Value).
- ▷ **T14.** Semi-structured interviews were carried out between the 14th of November 2017 and 5th of December 2017. They followed clear guidelines which can be found in annex of the present report.

▶ **Phase 8 – Analysis and reporting.**

This task focused on single and cross-case analyses:

- ▷ **T15.** A synthesis and analysis of all information collected was operated. Single case study analyses were operated on the basis of all information available (from interview reports to company website information).
- ▷ **T16.** Single and cross-case analyses were reported using the template available in annex.

Sources. The data sources were provided by the EASME and to a limited extent complemented by additional qualitative information gathered during the desk research performed by the experts. The data sources used in that context include the following:

- ▶ At the Project level²⁸
 - ▷ Project application of the awardee – description of the action
 - ▷ Periodic Review (PR) Questionnaire
 - ▷ Case tracker information: coaching activities' report(s)
 - ▷ Technical report by the awardee
 - ▷ Project Officer (PO) assessment report (final and/or interim)
 - ▷ Publishable summary of the project
- ▶ At the company level
 - ▷ Dealroom.com²⁹: information about industries, B2B/B2C market orientation, revenue model and external investments

²⁸ When available

²⁹ See <https://dealroom.co>

- ▷ Amadeus database (managed by Bureau Van Dijk): information about turnover, employment and valuation of the Intellectual property (IP) portfolio
- ▷ Web search: company website, press releases for information on commercial deals, additional investor information and information on awards/rankings

We refer to the Excel data sheets provided to EASME by the experts (in line with the contractual Terms of Reference) in which the different data sources are further specified per variable used for the assessment.

In addition, the case study research led to the collection of additional evidence. These were collected by means of:

- ▶ Available data and documentation provided by EASME services in the context of the classification exercise.
- ▶ Complementary documentary sources, often web-based or provided by EASME services.

Semi-structured interviews with policy officers and company representatives; The Table 2 below provides an overview of the people interviewed during the research process. Both company representatives and EASME officials in charge of the relevant dossiers were targeted.

Table 2: List of interviewees

Name	Position	Organisation	Date of Interview
Victor Noguera	Finance Director	FRACTUS SA	01/12/2017
Jaume Anguera	Founder Partner/R&D Manager	FRACTUS SA	01/12/2017
Matti Korkalainen	SVP Global Business Operations	KIOSKED OY AB	01/12/2017
Delia Di Bona	Chief Analytics Office	MOSAICCOON S.P.A.	28/11/2017 & 04/12/2017
Clement Lambert	Co-founder & CEO	MULTIPOSTING	01/12/2017
Aleksei Tretjakov	Project Coordinator	ANF Development	15/11/2017
André Eiras dos Santos	COO	SWORD HEALTH SA	14/11/2017
Ditty Damström	Head of Finance	ZENROBOTICS Ltd.	17/11/2017
Frank-Jan Van Der Velden	Chief Financial Officer	XPAND BIOTECHNOLOGY	28/11/2017
Romain Bouttier	Policy Officer	EASME	23/11/2017
Laura Perez Garrido	Policy Officer	EASME	04/12/2017
Ted Eriksson	Policy Officer	EASME	23/11/2017
Geraldine Nee	Policy Officer	EASME	01/12/2017

Source: the authors, 2017

2. Finalized SME-Instrument Phase II Projects: Key Characteristics

Before looking into the commercial success of these projects (see next chapter), the current section seeks to offer a brief overview of the portfolio and present the main characteristics of the 70 awardees under the scope. The finalized SME-I Phase II descriptive statistics that follow are in this same section put in perspective with the overall allocated SME-I Phase II awards.

Note: As highlighted in the introductory section, this study emphasizes a specific population made of all 70 SME-I Phase II projects that have been finalized before July 2017. These awardees are thus exclusively companies that received SME-I Phase II funding and reached the end of the foreseen support by the time of the expert assignment – the results of the finalized Phase I projects³⁰ were therefore not included in this analysis.

2.1 Country of origin

Figure 4 depicts the repartition of finalised SME-I Phase II projects across countries.

Although the SME-I is open and available to all member states and H2020 associated countries, the Phase II projects that have been finalised at the time of the study originate from 20 countries of which 17 are official EU Member States:

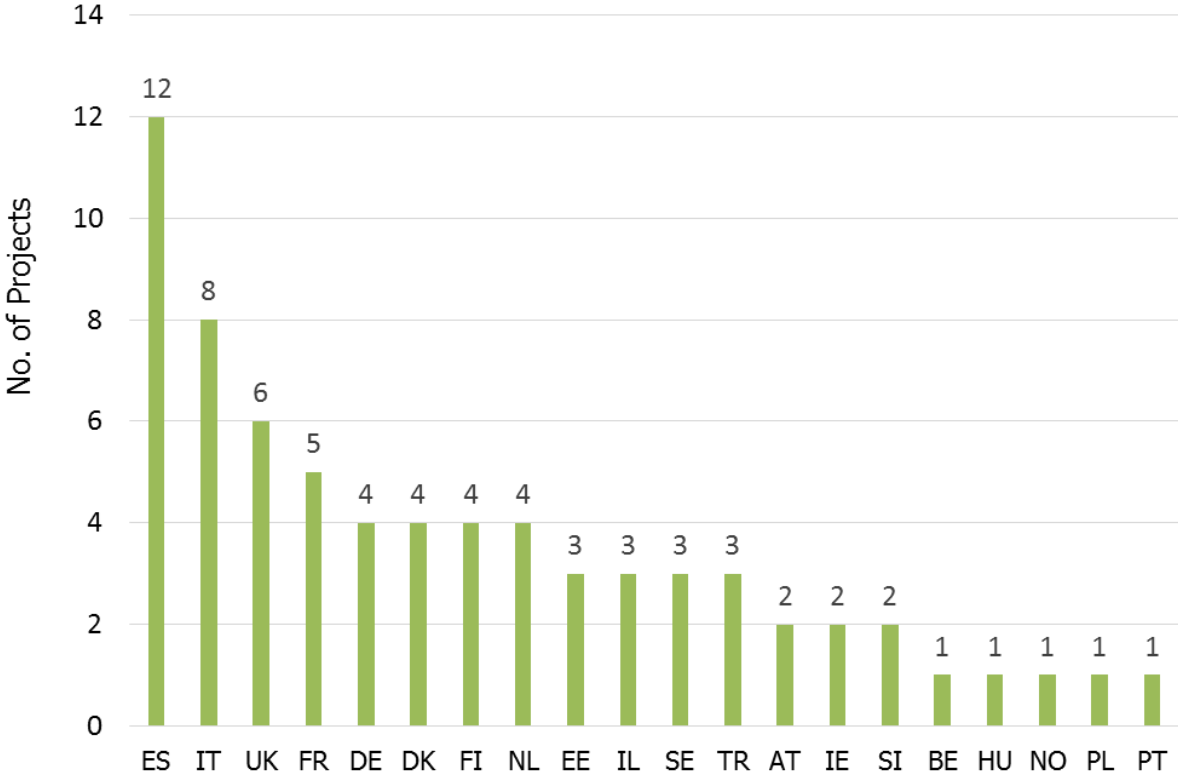
- ▶ **Member States:** Spanish SMEs are the ones that have benefited the most from Phase II support with 12 supported projects. Spanish

awardees are followed by Italian ones (8 projects funded under SME-I Phase II), the United Kingdom (6 projects) and France (5 projects). Germany, Denmark, Finland and the Netherlands follow with each 3 Phase II projects that came to an end.

- ▶ **Associated countries:** Across the all portfolio of 70 companies, 6 SMEs come from associated countries: 3 of them are located in Turkey, 2 in Israel and 1 in Norway.

³⁰ Which should either lead to a Phase 2 application or award; a negative decision over the feasibility of the initial idea; or the private undertaking of its development and deployment.

Figure 4: Distribution of finalised SME-I Phase II Projects per country

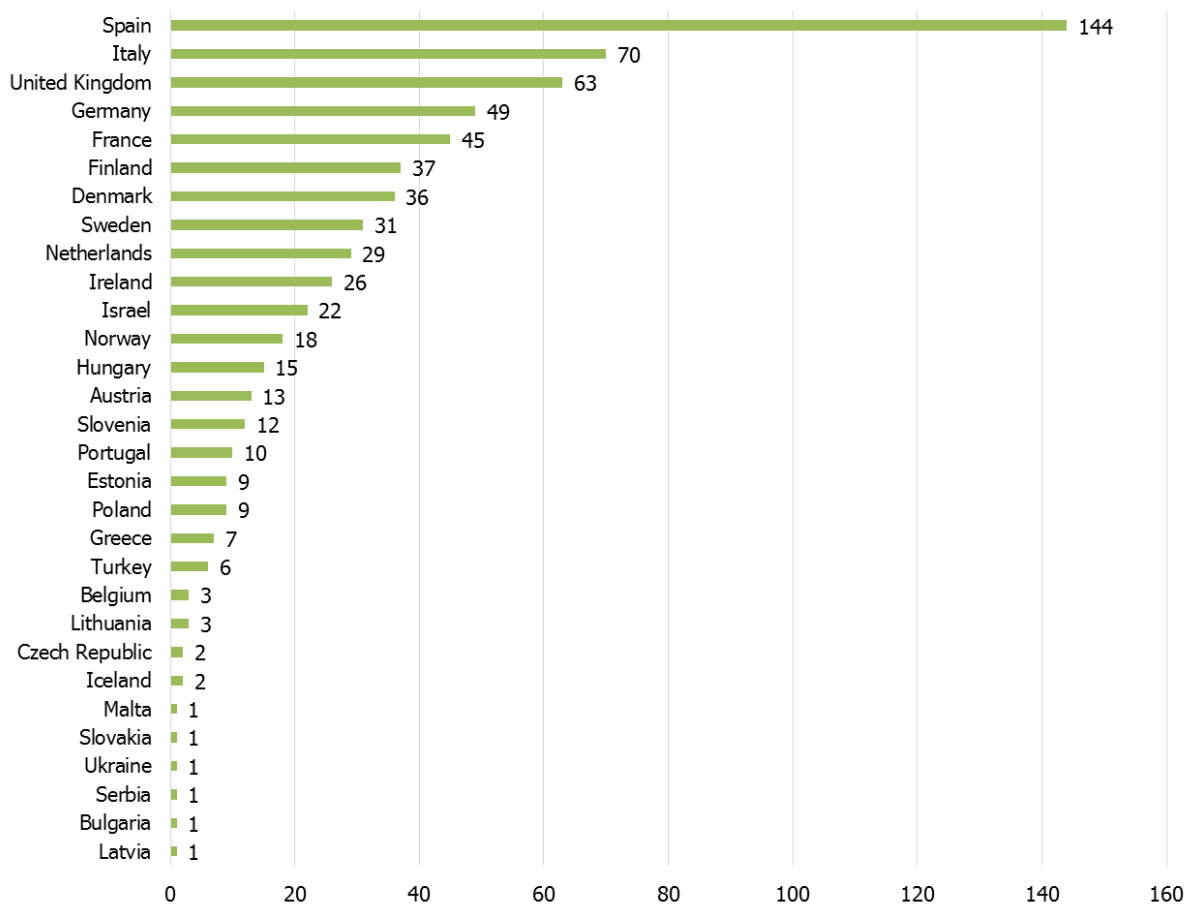


Source: The authors, based on EASME data (n=70)

Figure 5 shows the allocation of SME-I Phase 2 awards across countries with no distinction being made between finalized and on-going projects. It is clear that the allocation patterns at both SME-I Phase 2 level and finalized project levels are very much alike, with on the frontline Spanish awardees, followed by Italian and British project holders.

Although passed the three lead countries the precise allocation order slightly differs from Figure 4 to Figure 5, the distribution groups remain similar with Western European countries showing more awards and finalized projects compared to followers – including Eastern European and associated countries.

Figure 5: Distribution of SME-I Phase II Awards per country



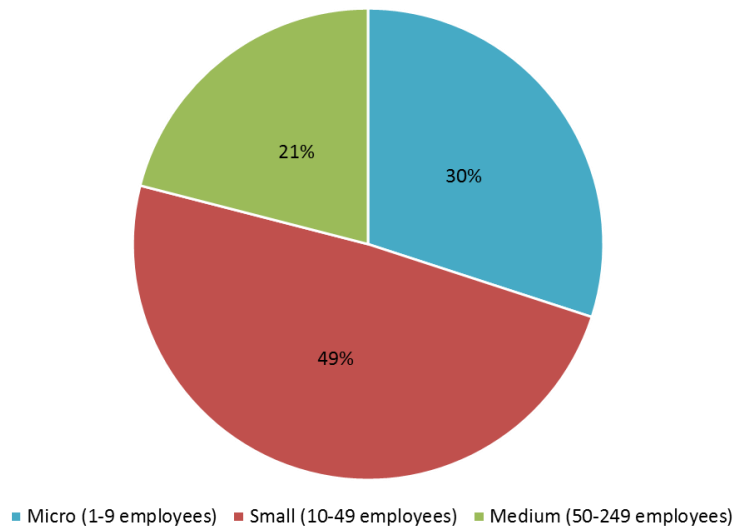
Source: The authors, based on EASME data (n=667)

2.2. Company size

Figure 6 depicts the segmentation of awardees according to their size – not in terms of capital but in terms of the number of employees per company. One can notice that the majority of SMEs under the scope are small companies (34 awardees in total,

49% of the population under the scope) while Micro- (21 in total) and medium companies (15 in total) together reach an almost equivalent share of the population of Phase II awardees with a finished project than small ones.

Figure 6: Size of SME awardees who finalised their Phase II project

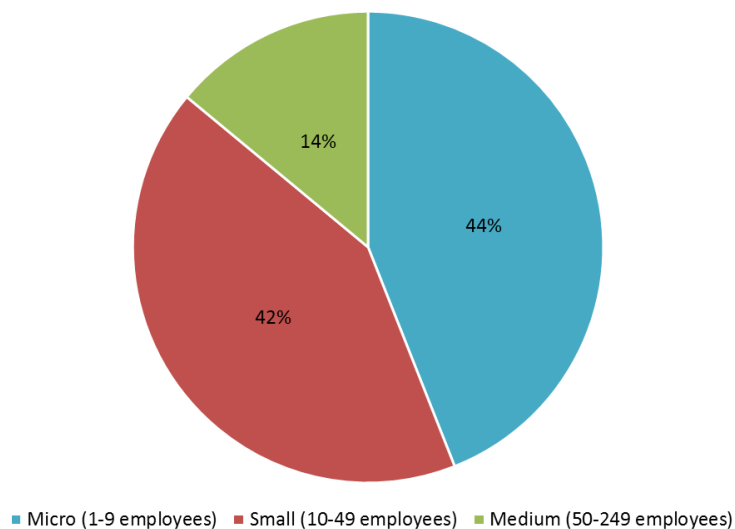


Source: The authors, based on EASME data (n=70)

The sample of SME-I Awardees showcased in Figure 6 differs from the overall SME-I Phase II picture which is shown in Figure 7 below. Figure 7 shows that micro- and small companies share almost the same amount of SME-I Phase II awards (with respectively 44% and 42% of the overall amount of

Phase II awards), while the previous Figure 6 shows that mainly small companies reached the end of their Phase II project (with 52% of the finalised Phase II awards against a total of 48% for micro- and medium companies altogether).

Figure 7: Size of SME-I Phase II Awardees



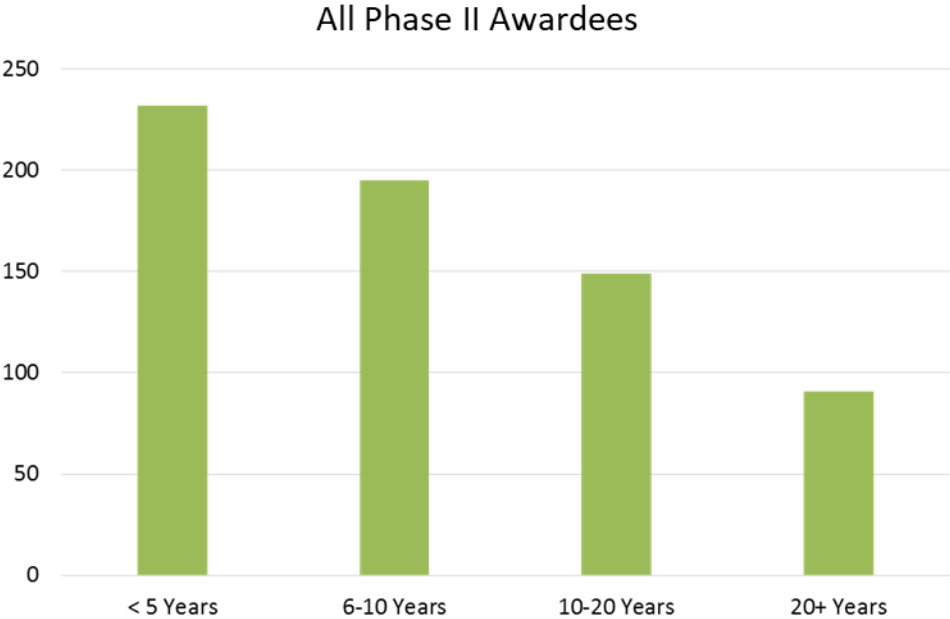
Source: The authors, based on EASME data (n=633)

2.3 Company age

While Figure 8 illustrates the segmentation of all SME-I Phase II awardees based on the available date of company creation, Figure 9 focuses on the awardees that finalised a Phase II Project.

While the former emphasizes the young age of most Phase II awardees at the SME-I level (64% of all SME awardees being less than 10 year-old³¹), the latter shows that most of the finalised Phase II projects (61%) were steered by SMEs aged between 6 and 20 year-old.

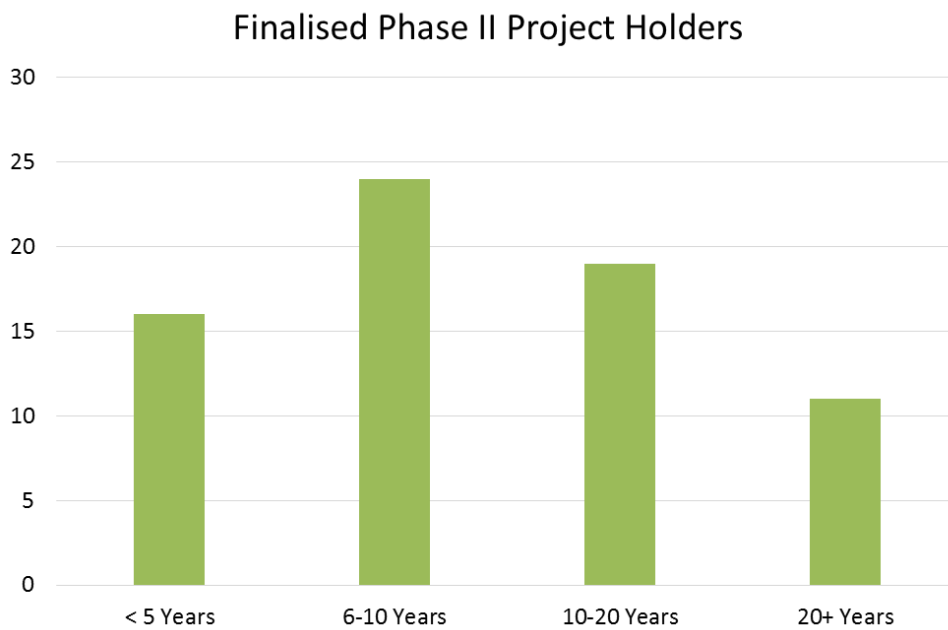
Figure 8: Age of SME-I awardees who finalised a Phase II project, based on the date of company creation



Source: The authors, based on EASME data (n=667)

³¹ 232 companies being 5 year old or less and 195 being 10 year old or less out of a total of 667 SME Phase II awardees

Figure 9: Age of SME-I awardees based on the date of company creation



Source: The authors, based on EASME data (n=70)

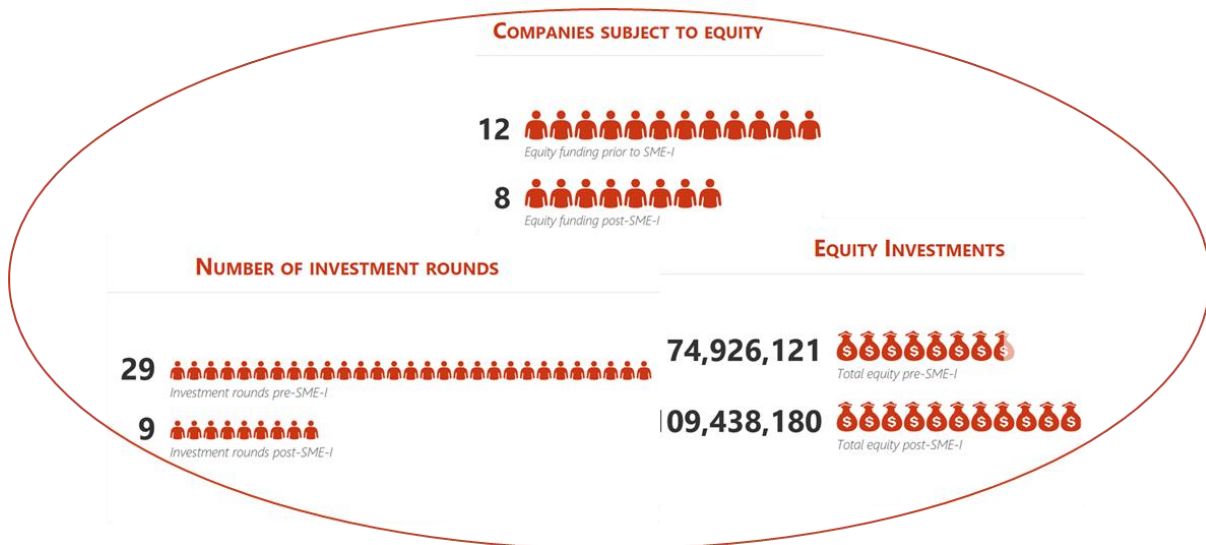
2.4 Ownership structure and external investors

The majority of participating SMEs are privately owned (81%). However, according to Dealroom information³² external (private) investors are present in 13 SMEs. They span from venture capital (VC) investors to business angels (BA), accelerators and other private equity (PE) investors. In addition, 1 SME was acquired by a corporation in the post-SME-I period. According to the information collected from Dealroom, 12 SMEs had already attracted external equity investment prior to the SME-I grant (since 2012). Together, they attracted €74.9 million. 29 investment rounds were reported. 8 SMEs

received PE investment after receiving SME-I support, for a total amount of €109.4 million. This amount was raised in only 9 investment rounds, indicating that post-SME-I investment rounds involve significantly larger investment amounts than pre-SME-I investments. 6 organisations received PE investment both prior and after SME-I support. The correlation between the impact of the SME Instrument and attracting PE investment is however still to be determined. Figure 10 illustrates this state of play.

³² Based on information available in Dealroom.com, excluding grants (status October 9th 2017)

Figure 10: Overview of equity investments pre- and post-SME-I funding



Source: the authors, based on Dealroom data

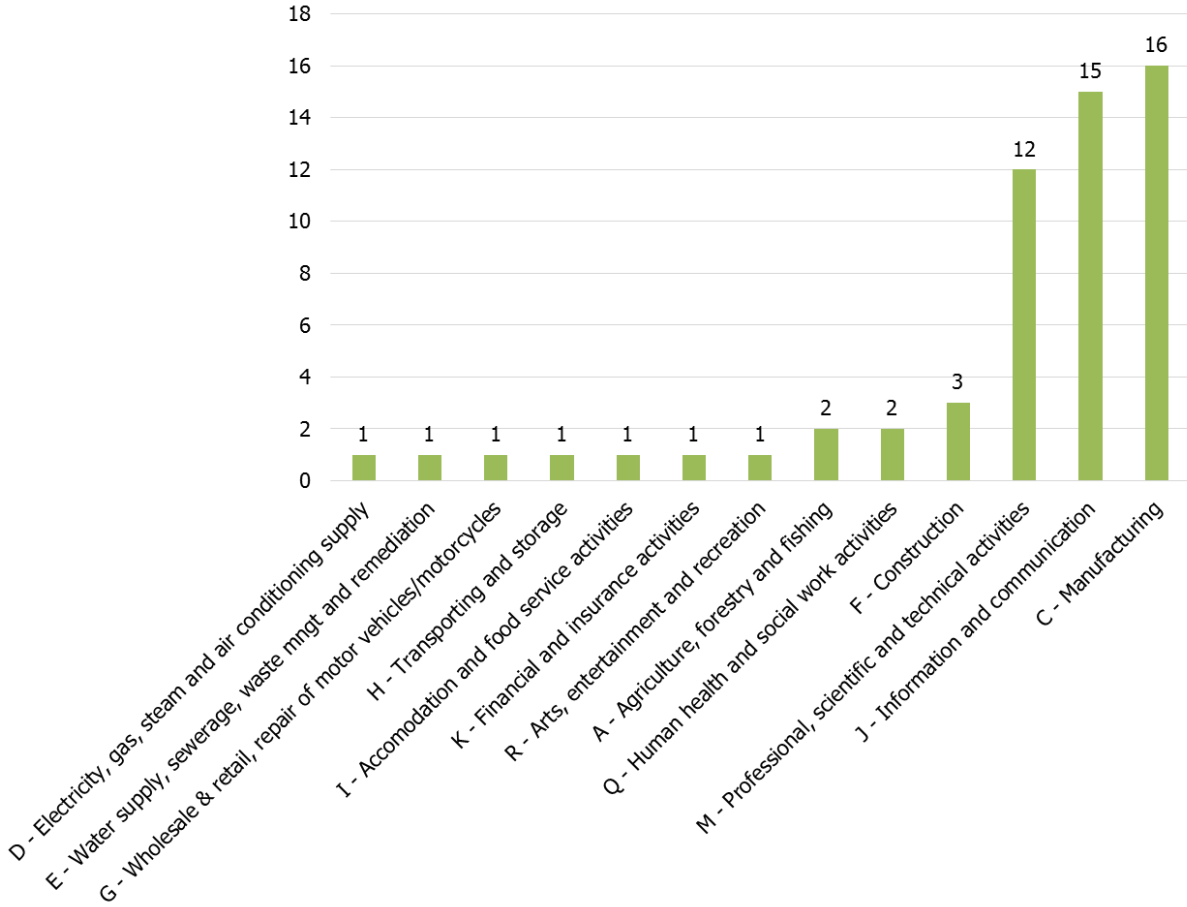
2.5 Sector of operation and Industry Coverage

Figure 11 illustrates the spread of SME awardees who finalized a Phase II Project across NACE sectors³³. It illustrates the weight of Manufacturing (C – 16 SMEs), information and communication (J – 15 SMEs)) as well as professional, scientific and technical activities (M – 12 SMEs), altogether

accounting for 75,4% of all finalized SME-I Phase II project holders. They are followed by three sectors represented by 3 SMEs (construction) as well as 2 SMEs (both human health and social work activities as well as agriculture, forestry and fishing).

³³ Reference classification: ISIC Rev.4 – International Standard Industrial Classification of All Economic Activities, Rev.4

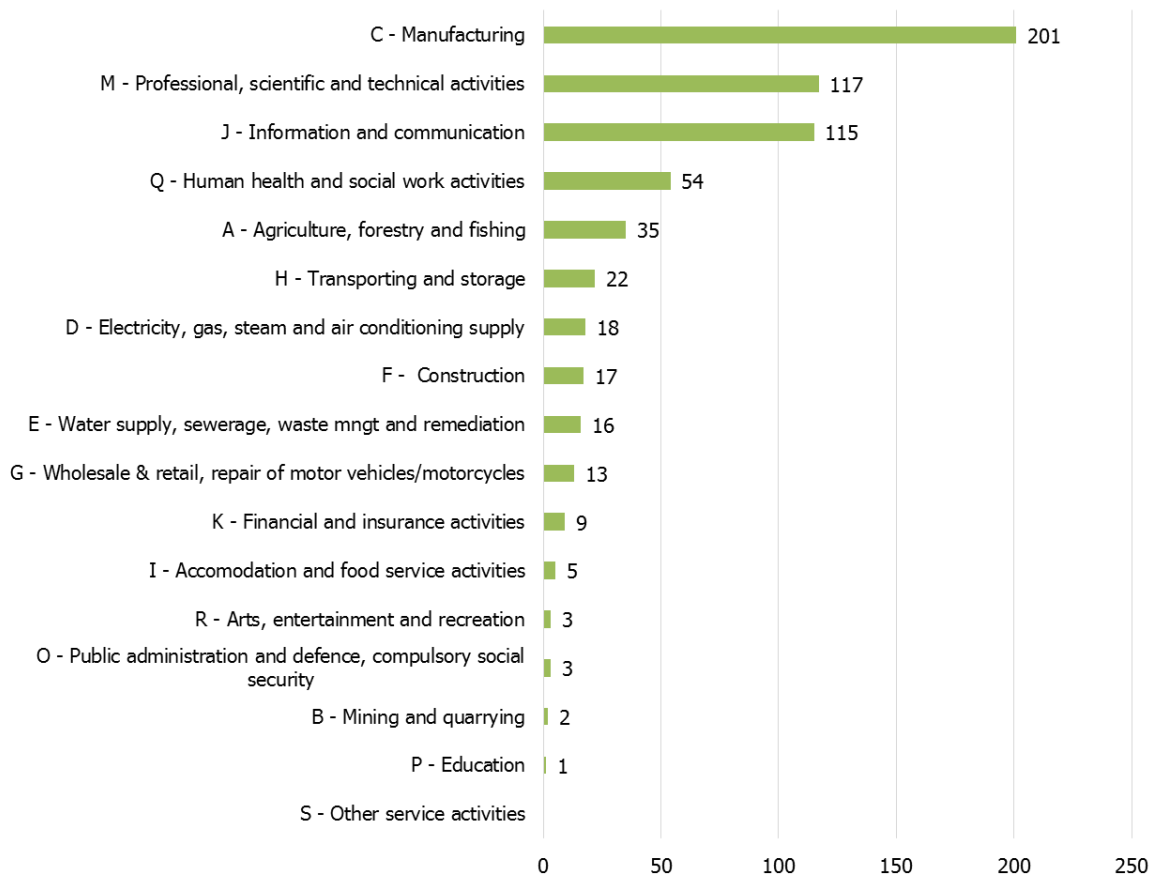
Figure 11: Finalised SME-I Phase II Project Awardees' sector affiliation (NACE)



Source: The authors, based on EASME data (n=57)

Figure 12 confirms the predominance of the three NACE sectors (C, M, and J) in the overall population of SME-I Phase II awardees – although the sector of information and communication drops to the third place while professional, scientific and technical activities rise to the second position in the ranking.

Figure 12: SME-I Phase II Awardees' sector affiliation (NACE)



Source: The authors, based on EASME data (n=632)

In Figure 13 we can see in which industries the finalised SME-I Phase II Project Awardees are active. They are most active in the fields of medical healthcare, analytics, energy, cleantech and fintech.

Figure 13: Finalised SME-I Phase II Project Awardees' industry representation*



Source: The authors, based on Dealroom information (information available for n=65) (tool: www.wordle.net)

*Some SMEs fall in more than one category

A similar dominance of medical healthcare, cleantech and energy can be found in the portfolio of all SME-I Phase II Awardees (see Figure 14). Fintech and analytics are less represented.

Figure 14: SME-I Phase II Awardees' industry representation*



Source: The authors, based on Dealroom information (information available for n=641) (tool: www.wordle.net)

*Some SMEs fall in more than one category

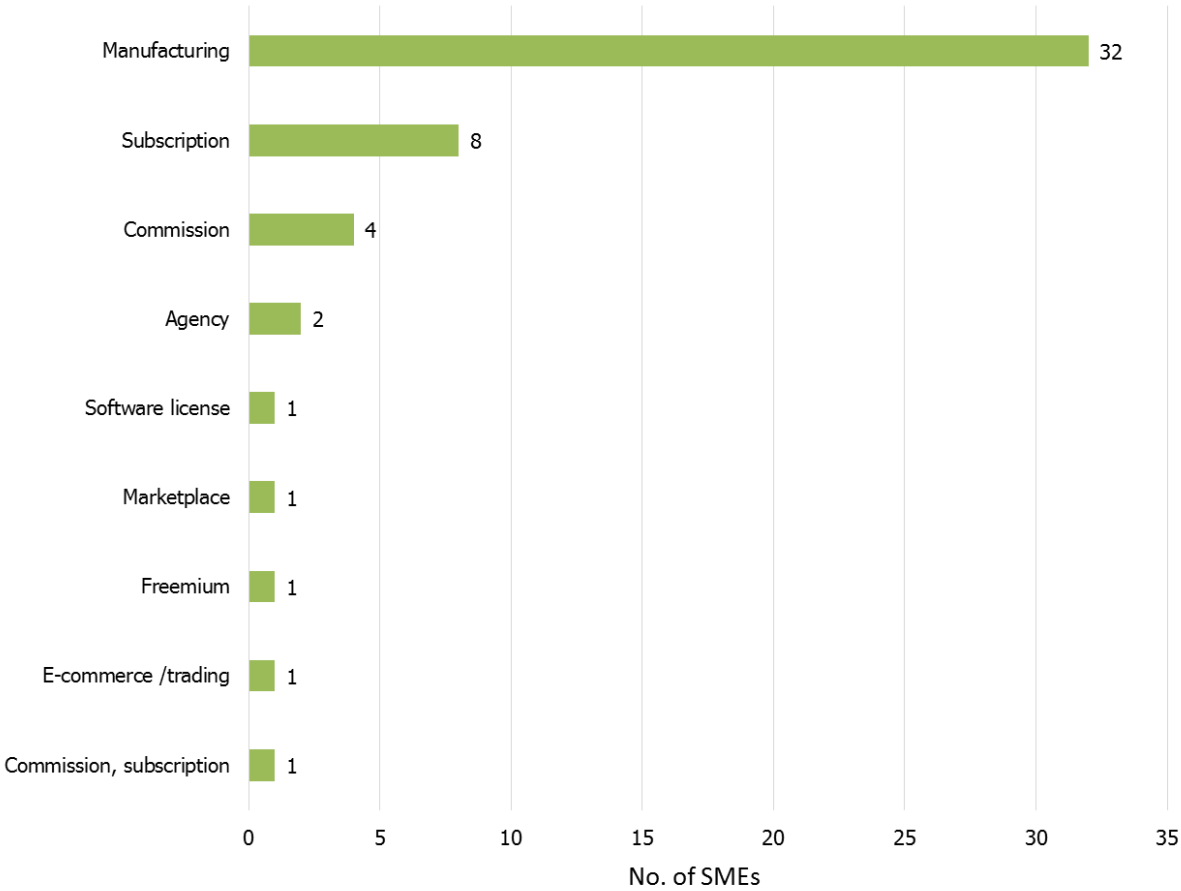
2.6 Current business offering and revenue model

Figure 15 presents the revenue generation model adopted by the finalized SME-I Phase II project holders³⁴. The large majority of SME awardees (62,7%) have a model based on revenues issued from manufacturing (see Figure 15). While 8 SMEs

build their revenue model on subscription, 4 others based their income generation on commissions. The other remaining revenue models only count for a single observation each.

³⁴ The dealroom approach to revenue models makes the distinction between the following: Revenue Model definition: Manufacturing (Selling of produced goods); Subscription (Recurring payment: monthly, yearly); Commission (Business charges a fee for a transaction that it mediates 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, for example consultancy companies); Ecommerce/trading (This revenue model is the implementation of any of the other revenue models online) – Source: Dealroom, 2017

Figure 15: Finalized SMEs-I Phase II Project holders' Revenue Generation Model

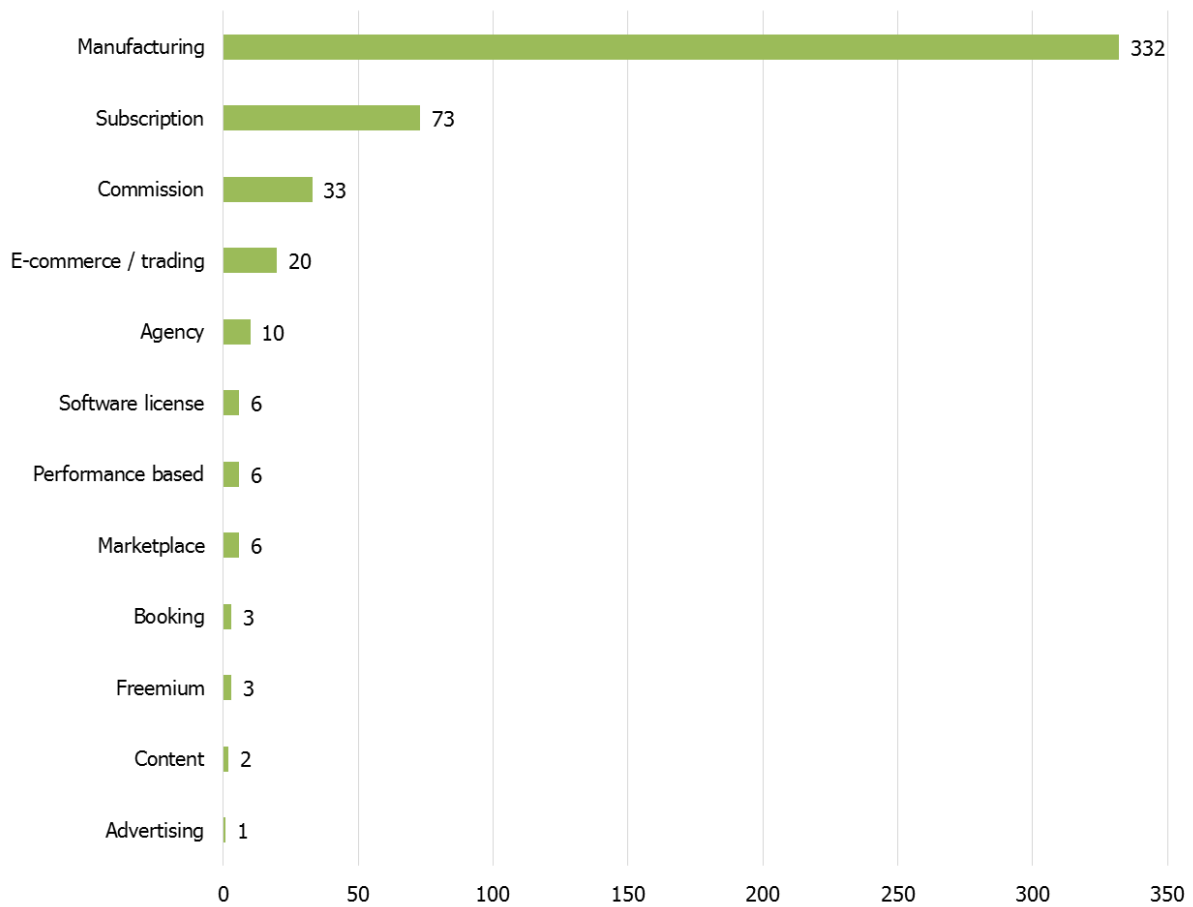


Source: The authors, based on Dealroom data (n=51)

The data concerning the Phase II Finalised project holders fits the overall SME-I Phase II picture presented in Figure 16. This figure again shows the large predominance of manufacturing (this time

70% with 332 observations) over the second group of models starting with subscription (73) followed by commission (33), ecommerce/trading (20) and agency (10).

Figure 16: All SMEs-I Awardees' Revenue Generation Model

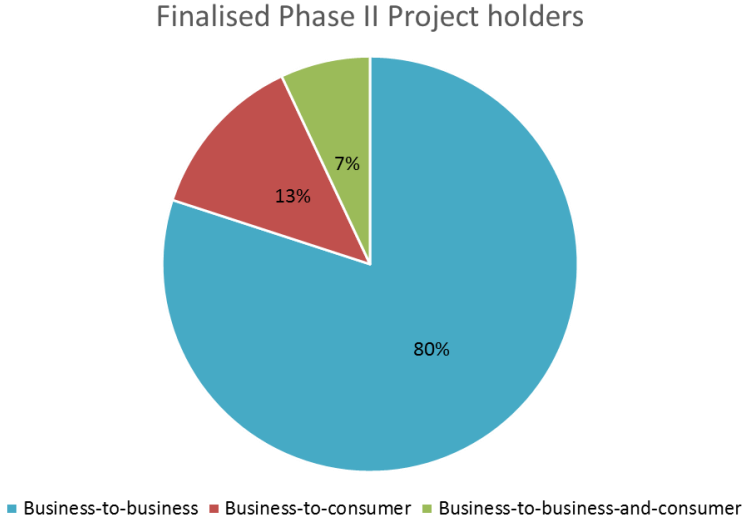
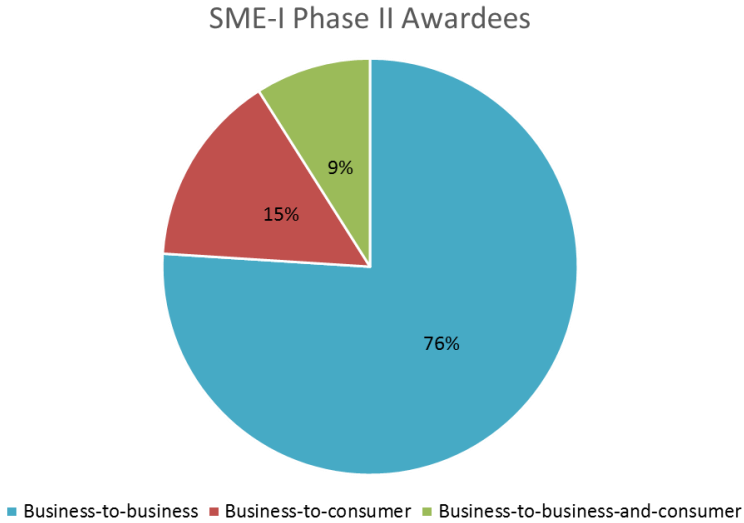


The authors, based on Dealroom data (n=473³⁵)

Figure 17 illustrates the type of commercial transaction model adopted by all SME-I Phase II awardees as well as the ones who reached the end of their Phase II project. In line with the overall population of SME-I Phase II awardees, the finalised Phase II project holders relate less to business-to-consumer (B2C) and more to the dominant model of business-to-business (B2B) transactions. In a similar proportion than B2C SMEs, the mixed model of business-to-business-and-consumer (B2B&C) is the less favoured model with 46 and 4 corresponding SMEs (out of respectively all 504 and the 54 finalised SME-I project holders).

³⁵ Including 450 unique observations (only one model selected) and 23 multiple choices (two or more models selected)

Figure 17: Commercial Transaction Model



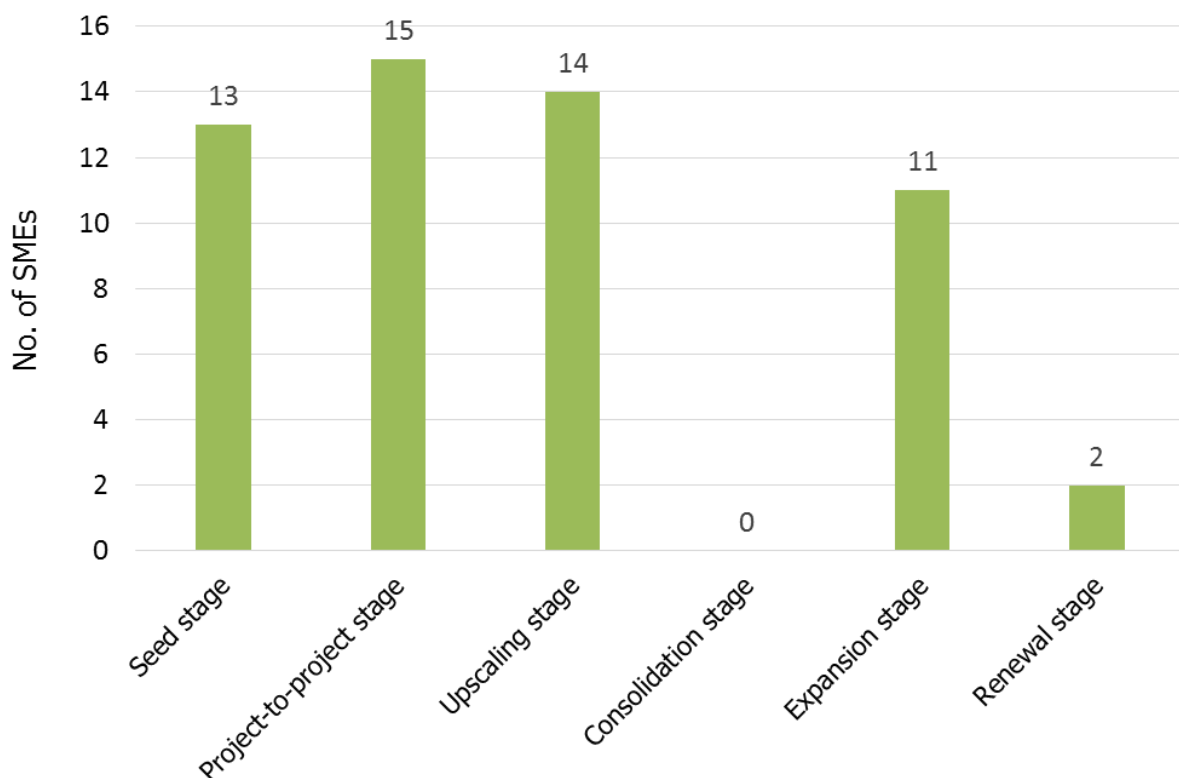
Source: the authors, based on Dealroom data (from left to right: n=504 and n=54)

2.7 Project life cycle at the start of the SME-I Phase II trajectory

Figure 18 focuses on the companies that finalised their SME-I Phase II project. It shows that most of the supported organisations were at the project-to-project phase (15) at the moment of receiving the SME-I Phase II funding, followed by the ones

emphasizing upscaling (14), seed (13) and expansion stage (11). Only two organisations were at the renewal stage before being funded under the SME instrument and none of the SMEs referred to consolidation.

Figure 18: SMEs' life cycle stage at the start of the SME Instrument Phase II trajectory – Finalised Phase II Project holders

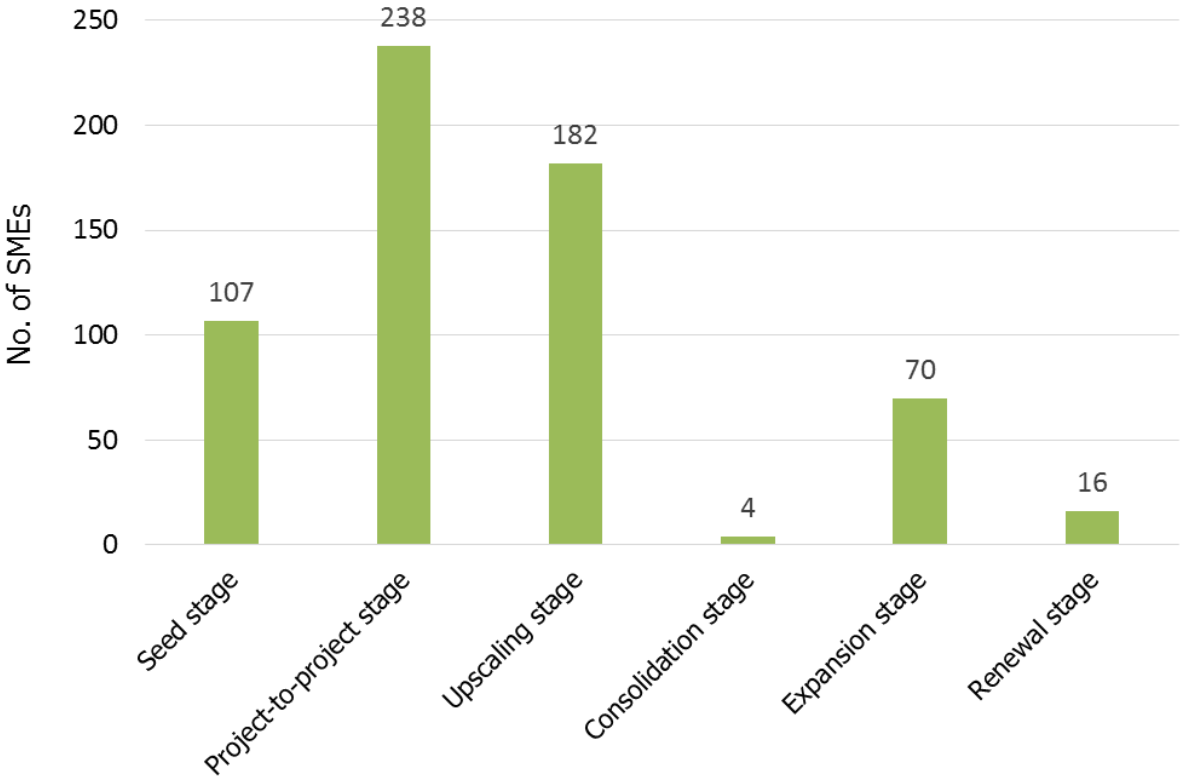


Source: The authors, based on EASME data (n=55)

It compares to the overall population of SME-I Phase II awardees which shows that 238 out of the 617 awardees for which information is available (thus 38,5% of the SME-I Phase II awardees) declared to be at a stage of project-to-project while 182 SMEs (29,4% of all SME-I Phase II awardees)

related to upscaling. Unlike the SMEs who finalised a Phase II Project, the overall population however seemed proportionally less related to the seed stage when beginning their Phase II trajectory and 4 awardees identified themselves as being in a phase of consolidation.

Figure 19: SMEs' life cycle stage at the start of the SME Instrument Phase II trajectory – All SME-I Phase II Awardees



Source: The authors, based on EASME data (n=617)

The following evaluation was conducted on the available subset of all Phase II projects finalised by the 1st of July 2017. It is to be noticed from the current chapter that although there was no intent to

create a statistically representative sample, the characteristics of the subset of 70 finalised projects show features that are in general very similar to the overall population of Phase II project.

3. Performance of the finalized SME-Instrument Phase II projects

This section describes the Performance Assessment Framework conceptualized and operationalized by the Experts in close collaboration with the EASME services. The description of the main features of the Performance Assessment Framework is followed by a review of the results from the application of this framework to the information currently available regarding the finalized SME-I Phase II projects.

3.1 Performance Assessment Framework

One key filter: "Commercial Success/Market creation". The key to this exercise is the positioning of the finalized SME-I Phase II projects in function of the market creation seen through the confirmed innovation-based commercial success. Therefore, the emphasis was placed on the commercialization of new products, services, solutions, etc. but also the mobilization of additional investments. No emphasis was put on the positive

spill-overs observed along the individual scoring of projects, such as the ones relating to pre-commercial success signals (patenting activities, etc.) unless they were clearly associated with a proven commercial result.

4 key positions. The Framework was defined in function of 4 possible positions which correspond in categories. These are illustrated in Figure 20.

Figure 20: Performance Assessment Framework - Key Categories



Source: the authors, 2017

A definition of each category composing the Performance Assessment Framework is presented below.

- ▶ **A: Demonstrated (innovation-based) Commercial Success.**

This category concerns the SME-I Phase II awardees who met some clear (and sometimes outstanding) commercial success based on the

received SME-I support. The "A" category therefore concerns projects and thus project holders having passed the commercialization stage and having 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.**

The "B" category relates to projects that passed the commercialization stage but do not show (yet) outstanding market results. They are seen as positive as they reached the market and comply with the commercial achievement(s) targeted when applying for and implementing their SME-I Phase II support. Although they can also show highly promising signs of commercial success but also question marks when coming to their ability to reach their full potential, it is to be noticed that the categorization relies upon the factual information available at the time of the assessment.

▶ **C: Current Absence of Targeted Commercial success.**

This category relates to projects that did not show commercial results yet but are also not showing any confirmed sign of failure. "C" projects (and thus companies) can therefore sometimes show great results but not yet any commercial achievement per se. It is to be noticed that companies in the process of negotiating first contracts or finalizing their first SME-I Phase II project-related deals naturally fall under this category as the commercial is anticipated and not yet proven. Also companies encountering a neutral (neither positive nor negative) effect on their business activities fall under this heading. These companies are expected to evolve in the near future either towards "B" (or an "A"); or not survive the market test and fall to "D".

▶ **D: Commercial Failure.**

The SME-I Phase II projects leading to bankruptcy, mid-way project termination, will fall under the "D" category. These projects and the companies steering them can thus be considered as commercial failures as long as they are associated with negative commercial performance following the SME-I Phase II award.

Supporting criteria. Several criteria were used as to position each project according to the Performance Assessment Framework. The key criteria and associated categorization results are provided below:

1. **Criterion 1 – Commercialisation**

▶ *Description: Acknowledgement of (a) first contract(s) and/or sale(s)*

▶ *Result: Criterion leading to the minimum attribution of a "B" score*

2. **Criterion 2 – Investment.**

▶ *Description: Acknowledgment of (an) external investment(s) gathered after the SME-I funding was attributed to the project holder*

▶ *Result: Criterion leading to an "A" score whenever above €1 Million and as long as it is combined with demonstrated first contracts/sales*

3. **Criterion 3 – Acquisition.**

▶ *Description: Acquisition of the SME-I Phase II awardee following the attribution of SME-I Phase II funding*

▶ *Criterion leading to an "A" score as long as first contract(s)/sale(s) was/were demonstrated*

4. **Criterion 4 – Project stop.**

▶ *Description: Project cancellation and/or well justified suspension before any sign of commercial success; or highly negative results (bankruptcy) associated to the SME-I Phase II project holder's trajectory.*

▶ *Criterion leading to an automatic "D" score*

5. **Criterion 5 – Additional support criteria**

▶ *Description: Set of 4 sub-criteria (2 leading to discriminatory conclusions, the other 2 leading to a refined view on the company/project performance) being used as to further support the orientation of one or more of the above discriminating criteria.*

a) Qualitative appraisal – Discriminatory

i. PO Assessment over project management and perspective in terms of commercialization activities

▶ *Additional criterion allowing for a more accurate delineation of a "C" versus "D" score*

ii. Coaching Assessment over project management and perspective in terms of commercialization activities

▶ *Additional criterion allowing for a more accurate delineation of a "C" versus "D" score*

b) Qualitative appraisal – Non-discriminatory (complementary signals)

i. Growth in Employment and turnover (generic)

▶ *Additional criterion allowing for a finer understanding of the performance of the company in charge of the SME-I Phase II project under the scope*

ii. Awards and prizes (generic)

▶ *Additional criterion allowing for a finer understanding of the performance of the company in charge of the SME-I Phase II project under the scope – in particular as a sign of better performance through increased recognition.*

These criteria were used as a way to frame the positioning of projects depending on key conditions: for example, a company falling under the "B" category would have to demonstrate commercial success by at least first sales and/or first commercial contracts. The combination of first sales/contracts and post-SME-I external investment(s) would provide the project with an "A" score.

3.2 Categorization of the finalized SME-Instrument Phase II projects

By applying the aforementioned criteria, the Experts agreed upon the scoring of each individual project. Each project was thus associated to a given score ranging from "A" (Highly Positive) to "D" ((Highly) Negative). Figure 21 provides an overview of the results per category.

Figure 21: Clustering of finalized SME-I Phase II projects according to score categories

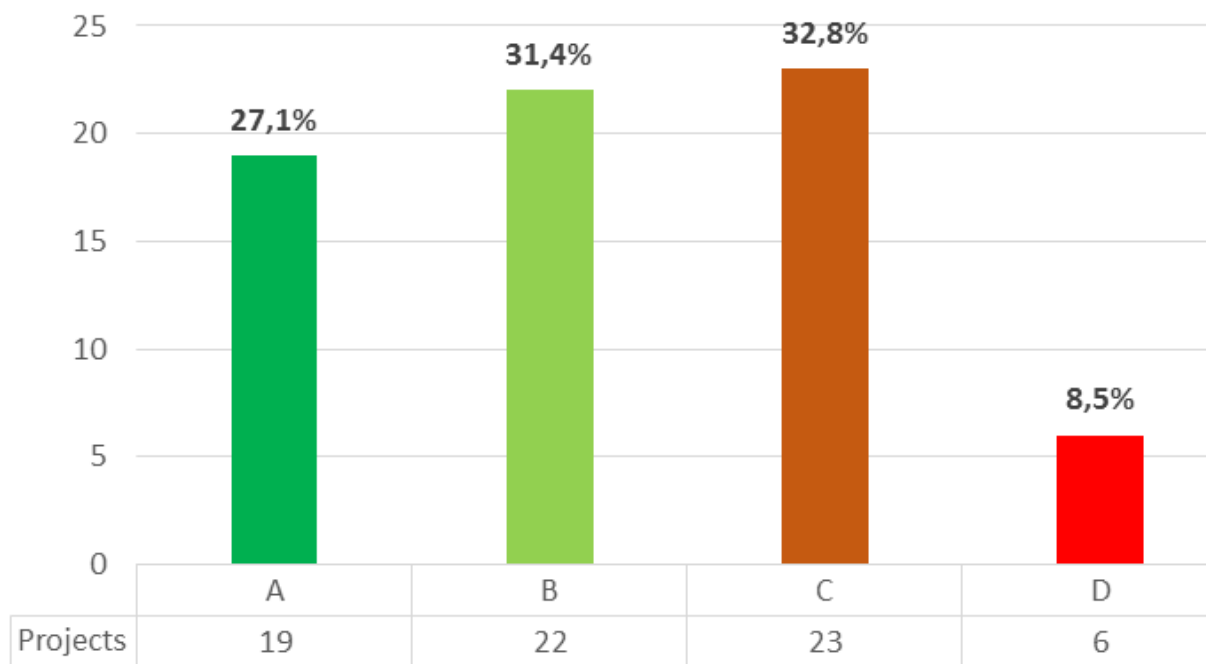


Source: the authors, based on EASME data (n=70)

Figure 21 shows that the “A”, “B” and “C” categories are associated to similar ranges (respectively gathering 19, 22 and 23 projects). It also highlights a low number of “D” projects. Figure 22 quantifies the proportions reached by each of the

score categories, showing the higher proportion of “C” projects (32,8% of all finalized projects under the scope), very closely followed by “B” projects (31,4%). “A” scores take a lower rank (27,1%) while “D” scores the lowest (8,5%).

Figure 22: Quantification per score category



Source: the authors, based on EASME data (n=70)

This repartition allows for some key results. These are presented in the following section (Section 3.3).

3.3 Results from the mapping and analysis of the finalized SME-I Phase II Projects

A closer look at the results from the categorization exercise and a cross-analysis of its results with key characteristics of the project holders leads to the following findings:

► **Finding 1 – More than a quarter of SME-I Phase II projects led to highly positive commercial success.** Among these successful SMEs, 19 companies showed highly positive results while (usually illustrated by outstanding market performance and/or the mobilization of additional investments following the Phase II

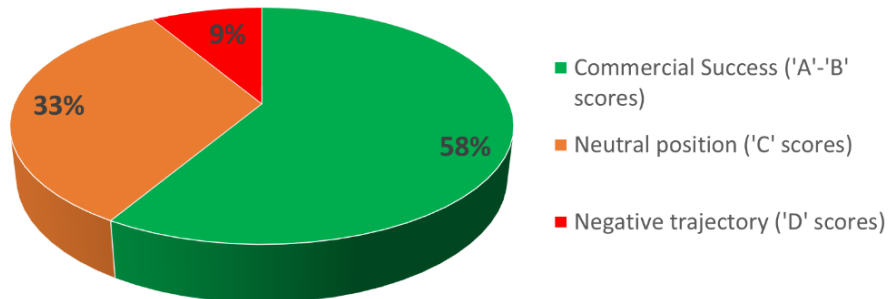
support). These represent more than a quarter (27,14%) of the overall sample of 70 finalized SME-I Phase II projects.

► **Finding 2 – A large share of positive to highly positive commercial success.** It also shows that despite of the reduced time span (the projects being assessed were finalized very recently), 41 of the 70 projects (thus 58.57% of the finalized Phase II projects under the scope) showed positive results in terms of commercial success. Having scored an “A” (19

projects) or a "B" (22 projects), these projects are positioned on the top row of the Performance Assessment Framework. This can

be understood through an aggregation of "A" and "B" scores as illustrated by Figure 23.

Figure 23: Polarized distribution of scores



Source: the authors, based on EASME data (n=70)

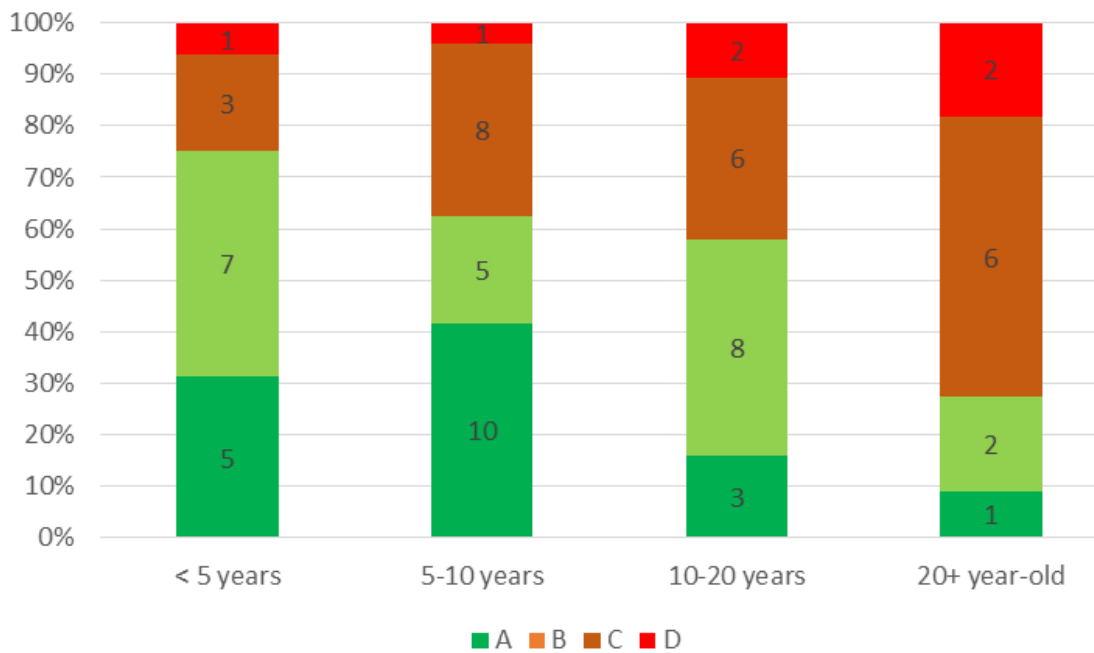
- ▶ **Finding 3 – 8.5% of SME-I Phase II supported projects led to negative commercial outcomes.** The clustering of projects per category shows that few projects fall under the "D" category: finalized SME-I Phase II projects are thus not showing significant signs of negative effects.
- ▶ **Finding 4 – Neutral ("C") projects do not show (yet) commercial success but can cover a (sometimes highly) promising potential.** It is to be noticed that this assessment provides an early view at recently finalized Phase II projects. This parameter is of critical importance when considering the fact that 23 projects still show a neutral ("C") score. This position should not be misinterpreted: although it can show the absence of acknowledged commercial success for the supported SME as a result of a Phase II project, an in-depth review of the "C" projects shows that most of the time the company is:
 - ▷ Either still progressing in its demonstration activities or at a too early stage for considering commercialization; or

- ▷ (Very often) still in the process of negotiating first sales and contracts with potential customers.

Many projects positioned in the "C" category are thus on the edge of commercial success but are included in this category as the commercial success is still to be demonstrated.

- ▶ **Finding 5 – Younger companies show more SME-I Phase II commercial success at this stage.** Figure 24 shows the repartition of scores across the age categories used in Section 2.3 of the current report. One can notice that companies younger than 10 years (including the SMEs with 5 years of existence or less) show more commercial success than older companies (10 to 20 year old to some extent, but more noticeably when older than 20 year old). The strongest commercial success is to be observed in the "5-10 years" category – companies with experience and more likely to have a "solid" financial track record than younger ones.

Figure 24: Distribution of scores across age categories

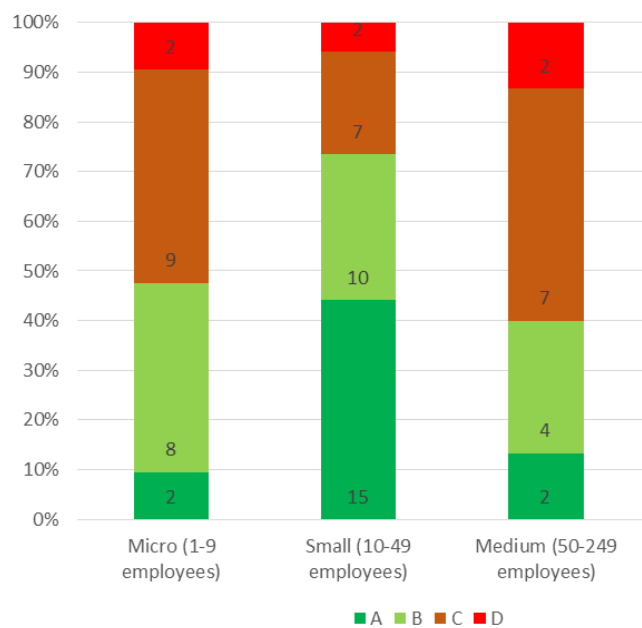


Source: the authors based on EASME data (n=70)

► **Finding 6 – Small companies show more commercial success than medium and micro-companies.** Figure 25 shows the repartition of scores across the size categories used in Section 2.2 of the current report. One

can notice that while medium and micro-companies share similar profiles, small companies (with 10 to 49 employees) show more commercial success overall but also more outstanding commercial success.

Figure 25: Distribution of scores across size classes



Source: the authors based on EASME data (n=70)

3.4 Synthetic conclusion of the classification exercise

The current chapter led to a descriptive mapping of the 70 SME-I Phase II projects finalized before July 2017 while putting them in perspective with the overall SME-I Phase II figures. While neither key differences nor noticeable deviations are being observed at this stage, some key trends can be observed that usually apply to both the overall SME-I Phase II project population and the sample of 70 finalized project under the scope (such as regarding

the geographical distribution of projects, the size of the companies under the scope, etc.).

In addition, this report formalized the classification (mapping) of finalized SME-I Phase II projects according to the Performance Assessment Framework setup by the experts in charge of the exercise.

Figure 26: Mapping the commercial success of finalized SME-I Phase II projects



Source: the authors, based on EASME data (n=70)

This classification led to **6 main findings** which are the following:

- ▶ **Finding 1** – More than a quarter of SME-I Phase II projects led to highly positive commercial success
- ▶ **Finding 2** – A large share of positive to highly positive commercial success
- ▶ **Finding 3** – The SME-I Phase II support led to a very limited number of negative commercial outcomes
- ▶ **Finding 4** – Neutral (“C”) projects do not show (yet) commercial success but can cover a (sometimes highly) promising potential
- ▶ **Finding 5** – Younger companies show more SME-I Phase II commercial success at this stage

- ▶ **Finding 6** – Small companies show more commercial success than medium and micro companies

At this stage and after running correlation analyses, the experts found no significant result correlating the business model or sector affiliation to the commercial success of companies. In the longer run however, the repetition of this exercise could provide fine insights concerning the trends observed according to quantifiable parameters (sectors/value chains, market affiliation, business models, etc.). Such intelligence is needed and could be developed yearly or on a two-year basis as to feed in the monitoring and evaluation efforts in the benefit of the SME-I.

4. Analysis of the contribution and European Added Value of the SME-Instrument

Following up on the first phase of this study, a selection of eight projects was operated by the Experts in close collaboration with EASME services. The selection was focused on projects classified as having (very) positive outcomes (including performance-wise), showing a sectorial diversity and a mix of characteristics such concerning the attraction of new investments. The selected projects were analysed in the context of dedicated case studies. This chapter introduces the key findings derived from the cross-case analysis and depicts each of the eight case studies in sequential order.

4.1 Approach to the case study process and analysis

Goal. In order to develop a structured understanding of the contribution of the SME-I Phase II support, the following sub-section presents the main findings from the cross-case analysis. This analysis is based on a thorough review of the 8 case studies depicted under Section 4.2. Every key finding was checked across each case to identify recurring variables. The goal was to focus on positive results as to analyse in more depth the contribution and value added of the SME-I.

Case study procedure. The case studies were protocolled in line with the questions derived from the overarching research questions for this study. Besides the information available from the categorization exercise, additional qualitative insights were gathered through a documentary review as well as semi-structured interviews with both Policy Officers (POs) and company representatives. Each data collection method was based on a dedicated analytical grid, which translated into the interview guidelines as well as

the reporting template for individual and cross-case study reporting.

Key topics. In line with the research questions that guided the case study process, the cross-case analysis mainly emphasized the following 3 topics:

1. How SMEs discover the SME-I and why they decide to apply for Phase II support;
2. The contribution of the SME-I to the commercial success of Phase II awardees;
3. The European Added Value (EAV) of the SME-I Phase II support.

Note to the reader. In the core text of the cross-case analysis (see Section 4.3), each case study is referred to by a particular code (which can be found in Table 3 below) expressed between parentheses. The reference to one or more case studies is aimed at illustrating which case study/ies bring(s) clear evidence to support a given conclusion. Each code is presented between parentheses in the text.

Table 3: Reference codes used in the cross-case analysis

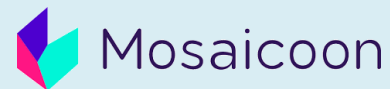
Company	Code	Company	Code
Fractus	1	Mosaicoon	5
ANF Development	2	Multiposting	6
ZenRobotics	3	Sword Health	7
Kiosked	4	Xpand Biotechnology	8

Source: the authors, 2018

4.2 Understanding the contribution of the SME-Instrument: individual case studies

4.2.1 Mosaicoon

Company. Mosaicoon³⁶ was setup in 2010 and first grew in an incubator affiliated to the University of Palermo (IT). Mosaicoon developed into an online platform or “*marketplace*” which aim is to connect worldwide video makers to advertising agencies, corporates and other consumers of digital creative content. With offices in Isola, London, Madrid, Milan, New Delhi, Rome, Seoul and Singapore, Mosaicoon is now present in Europe, Middle East and Africa (EMEA) as well as in Asia-Pacific (APAC) areas³⁷.



Company trajectory

Solution. Mosaicoon is a one-stop shop connecting brands that want to run multi-channel video advertising campaigns to creative makers (“*creators*” or “*creatives*”)³⁸. In addition to bridging the demand for and supply of creative content, part of the value proposition offered by Mosaicoon’s matchmaking software is to significantly reduce intermediary costs. Through a single dashboard, brand managers and creators have control over the

entire creation process of an online video campaign, its distribution and monitoring³⁹.

Trajectory. Since their launch, the company has undergone three rounds of venture capital investments, two before and one during the SME-Instrument (SME-I). Although the company was launched in 2010 it was only in 2016, thanks to SME-Instrument support, that Mosaicoon was able to successfully launch the matching platform and underlying software for testing.⁴⁰ It grew

³⁶ See company website at <https://mosaicoon.com/> (consulted on 04/12/2017)

³⁷ Source: company website <https://mosaicoon.com/> (consulted on 04/12/2017)

³⁸ Source: Ref. Ares(2015)3918726 - 23/09/2015

³⁹ Source: Ref. Ares(2015)3918726 - 23/09/2015

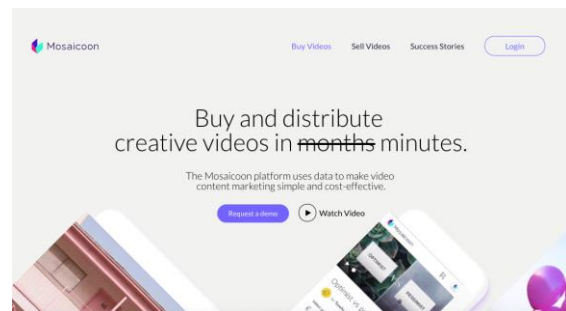
⁴⁰ Source: company interview, 04/12/2017

internationally and is now seeking additional co-investment, exploring investment tracks opened by the SME-I activities.

State of play before SME-I. The company developed a platform that required further scaling up. Mosaicoon faced key challenges when it came to the commercialisation of its solution⁴¹:

- ▶ From a product development perspective, further back-end and front-end development was needed to integrate all platform components⁴².
- ▶ With a non-finalised product, Mosaicoon had no direct relation with nor feedback from end-users, therefore lacking market validation inputs.
- ▶ From a commercial point of view, the relationship between the platform and the clients/early adopters was to be tested. A reaction from users was needed, regarding for instance key features and the ease of use associated to the platform.
- ▶ Another challenge concerned the integration of the new software into Mosaicoon's existing platforms for production and distribution⁴³.

- ▶ Overall, funding was missing to support these activities, demonstration support not being easily accessible.



SME-I Phase II: project description

Outreach channel. It was thanks to one of its Venture Capital investors that Mosaicoon's company representative learned about the SME-Instrument and decided to attend relevant events in order to learn more about the programme⁴⁴. Company representatives attended numerous events on European Union (EU) funding opportunities and settled for Phase II, whose support for business model innovation fitted the company needs perfectly at the time of application.⁴⁵

It was perfect for us (...) it is not just funding, it is being part of a community"

Delia Di Bona, Chief Analytics Officer at Mosaicoon

⁴¹ Source: company interview, 04/12/2017

⁴² Source: Ref. Ares(2017)4526281 - 16/09/2017

⁴³ Source: Ref. Ares(2017)4526281 - 16/09/2017

⁴⁴ Source: company interview, 04/12/2017

⁴⁵ Source: company interview, 04/12/2017

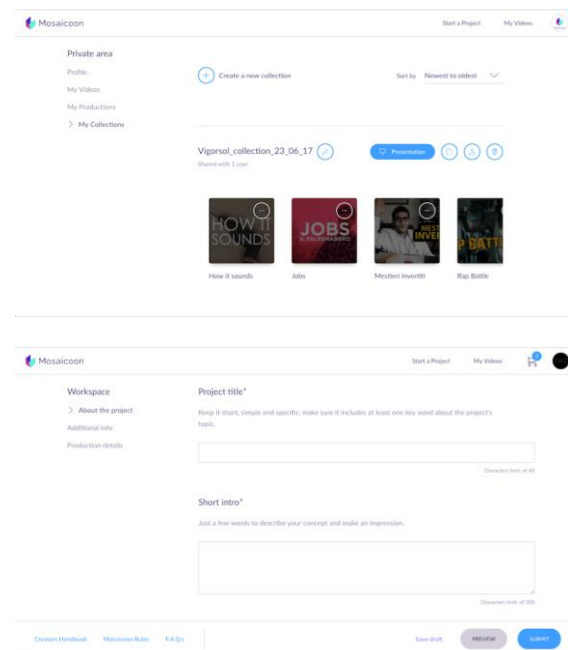
Distinctive features. Mosaicoon had already developed the platform and underlying software but lacked funding to test its usability, operate end-user testing, reach out to potential partners and customers as well as further adjust and develop its business model. Several features attracted (and retained) the interest of Mosaicoon in the SME-I:

- ▶ The possibility to combine product upscale and business model innovation were the two main attractive features to the company;
- ▶ In addition, the company found a particular appeal in the possibility to apply alone (and not in a consortium setting);
- ▶ Another attractive feature consisted in the combination of both the overall amount as well as the co-funding rate offered by the SME-I: the possibility of a large grant came together with an appropriate co-funding rate according to the company representative;
- ▶ Finally, the payment modalities, including the possibility for in-kind contribution and upfront payment, were appealing to the company⁴⁶.

Project description. Mosaicoon was awarded Phase II support in the context of the project *"TILES: the first platform for shared entertainment"*⁴⁷ The core of the project was the creation and market launch of a completely automatized platform. In order to do so, more Research and Development (R&D) was to be conducted in view of a full market launch, based on a communication and marketing strategy to be further elaborated during the project. The communication plan was in that sense the first key deliverable in the project. At the technical level, some emphasis was put on the usability of the

platform, and an increase in marketing and communication capabilities was operated throughout the project together with a closer involvement of potential users and creators.

Outputs. The Mosaicoon Phase II project reached commercial success in 17 months. The platform was officially launched with a first pilot in June 2017, supported by a strong communication and marketing plan to guide market penetration⁴⁸. It was followed by the first significant sale a month later. An evolution of key importance to the company consisted in the shift in business model: while Mosaicoon initially acted as a seller of creative content, it progressively evolved into an online matchmaking platform.



⁴⁶ Source: company interview, 21/11/2017

⁴⁷ Project Nr. 698662 – see Ref. Ares(2017)4526281 - 16/09/2017

⁴⁸ Source: company interview, 04/12/2017

Contribution of the SME-Instrument

Contribution. The SME-Instrument benefitted the company in different ways. These benefits can be approached sequentially⁴⁹:

- ▶ **New technical features.** The product and market tests conducted during the Phase II project showed that clients found it challenging to use the platform directly without any intermediaries. In response, the company introduced an intermediary figure “*Mosaicoon Specialist*” who acts as a consultant for the client, surfs the dashboard on their behalf and finds the right video for them.⁵⁰
- ▶ **Business model adjustment.** One of the main contributions of the SME-I support consisted in an adjustment of the company business model, starting from the adaptation of its strategy and a strengthened focus on the use and organisation of human capital. While it initially sold creative content, the company is focusing more and more on matchmaking. The very organisation of the company changed along the platform-testing phase, and the company called upon an intermediary organisation to bridge companies and content creators before full automation to be deployed. The revenue generation model also changed, shifting from direct sales of video and media campaigns to a matchmaking platform model.
- ▶ **Strengthened internal capacity.** The Phase II support allowed the company to focus more time and resources on content work. Thanks to the agency’s management, which appeared to be positively evaluated by the company representative – as flexible and open⁵¹ - as well as to the agreement on two reporting periods with a light format, Mosaicoon was offered the possibility to focus its efforts on project development and implementation and not administrative reporting.
- ▶ **Demand capacity development.** The SME-I Phase II support allowed Mosaicoon to setup training modules for users with a particular focus on intermediaries (creative and media agencies, etc.) who were a main target for the client match-making facilitated by the platform.
- ▶ **Commercial capacity development.** “*Marketing and Commercial issues are the crucial ones*” according to the company representative⁵². The SME-I process thus led the company to revise its spending priorities, shifting equipment expenses to the development of Mosaicoon’s marketing and communication capabilities. The SME-Instrument was used specifically to launch the platform with a solid marketing and communication plan. During the whole project, Mosaicoon built up its social communication, participated in international events and met with numerous companies that would later become its partners⁵³ and event clients. The Phase II funding was also used for the platform launch event in Milan, where it brought together potential clients, investors and partners.
- ▶ **Intellectual Property Rights (IPR).** Scored 4/5 by the company, the coaching received in the context of the Phase II support confirmed

⁴⁹ Source: company interview, 04/12/2017

⁵⁰ Source: Ref. Ares(2017)4526281 - 16/09/2017

⁵¹ Source: company interview, 21/11/2017

⁵² Source: company interview, 04/12/2017

⁵³ One of the international partners of the company was met during an event organized in the context of an SME-I event

the importance of ensuring that the company's IPR are protected. IPR became then part of the company strategy. Mosaicoon was matched with a professional coach who helped the company 1) confirm their IPR trajectory, 2) file a patent while it was not an option considered by the company in the first place, as well as 3) undertake the proper industry secret protection modalities.

- ▶ **Product validation and acceleration.** Through Phase II support, Mosaicoon was able to further develop the platform, involve creators, acquire partners from the supply side and start their sales. Through this market tests the company could reach the validation of the platform's features. One of the key added values of the Phase II support received by the company was to accelerate its product deployment to the market.
- ▶ **Internationalisation.** Through the SME-I the company was able to launch its innovative product into the market and start their sales. It expanded to New Delhi and Singapore. Currently, Mosaicoon has 8 offices, five in Europe and three in Asia Pacific⁵⁴. This expansion was made possible thanks to the international launch of the platform. It still develops new projects and partnerships as well as content across these markets.
- ▶ **Growth and turnover.** Although the results of the SME-I Phase II project are the ground for 70% to 80% of the total company revenue, the company hopes to rise it to 100% in the coming years. The SME-I support brought a boost in revenue to Mosaicoon which is now in

the process of developing new business lines, such as the one augmented reality integration.

- ▶ **Investment in human capital and growth in employment.** The first expense line for the project was human capital. Human resources were mainly dedicated to market testing and related activities. The company grew by 25 employees thanks to the SME-I, including 6 marketing and sales specialists and reaching 100 employees mainly based in Italy (80 people) as well as in Singapore.

European Added Value

European Added Value (EAV)⁵⁵. The EAV of the SME-Instrument mainly consisted in some distinctive features that were flagged by the company, including the following⁵⁶:

- ▶ **Branding and international market positioning.** The company benefitted from the visibility and international branding allowed by the SME-I. Considering Europe as one market, Mosaicoon could position itself toward international markets out of the headquarters' home country and further develop internationally. The SME-I is seen as an international market access ramp in that sense.
- ▶ **International network.** The exposure to a European network was crucial to Mosaicoon due to the connections with other companies (either from the same sector or from other sectors). Thanks to the SME-I Business Acceleration Services, Mosaicoon was given the opportunity to discuss shared problems or learn from other practices. Such networking and

⁵⁴ Source: company interview, 04/12/2017 as well as <https://mosaicoon.com> (consulted on 05/12/2017) concerning the 8 main company offices

⁵⁵ See Pierre Padilla and Geert Steurs (2016), " *Innovation policy: Theory-Based Evaluation of European Added Value*", LAP, ISBN-13: 978-3-659-79234-2; ISBN-10: 3659792349; EAN: 9783659792342

⁵⁶ Source: company interview, 04/12/2017

mutual learning activity was considered of key importance by the company representative who also explained that the SME-Instrument “*is not just funding, it is being part of an innovative community*” and that international networking activities allowed for building “*real business contacts*” with potential partners, clients and investors⁵⁷. It is important to highlight Mosaicoon is in a new round of discussion with a potential investor met in the context of Business Acceleration Services.

- ▶ **Demonstration support.** The company representative pointed at the lack of financial support for upscale and demonstration activities – covering post-prototyping activities (Technology Readiness Levels [TRL] 6+). The SME-I offers in that respect relevant support both from a financial perspective (amount and co-funding modalities) and business support.

4.2.2 Multiposting

Company. Multiposting⁵⁸ is a Human Resource Technology (“*HR Tech*”) company founded in 2008 by two young entrepreneurs⁵⁹ and specialising in job posting solutions. Right from the start, the firm aimed at becoming a sole recruiter interface thanks to the automation of the process of job offers “*multi-posting*”. The company addressed in that sense the challenge of time-consuming job offer diffusion.



Company trajectory

Solution. As an SME, Multiposting developed an E-Recruitment solution by the same name than the one of the company: “*Multiposting*”. This solution allows for multi-channel job posting. It offers multiple features including among others the possibility for multilingual job posting, credit and slot contract management, analytics, as well as an access to a dedicated market place⁶⁰.

Trajectory. The SME developed on the French market up to 2014, date of its application to the SME-Instrument Phase II support. At that point of

time, the core solution from Multiposting was a software-based application already adopted by both small and large firms across the country. Internationalization came about as French client companies were willing to post abroad and functionality changes appeared relevant to the further development of the firm abroad.



⁵⁷ Source: company interview, 04/12/2017

⁵⁸ See the company website at <https://www.multiposting.fr/> (consulted on 26/11/2017)

⁵⁹ With complementary expertise in respectively technical (Information and Communication Technology) and content (Human Resources) areas

⁶⁰ Other features are depicted on the company website, <https://multiposting.fr/en/products/multiposting> (consulted on 26/11/2017)

State of play before SME-I. Very much focused on the French market, Multiposting faced key challenges hampering their technology upscale and internationalisation processes⁶¹:

- ▶ From a technical point of view, the product was to be developed beyond the national nomenclature and withdraw from country-specific classifications of job descriptions (qualifications, etc.) but also writing-related specificities (for countries where writing is done from right to left for instance).

- ▶ From a market perspective, the focus was to be shifted from a sole French focus to a shift of all capabilities (by then 80 employees, active in client support, marketing, etc.) toward the international market. This also meant to expand the network of partners – employment websites but also HR and IS software companies are necessary to embed the job posting function into their solution(s).

"This is a new and accelerated way to internationalise that provided us with a boost on the international stage"

Clément Lambert, Marketing Director at Multiposting

SME-I Phase II: project description

Outreach channel. It is through the newsletter of the competitiveness cluster Cap Digital⁶² that the company's decision-makers learnt about the SME-Instrument – before it was presented during one of the cluster's events by a European Commission representative.

Distinctive features. By then, the SME-Instrument appeared to be the most appealing public funding track as it offered 70% co-funding and a market-oriented approach that is usually not found in other Research, Technology Development and Innovation (RTDI) support schemes⁶³.

Project description. Multiposting was awarded Phase II support in the context of the project "Job

market and Employment Transparency" (JET)⁶⁴. The core of the project was dedicated to the upscale of the software application (or app) from both technical and commercial viewpoints (process, support, marketing, etc.). Product adaptation⁶⁵ was held together with the design and implementation of a proper commercialisation strategy, starting with test markets and fostering the internationalisation of internal processes in the company. The first targets of Multiposting were the Belgium, Dutch and German markets considered as lead market for further internationalisation.

Outputs. The first step was made on the market where the linguistic connections allowed for an easier market deployment (Belgium), followed by the Dutch market and beyond for a first sale after 6

⁶¹ Source: company interview, 21/11/2017

⁶² See Cap Digital at <http://www.capdigital.com/en/> (consulted on 26/11/2017)

⁶³ This approach was said to be "in line with the development of a company and its commercial success" (source: company interview, 21/11/2017)

⁶⁴ Project Nr. 671379 – see Ref. Ares(2016)5958051 - 17/10/2016

⁶⁵ To the test market's languages, etc.

months of project implementation. The “*upgraded*” solution resulting from the iterative upscale (sale/product adaptation) led to the possibility for organisations from France and outside to post job offers “*to more than 1.000 job boards, 2.500 schools/universities and major social network sites in one click*”⁶⁶. As a result, the company was acquired by the “*giant*” SAP^{67,68}.

Contribution of the SME-Instrument

Contribution. The project was successfully conducted and demonstrated multiple benefits. Potential for impact over the market and the broader society is still perceived by the support team who monitored the project⁶⁹. The SME-Instrument took several forms⁷⁰:

- ▶ **Risks diminution.** First, the SME-Instrument Phase II support diminished the risk associated to both the targeted upscale and the internationalisation process. Support in that sense was not only financial but also human: the responsive and timely management from the side of the European Agency for SMEs (EASME⁷¹) in charge of the dossier was of positive value in this process, as was its guidance to the entrepreneurs. “*Acceleration*” was the main effect sought by the company when applying for Phase II funding. There, a faster pace was necessary for the business to expand and remain competitive.

- ▶ **Label and visibility effects.** The acquisition was facilitated by the SME-Instrument support, which came as a positive line on the financial sheets of Multiposting and plaid the role of quality label. This quality label together with the visibility offered by the SME-Instrument plaid in favor of Multiposting, which was also involved in events and networking activities at the European Union (EU) level. Branding was crucial not only as to provide the SME with additional credibility, but also as to allow for an association of this company to international business activities⁷².
- ▶ **Organisational change.** Throughout the implementation of the JET project, the company performed an adaptation of its internal processes and scaled itself up from a start-up-like organisation (horizontal and highly flexible) to a functional one. This change was fostered by the internationalisation process, which was itself supported by the SME-I support.
- ▶ **Network and market internationalisation.** A larger and stronger partner network was one of the key outcomes of the Phase II “*JET*” project. The JET project came together with the opportunity for Multiposting to collaborate more

⁶⁶ Source: Multiposting at <https://www.multiposting.fr/en/products/multiposting> (consulted on 25/11/2017)

⁶⁷ See SAP company website at <https://www.sap.com/> (consulted on 26/11/2017)

⁶⁸ See Multiposting (2015), “*Multiposting has joined SAP*”, Press Release from the 13th of October 2015, available at <https://files.multiposting.fr/static/docs/PR-Multiposting-SAP-131015.pdf>

⁶⁹ Source: Ref. Ares(2016)5971304 - 17/10/2016

⁷⁰ Source: company interview, 21/11/2017

⁷¹ See the Agency’s website at <https://ec.europa.eu/easme/en> (consulted on 26/11/2017)

⁷² Multiposting was in that sense awarded the world-wide innovation challenge award (in both 1 and 2 phases) on the topic of employment data valorization (SMARTSEARCH) – see French Ministry for Economy and Finance, Directorate General for Enterprise, <https://www.entreprises.gouv.fr/innovation-2030/resultats-la-phase-2> (consulted on 26/11/2017)

effectively with Business France⁷³ as to strengthen its internationalization and reinforce its international approach. According to the company interviewee, the SME-Instrument thus offered an entrance point into international pilot markets and a greater access to partners that could be further exploited by the company⁷⁴.

- ▶ **Acceleration.** Speed is leadership, and acceleration was one of the key effects triggered by the SME-Instrument. The support led to a much faster network development at the international level, on a market that is said to be “*highly competitive*”⁷⁵ and where the lack of (enough) partnerships can prove a key entry barrier. This faster pace provided Multiposting with a first-mover advantage on new markets where it could develop before its competitors. Such advantage would not have been possible without the SME-I Phase II support according to the company representative interviewed by the Expert.
- ▶ **Scope and service expansion.** The SME-Instrument Phase II support also led to the development of the company’s expertise beyond the product itself. It developed capabilities in data analytics⁷⁶ (thanks to the collection and classification of millions of job offers and their content), and grew in this area through new collaborations. Two key examples

include the Cap Digital cluster⁷⁷ as well as Pôle Emploi⁷⁸ who both aim at a better understanding and action toward new skills and competences. While prior relations existed, the company managed to build upon its expertise and capabilities to propose new services to both organisations. This scope expansion led Multiposting to hire data scientists and constitute a new service provided by the company on top of and building upon the Multiposting solution.

- ▶ **Growth in employment.** The JET project led to a growth in turnover but also a growth in employment. At the moment Multiposting applied for SME-Instrument support, it employed 80 people. By 2015 this number rose to 120 employees. The 40 new employees have mixed profiles: technical, client support, commercial development, etc.
- ▶ **Growth in international turnover.** Multiposting’s international turnover rose from a 5% (2014) to a 15% (2015) share of the overall company turnover. The “Multiposting” product itself remained the main source of turnover (around 85%)⁷⁹.
- ▶ **Acquisition.** Following prior business interactions to work on a functional integration of Multiposting into their solution, the company

⁷³ On market-specific topics (marketing, targets, contracting, etc.) – see Business France and the description of its activities on the organisation’s website at www.businessfrance.fr/ (consulted on 26/11/2017)

⁷⁴ The support offered by Business France was complementary to the SME-Instrument support and proved to be key for the company to identify targets and contract opportunities, as well as to apprehend Multiposting’s (potential) position on given markets.

⁷⁵ Source: company interview, 21/11/2017

⁷⁶ See for instance the technology base presented by the firm at <https://multiposting.fr/en/technology> (consulted on 26/11/2017)

⁷⁷ On the development of a job barometer – see Cap Digital (2015), “*Le premier baromètre Cap Digital et Multiposting « Les métiers du numérique »*” article published by Cap Digital on the 29th of January 2015 and available at <http://www.capdigital.com/le-premier-barometre-cap-digital-et-multiposting-les-metiers-du-numerique>

⁷⁸ The French Government Agency registering and helping unemployed people – see www.pole-emploi.fr/ for more information (consulted on 26/11/2017)

⁷⁹ Source: company interview, 21/11/2017

was acquired by SAP⁸⁰, a market leader in the area of company application software. It led to the anchoring of Multiposting in Paris⁸¹ as the main Human Resources (HR) pole of the company, with positive employment forecasts and a growing role in the overall group's business development. This acquisition is perceived as positive as the technology has since then known an additional boost and keeps stimulating employment (of engineers mainly) by the Paris-based SAP branch Multiposting.



European Added Value

European Added Value. The European Added Value (EAV⁸²) of the SME-Instrument mainly consisted in some distinctive features that were flagged by the company, including the following⁸³:

1. **A unique mix of support modalities.** First, the type of support was of particular interest to Multiposting. It did not stop at the amount and

co-funding modalities: the mix of technological and market support coupled with technical features of the programme (significant funding amount and relatively high co-funding rate in the first place) made it unique to the company who could have applied to other funding streams.

2. **International networking.** The European dimension is seen as crucial to the success of Multiposting's internationalization strategy. The role of Business Acceleration Services was instrumental in that respect. The fact that the JET project was implemented at an EU scale allowed for a more effective but also more efficient development of both partner and client networks.
3. **Label effect.** The "Label effect" was a key in that respect: besides the network access, credibility is a major stamp offered by European support.
4. **Complementarity.** The SME-Instrument was complementary to other initiatives. As an example, the company interviewee referred to how the SME-Instrument support and one of the national awards fed each other and plaid synergistically in favor of the expansion of Multiposting. The same goes for the combination of the SME-Instrument support with Business France support.

⁸⁰ See SAP company website at <https://www.sap.com/> (consulted on 26/11/2017)

⁸¹ See Multiposting (2015), "Multiposting has joined SAP", Press Release from the 13th of October 2015, available at <https://files.multiposting.fr/static/docs/PR-Multiposting-SAP-131015.pdf>

⁸² See Pierre Padilla and Geert Steurs (2016), "Innovation policy: Theory-Based Evaluation of European Added Value", LAP, ISBN-13: 978-3-659-79234-2; ISBN-10: 3659792349; EAN: 9783659792342

⁸³ Source: company interview, 21/11/2017

4.2.3 Sword Health

Company. Sword Health⁸⁴ is a Portuguese SME that addresses the growing demand for physical therapy. Its goal is to enhance patient recovery by combining technology with methods oriented therapies. It developed a physical therapy solution, which claims among other benefits cost reduction, patient empowerment and the generation of clinical data⁸⁵.



One of the initial challenges addressed by the company is the one of the cost implied by therapies based on classical technologies which are sometimes (or essentially) not available everywhere. Sword Health is currently active on the global market.

Company trajectory

Solution. Nearly 6.5 million people suffer a stroke and physical impairment, and such condition requires long-term and intensive motor rehabilitation programs⁸⁶. Sword Health developed a product operated through cloud computing and containing both hardware and software⁸⁷ to address this challenge. The main two components of the solution are:

- 1) A rehabilitation interface that senses and analyses patient data – which comes in the form of a wearable system that can be connected to a mobile device;
- 2) A cloud platform aggregating all rehabilitation data generated during each of the patient's individual sessions in order to be used as key inputs to the therapy.

It was designed for patients regardless of the place where the rehabilitation takes place (at home or in the hospital). The solution requires little or no supervision, "*extending the therapeutic footprint and empowering the patient with his rehabilitation*"⁸⁸.

Trajectory. At the source of the co-founders' will to setup Sword Health was a PhD research grant, in the context of which one of the co-founders wanted to find a solution in response to a physical challenge facing a close relative⁸⁹. While the prototyping efforts were made from 2008 to 2012, the company was launched in 2013 and attracted pre-seed investment⁹⁰ which allowed for a first prototype (already available by 2014). The company secured 2 patents and conducted clinical trials involving 44 stroke patients. In 2015 the company was awarded Phase II support and teamed up with Genesis

⁸⁴ See company website available at <https://www.swordhealth.com> (consulted on 01/12/2017)

⁸⁵ Source: company overview available at Crunchbase, see <https://www.crunchbase.com/organization/sword-health>

⁸⁶ Source: Ref. Ares(2017)4247965 - 30/08/2017

⁸⁷ Source: company interview, 14/11/2017

⁸⁸ Source: EASME, SWORD Report Summary entitled "*Periodic Reporting for period 1 - SWORD (Advanced Analytics Platform for Stroke Patients Rehabilitation)*" available at http://cordis.europa.eu/result/rcn/190207_en.html (consulted on 06/12/2017)

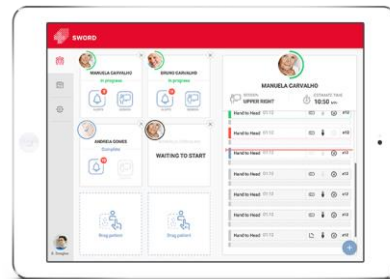
⁸⁹ Source: company interview, 14/11/2017

⁹⁰ "*In October 2013, SWORD Health accepted an investment proposal from a group of European Business Angels (Braincapital SGPS)*" (source: EASME, SWORD Report Summary entitled "*Periodic Reporting for period 1 - SWORD (Advanced Analytics Platform for Stroke Patients Rehabilitation)*" available at http://cordis.europa.eu/result/rcn/190207_en.html - consulted on 07/12/2017)

Rehab Services⁹¹. Both developments combined led to more clinical trials, IP preparation for 5 more patents, more partnerships as well as to the company's first international pilot in China⁹².

State of play before SME-I. Following the PhD process as well as an additional grant, the company which was in its incubation phase received some private investment; but was still in need for demonstration support.⁹³ Sword Health faced key challenges when it came to scale-up and reach commercialisation. Among other challenges, the following obstacles were hampering the process:

- ▶ Technical adjustments were to be made as to get the prototype ready for the market. But a number of activities were to be carried out which required resources to scale-up the initial product and have it undergo all regulatory and market steps necessary to a medical device.
- ▶ With a young team, limited cash flow and no support from family and friends the company was not able to access bank loans.⁹⁴ Moreover, the size of the local grants was not reflective of the company's needs.
- ▶ As a result from the barrier to debt finance depicted above, Sword Health was confronted with two major – costly – obstacles:
 - ▷ The first was the one of human resources. The search for funding was thus to emphasize human capital in the first place.
 - ▷ The second was the one of clinical trials, which are costly and highly risky for an SME.
- ▶ In addition, the solution developed was considered disruptive, implying the necessity for its adoption to start with pilot cases. Such informal market expectation goes beyond the clinical trial and rather relates to consumer behaviour. A "*pilot*" thus had to be designed for consumers to be able to test the solution for a limited period before a full commercial sale would be required for further use.
- ▶ Finally, brand recognition was needed to gain visibility on the international market.



SME-I Phase II: project description

Outreach channel. Sword Health representatives were advised by some of their contacts not to look for national but for European funding. They subsequently came across the SME-Instrument via an internet search⁹⁵. While they were initially interested in Phase I support they decided to apply for Phase II instead⁹⁶ as the prototype had already been developed.

Distinctive features. The company representatives had received two to three forms of

⁹¹ See company website here: <http://www.genesisrehab.com/>

⁹² Source: company interview, 14/11/2017

⁹³ Source: company interview, 14/11/2017

⁹⁴ Source: company interview, 17/11/2017

⁹⁵ Source: company interview, 17/11/2017

⁹⁶ Source: company interview, 17/11/2017

public support before applying to the SME-I⁹⁷. They however found the SME-I Phase II opportunity appealing:

- ▶ The overall amount was deemed large enough to support the ambition of the project while other funding streams (in the range of €100.000 to €200.000) could not support the targeted activities.
- ▶ It offered the company with the possibility not to call upon private funding again, closing the door to possible to unwelcome changes to the strategy and operations of the company. The ambition of the co-founders was here not to focus on a particular funding stream but rather to find an appropriate balance that would match the needs of Sword Health.

Project description. Sword Health was awarded the Phase II support in the context of the project “Advanced Analytics Platform for Stroke Patients Rehabilitation Periodic”⁹⁸. The core of the project was to optimise the mobile application, develop a scalable and robust web-based console as well as an analytical engine that would be able to extract metrics and parameters thanks to machine learning techniques⁹⁹. The project covered technical development and testing activities, as well as clinical trials, efforts toward certification and health agency approval, as well as the development of a commercial network across the globe.

Outputs. The Phase II support was mobilized for development and demonstration activities. This included hiring proper human resources. Employing high-skilled resources was a way for the company decision-makers to ensure a robust product could be achieved as fast as possible without depending

on sub-contractors. The new staff was able to push for more trials and form new partnerships. The Phase II support was also used for certification, patent and trademark filing as well as further business development through the SME-I Business Acceleration Services.



Contribution and value added of the SME-Instrument

Contribution. Thanks to the SME-Instrument, Sword Health achieved market penetration in 2017. The flexibility and availability of the Phase II support management (undertaken by EASME) was deemed of particular help along the implementation of the project, allowing for the adjustments needed to achieve its goals. The SME-Instrument contributed to the commercial success of Sword Health in different ways¹⁰⁰.

- ▶ **Independence.** The Phase II support allowed the company to remain independent from other private investors. This gave Sword Health the opportunity to keep up with its initial strategy and not to bear with unwelcome changes in the operations as designed and implemented by the co-founders. The company representative made explicit during the company interview that without SME-I support, the vision of the

⁹⁷ Including a PhD grant, a research grant, as well as public incubation support

⁹⁸ Project Nr. 672814 – see Ref. Ares(2017)4247965 - 30/08/2017

⁹⁹ Source: Ref. Ares(2017)4247965 - 30/08/2017

¹⁰⁰ Source: company interview, 17/11/2017

company which is at the source of its success would have been “*blocked*”¹⁰¹.

- ▶ **Business modelling and intelligence.** The company also made use of the SME-I support as to strengthen and adapt its business model. This work was carried out in very close collaboration with the coach made available by the Phase II support and related Business Acceleration Services.
- ▷ **Business model.** With more than 30 years of experience, the coach was (according to the company representative) highly beneficial to the evolution of Sword Health, having clinical and market expertise but also a vision on the possible value the solution developed by the company could bring to the market. This mix of expertise was considered an asset by the company representatives, as was the expert’s network, which was open to Sword Health. The business model of the company evolved as to be based now on a patient-to-product loop with direct tests in real environment.
- ▷ **Market intelligence.** In addition, Sword Health decision makers developed capabilities in terms of risk analysis and market intelligence. These are critical in a competitive context, and the company representative confirmed that the SME-I support was a key to the development of the business skills of the company founders.
- ▶ **IPR.** Funding was used to prepare the path for five patents, making the solution proprietary and securing it from a competition point of view.
- ▶ **Demonstration.** The SME-I allowed for the demonstration necessary for the company to

commercialize its product to a wider demand and enter not only the European but also the American market.

- ▷ **Clinical trials.** At the core of the demonstration phase of the solution were the clinical trials. Clinical trials are resource-consuming (from both time and money perspectives) and constituted one of the initial barriers to the company.
- ▷ **Certification.** In addition to the clinical trials, certification is a key to demonstrating a healthcare product. The process of certifying the solution proved to be difficult. However, Sword Health made use of the Phase II support to hire specialised staff able to drive product certification in both Portugal and the US. CE Marking was therefore achieved in less than a year and FDA approval was obtained after 18 months (nearly 6 months after the European certification was confirmed).
- ▶ **Commercialisation.** Phase II support from the SME-Instrument allowed Sword Health to move from the prototyping phase to the commercialisation of its product in Portugal and internationally.
- ▶ **Distribution.** The SME-I was key in supporting the company in its efforts to establish a distribution network. Sword Health used the Phase II support as to develop strong partnerships and a strong distribution network, including in the United States, which is one of its lead markets.
- ▶ **International growth.** Due to the Phase II support, Sword Health was able to participate in numerous events. Together with its growing recognition and related market success, the

¹⁰¹ Source: company interview, 17/11/2017

company set up partnerships with specialised providers and partners. It expanded internationally and is currently partner with some of the key market leaders in areas such as belt provision, technology supply, care, etc. The company is currently active in the American and Asian markets, and is currently seeking to expand to Australia, Canada and Norway. In 2018 Sword Health thus expects to grow in both European and American markets.

- ▶ **Growth in employment.** In only 2,5 years, the company grew from 5 to 30 employees. This evolution is clearly attributed by the company representative to the SME-I support received in 2015. The team is said to be a “*melting pot of skills*” by the company representative, gathering employees from the area of hardware and software engineering to physicists and high-skilled specialists. 20 additional employees are expected by the end of the upcoming year.
- ▶ **Growth in turnover.** All current business activities and sales are based on the developments allowed by the SME-Instrument Phase II project carried out by Sword Health. The SME-I led in that sense to an increase in sales as the company entered new markets.
- ▶ **Additional investments.** Thanks to both Phase II funding and Business Acceleration Services, Sword Health attracted venture capital and was able to participate in pitching events in the US. The SME-I provided Sword

Health with the “*ability to attract business investors*” according to the company representative, opening the company from business angel to the world of international venture capital. It also received subsequent national funding.

European Added Value

European Added Value (EAV)¹⁰². The EAV of the SME-Instrument mainly consisted in some distinctive features that were flagged by the company, including the following¹⁰³:

- ▶ **Label effect.** Identified as a European player instead of a national one, Sword Health could attract partners in both Europe and the United States. This gain in visibility concretized in examples such as through its involvement in the Aging 2.0 Alliance¹⁰⁴ or its ranking in the top-25 digital health companies of the 2016 Tech Tour¹⁰⁵. The company representative explained that the European brand profiled the company against all out-of-EU firms usually listed in such key rankings, providing Sword Health with a key position on the market. The company received increasing attention, leading to the setting up of key partnerships with worldwide players.
- ▶ **Market access and network effect.** The Phase II support was instrumental in the development of the company network beyond national borders. Such network expanded in all

¹⁰² See Pierre Padilla and Geert Steurs (2016), “*Innovation policy: Theory-Based Evaluation of European Added Value*”, LAP, ISBN-13: 978-3-659-79234-2; ISBN-10: 3659792349; EAN: 9783659792342

¹⁰³ Source: company interview, 17/11/2017

¹⁰⁴ Source: Portugal Startups.com (2015), “*Guess which startup just received one million euros*” available at <http://portugalstartups.com/2015/04/guess-which-startup-just-received-one-million-euros/> - consulted on 07/12/2017

¹⁰⁵ Source: TechTour (2016), “*Tech Tour Honours the Top 45 Digital Health and Medtech Companies in Europe and Announces Winners of the 2016 Healthtech Award*” available at <https://www.techtour.com/news/2016/tech-tour-honours-the-top-45-digital-health-and-medtech-companies-in-europe-and-announces-winners-of-the-2016-healthtech-award.html> - consulted on 07/12/2017

areas as Sword Health developed new collaborations with partner organisations, investors and even insurance companies. The company representative even referred to synergies developed with companies involved in the European network of SME-I awardees. The company saw as an important building block of its market success the facilitated access to large global partners, which are only accessible in an international context. Access to suppliers, a larger pool of expertise and a broader patient base were key in that context.

- ▶ **Acceleration funding.** One of the differentiating factors was for the company to encounter an overall funding amount that was appropriate to the dimensions and (close-to-market) nature of the project carried out. The national grants were deemed smaller by the company representative who made explicit the importance of having a sufficient amount of finance to move forward from prototyping to commercialisation as fast as possible. The acceleration effect offered by the Phase II support allowed the SME to catch up and even move ahead of competition according to the company representative.

"Now Sword Health developed its own technology and Microsoft shut down its competing technological track: Driven by talent, we proved that we can really compete world-wide!"

André Eiras dos Santos, Co-Founder of Sword Health

4.2.4 ANF Development

Company. ANF Development is an Estonian SME specialising in the production of aluminium oxide nanofibers¹⁰⁶. While synthesizing an aluminium-based master alloy, a production process malfunction occurred in the synthesis reactor, and the new nanomaterial at the core of the company's activities was discovered¹⁰⁷. With the ambition to take the discovery from a theoretical product to an industrially viable value-added material, the founders established ANF Development in 2011. The founders were able to then recreate the synthesis process and optimize it as a scalable technology for industrial use.



Company trajectory

Solution. ANF Development developed NAFENTM¹⁰⁸ (hereunder "NAFENTM"), an industrial-grade nanofiber made available to the design and production of applications making use of new polymer and composite materials. Several applications have been developed that include NAFENTM-modified thermoplastics and NAFENTM-modified composites. When used, NAFENTM-based materials positively impact the mechanical performance of advanced materials such as advanced plastics and composites¹⁰⁹.

Trajectory. NAFENTM is an innovative material that can be applied to a broad range of industries (aerospace, automotive, energy, etc.). Since 2011, ANF Development went through several rounds of investments.¹¹⁰ However, up to 2015 and its SME-I application, research and development were at the core of the company's activities (building upon the initial discovery to conduct research and prototyping¹¹¹). ANF Development built upon SME-I

support to apply its innovative nanofibers to plastic and composite applications, with a clear goal of scaling up its activities to achieve market penetration.



State of play before SME-I. ANF Development attracted private investments in its earliest life phases¹¹². However, the company faced key challenges when it came to move from prototyping to large-scale production.

- ▶ ANF Development faced the practical need to select key materials associated to applications with commercial potential in order to prioritize their development and market activities.

¹⁰⁶ See company website at <http://www.anftechnology.com/en/> (consulted on 29/11/2017)

¹⁰⁷ Source: company interview, 15/11/2017

¹⁰⁸ See company website at <http://www.anftechnology.com/en/#section-1> (consulted on 05/12/2017)

¹⁰⁹ Other features are depicted on the company website, <http://www.anftechnology.com/en/> (consulted on 29/11/2017)

¹¹⁰ Sormani, A., "ANF Technology Attracts Funds", PE Hub, 03/26/2013 See: <https://www.pehub.com/2013/03/anf-technology-attracts-funds/>

¹¹¹ Source: company interview, 15/11/2017

¹¹² Source: company interview, 15/11/2017

- ▶ From a technical point of view, appropriate equipment and infrastructure were both needed to produce NAFEN™, even at a small scale. Material-specific lines were needed in that respect. These were necessary to the product demonstration (in terms of upscale, market positioning, etc.).
- ▶ From a broader perspective, the company needed to be linked up with lead users with whom to collaborate on the pilot integration of NAFEN™ into client-specific applications.
- ▶ ANF Development was also confronted with the challenge of hiring proper human resources with relevant polymeric expertise.

SME-I Phase II: project description

Outreach channel. ANF Development came across the SME-Instrument through an internet search, when the company representatives were investigating possibilities to buy equipment that could support small-scale production¹¹³.

Distinctive features. Two main features seemed of particular interest to the company:

- ▶ First, ANF Development deemed the scope of the SME-I clearly appropriate to its ambitions. The company had already received private investments and was looking for a public support scheme that would allow them to move from their initial prototype to full-scale production. The decision was taken to apply for Phase II support as it provided the necessary scope for such move and take the prototype

already available to turn it into a commercial product.

- ▶ In addition, the company representative explained that national or regional innovation funding was hard to access without a research collaboration in place with an academic partner. The SME-Instrument thus appeared to be appealing¹¹⁴ for single applicants.

Project description. ANF Development was awarded Phase II support in the context of the project “*NAFEN™ (Nano-particle based enhancement of composite and thermoplastic materials)*”¹¹⁵. The core objective of the project was to scale up the NAFEN™ application to plastic and composite materials. The two material tracks pursued by the company were the ones of plastics and composites. Such tracks entailed the building of a facility to test, modify and produce NAFEN™¹¹⁶, as well as the development of industrial collaborations necessary to the targeted joint product development. In order to do so, equipment had to be bought and production lines were set-up. Laboratory and production activities were customised to allow for client customization.

Outputs. From a product development perspective, a decision had to be made on choosing the materials that could lead to market development and internationalisation when mixed with NAFEN™.¹¹⁷ The objective was to set-up a solid footprint within the European thermoplastics and thermosets manufacturers.¹¹⁸ The first step was therefore to setup the necessary production lines and hire the necessary specialized staff.

¹¹³ Source: company interview, 15/11/2017

¹¹⁴ Source: company interview, 15/11/2017

¹¹⁵ Project Nr. 685213 – see Ref. Ares(2015)2917644

¹¹⁶ Source: EASME, NAFEN™ Report Summary entitled “*Periodic Reporting for period 1 - NAFEN™ (Nano-particle based enhancement of composite and*

thermoplastic materials)” available at http://cordis.europa.eu/result/rcn/190421_en.html (consulted on 05/12/2017)

¹¹⁷ Source: company interview, 15/11/2017

¹¹⁸ Source: Ref. Ares(2015)2917644 - 05/07/2017

With the Phase II support, production started and the product could move further to the market¹¹⁹: the project successfully tested NAFEN™-modified materials, which resulted in a confirmed 20-50% improvements in mechanical properties of end products.¹²⁰ In addition, ANF made use of the Business Acceleration Services offered by the SME-I as to establish partnerships with (potential) clients and investors across Europe. ANF Development caught the opportunity to take the successful results of its production process to fairs and exhibitions while IPR protection was finalized.

Contribution and value added of the SME-Instrument

Contribution. The SME-Instrument benefitted the company in different ways. These benefits can be depicted as follows¹²¹:

- ▶ **Independence.** The SME-I support allowed the company not to have to turn to private investors when it was not desirable: this way ANF Development avoided any possible dilution of the company shares and kept control of its corporate decision-making process as well as of subsequent implications. This was among other things important in terms of identity and strategy. The state of play post SME-I is however different as the company is now open to new investors. Thanks to a demonstrated product, ANF Development is able to attract such investors in an even easier way according to the company representative.
- ▶ **Infrastructural development and equipment.** The acquisition of infrastructure and equipment was instrumental to both the project and the commercial success of ANF

Development. Such expenses would have not been possible without the Phase II award. ANF Development currently has the capacity to produce 10-ton master-batches every month. Such proportions are necessary considering the international ambition of the company which aims to a larger outreach (across Europe, the United States and Asia) but requires both production and distribution strengths to pursue it.

- ▶ **Accelerated demonstration.** Time is critical to the development and market deployment of new materials. This time proved to be longer than expected by the company representatives who had to adjust their initial expectations. The SME-I brought acceleration to ANF Development. The Phase II award allowed for the purchase of the equipment (furnaces etc.) necessary to synthesize key materials faster and in a more advanced fashion, with control over relevant parameters. As a result from its demonstration activities, ANF Development developed appropriate material formulations toward specific (potential) customers (i.e. effects on Aerospace are different from effects on automotive) with a fast pace compared to what would have been possible (or not) without SME-I support.
- ▶ **Outreach and partnership development.** Moreover, the Business Acceleration Services offered in the context of the SME-I provided the company with the opportunity to be “*more present*” on the market and exchange with key industry leaders. ANF Development was represented in several events and could use the advice collected from knowledgeable contacts reached out to through those events, in order

¹¹⁹ Source: company interview, 15/11/2017

¹²⁰ Source: Ref. Ares(2015)2917644 - 05/07/2017

¹²¹ Source: company interview, 21/11/2017

to strengthen the business model of the company. The SME-I support also helped the company elaborate on specific targets. After producing a long list of 150 potential targets, ANF Development currently collaborates with more than 20 companies as to tailor its product to their needs – with the further objective to unlock new and/or larger purchases of NAFEN™ from these potential clients.

▶ **Facilitation of the IPR protection process.**

Although the company had an IPR strategy in place and was already filing for the protection of its intellectual property in both Europe and the United States, the SME-I support facilitated their efforts by providing the necessary complementary resources to hold on to the filing process. The project also led to the filing of new IPR throughout the 9 first months of the project.

- ▶ **Market validation.** The SME-I support helped the company build relationships with new (potential) customers. Product validation was one of the first key outcomes of the Phase II support received by ANF Development. This validation proved instrumental towards negotiating with clients and attracting investors. It led to the market validation of NAFEN™-enhanced materials. The company could in that sense propose potential customers to test a sample with equal mechanical properties but at a cheaper price compared to competition.

▶ **Sustainable commercial success.**

Commercial validation was therefore clear when the company purchases followed the sample acquisition by clients who were satisfied with the end results. The commercial success is now deemed sustainable, with recurring clients buying the master batches tailor-made and produced by the company on the basis of clients' specifications and by applying its innovative solution.

- ▶ **Internationalisation.** Through the SME-Instrument, the company was able to demonstrate its expertise and ability to generate formulations that can be produced and commercialised. This attracted the attention of investors from Asia, with whom ANF Development is currently running a Joint Development Programme (JDP) with the aim to setup a similar factory in Singapore and further open the doors of the Asian market to the company.

▶ **Growth in and through human capital.**

While it had 10 employees before its SME-I award, the company reached 22 employees when the Phase II project ended. ANF Development hired several specialists in polymer materials development (polymer and material scientists, chemical and metal engineers but also operators), contributing to the evolution of the skills available in-house (initially oriented toward metallurgy and ceramics). This human capital development was central in the efforts of the SME to setup a business line in the polymeric area.

- ▶ **Growth in turnover.** The Phase II project and subsequent results supported the growth of ANF Development. 100% of NAFEN™ sales are currently based on the activities supported by the SME-Instrument, which illustrates the range of the contribution of the Phase II award to the company.

▶ **Risk diminution toward new investors.**

Prior to the SME-Instrument, ANF Development had already benefited from more than € 10

million in private investment¹²². However, the company was bound to be stuck at the prototyping phase according to the company representative – until it was awarded Phase II support. The SME-I helped ANF Development to demonstrate its product and attract new private investors. One of the key contributions of the SME-I in that respect was the fact that it diminished the risk that kept potential investors away. The setting up of the pilot lines and the resulting product demonstration made it easier for the company to attract and negotiate with new investors.

- ▶ **Additional investments.** Due to the attention and reputation built upon its SME-Instrument Phase II award, ANF Development was selected as a supplier of another SME-I awardee and was in addition able to partner with key industry leaders in the ambit of another Horizon 2020 (H2020) call. Most importantly, new facilities are currently in the process of being built in Singapore on the basis of the Phase II project results. ANF Development is also planning a new investment round in the near future as to further enlarge the facility and scale up its production and outreach.



European Added Value

European Added Value (EAV)¹²³. The EAV of the SME-Instrument mainly consisted in some distinctive features that were flagged by the company, including the following¹²⁴:

- ▶ **Single applicant.** The company interviewee explained that usual innovation support schemes implemented at the national level require companies to collaborate with one (or more) university/ies to be eligible for funding. This can prove a barrier to start-ups and the SME-I clearly added value compared to the national level in that respect.
- ▶ **Access to international networks.** The European dimension is seen as crucial to the success of ANF Development's expansion strategy. Estonia is a small market when considering new materials, where large-scale production can prove challenging according to the company representative. With the SME-I support the company was able to attract the attention of new clients and new investors (both from other countries), and is now in the process of internationalizing its activities globally.

¹²² Sormani, A., "ANF Technology Attracts Funds", PE Hub, 03/26/2013 See: <https://www.pehub.com/2013/03/anf-technology-attracts-funds/>

¹²³ See Pierre Padilla and Geert Steurs (2016), "*Innovation policy: Theory-Based Evaluation of European Added Value*", LAP, ISBN-13: 978-3-659-79234-2; ISBN-10: 3659792349; EAN: 9783659792342

¹²⁴ Source: company interview, 21/11/2017

▶ **Branding.** The SME-I innovation stamp acted as a product validation and promoted trust in the company. The company participated in several conferences where representatives met with different partners and received good advice from industry leaders. Such connections had direct impact on their business plan. The Phase II support helped the company to brand itself and connect with key industrial players. Not only did the SME-I make ANF Development more visible, it also provided it with a credibility stamp that facilitates trust from other organisations. The label effect was important to the company, who deemed it particularly relevant to act on global markets – including toward the United States. Receiving support from the European Commission would in that sense facilitate partnerships, demonstrate the ability to manage investments, as well as the ability to operate production lines based on new materials. Representatives explained that branding is a key source of trust, which is necessary for ANF Development to build new partnerships – in line with the fact that public authorities such as the European Commission trust ANF Development with Phase II project support. This “*label effect*” even facilitated more recent collaborations between the company and academic partners (including local ones).

▶ **Demonstration support.** The production lines allowed potential clients to test the

solution and agree on receiving a sample in that respect. The first production line was setup in 6 months, leading a lead user company to present options for material testing – more specifically regarding NAFEN™ integration. The piloting would imply that the company can purchase small amounts and, if interested in the results and performance of the material, would be able to buy in larger amounts. The grant award (considered large) was seen as a critical element in the support brought by the SME-I. The grant award allowed the company to build internal capabilities as well as trustful relationships with (new) partners. Above all, the funding was critical for the company to have the practical ability to setup its pilot lines, which require high levels of investment. Phase II funding was thus useful for the company to bear with infrastructural and equipment costs. This is a crucial element of ANF Development’s trajectory: without the production lines, the initial demonstration and resulting purchase(s) could have never taken place.



"Without the SME-I, we would have been unable to build this production line that fast."

Aleksei Tretjakov, Project Coordinator at ANF Development

4.2.5 Kiosked

Company. Launched 7 years ago, Kiosked is a global publisher monetization platform that generates new revenue opportunities for publishers operating in North America, APAC and EMEA¹²⁵. The co-founders were serial entrepreneurs with a background in IT technologies, sales and marketing¹²⁶.



Company trajectory

Solution. Kiosked is an in-content advertising platform. It aims to address the challenges of 'viewability' and content relevancy¹²⁷ in the advertisement market. Serving more than 250 million unique end-users every month, the Kiosked platform allows to automatically analyse and enrich Publishers' visual (images, videos etc.) and textual contents by automatically placing a variety of highly viewable contextual and relevant ads (display, video) into these content streams¹²⁸. In addition, Kiosked code-on-page technology allows publishers to optimise their content monetization.

Trajectory. Launched in 2010, Kiosked went through four years of pure R&D during which it built its first products and go-to-market strategies¹²⁹.

At the time company representatives estimated that there was no service in the digital advertising

industry that publishers, bloggers and advertisers could call upon in order to create new ways to monetize online content¹³⁰. Kiosked received grant support from the Finnish Funding Agency for Innovation, Tekes.¹³¹ With a renewed concept and business plan, the company launched its innovative in-content advertising platform in 2014¹³². It started to grow progressively, reaching from €5 million in annual revenues (2014) to €15 million¹³³ (2015).

The platform was aimed at making advertising and digital content 'smart' and deliver a non-intrusive service for the consumer¹³⁴. This led to an exponential growth of the company, which currently has offices in Helsinki, Los Angeles, Tokyo, and Sydney¹³⁵. With as an ambition to scale-up its platform and reach out to smaller publishers, Kiosked aimed to develop an automated customer

¹²⁵ See company website at <http://www.kiosked.com/> (consulted on 06/12/2017)

¹²⁶ Source: company interview, 01/12/2017

¹²⁷ Source: Ref. Ares(2015)3394540 - 14/08/2015

¹²⁸ Source: company interview, 01/12/2017

¹²⁹ Source: company interview, 01/12/2017

¹³⁰ Source: Ref. Ares(2015)3394540 - 14/08/2015

¹³¹ Source: company interview, 01/12/2017

¹³² Source: EASME, "VATech", Horizon 2020 SME Instrument data hub available at <https://sme.easme-web.eu/project/674491#>

¹³³ Source: company interview, 01/12/2017

¹³⁴ Source: Ref. Ares(2015)3394540 - 14/08/2015

¹³⁵ See company website at <http://www.kiosked.com/> (consulted on 06/12/2017)

interface connecting content publishers with advert providers¹³⁶.

State of play before SME-I. With its innovative in-content advertising platform launched in 2014, Kiosked became an important player in the digital advertising market. However, in order to reach its full potential, Kiosked aimed to further develop and scale up its platform. Prior to the SME-I, Kiosked faced the following barriers¹³⁷:

- ▶ From a service development perspective, Kiosked lacked the capabilities for audience behaviour analysis and dynamic behaviour. In addition, brand safety and Fraud detection mechanism had to be strengthened in order to provide a better service to customers. Finally, the analytics Dashboard had to be advanced in order to allow for a more granular and in-depth metrics, including audience Life-Time Value prediction.
- ▶ Kiosked lacked the human resources that would advance the platform and transform it into an automated end-to-end service.
- ▶ Overall, appropriate financial resources were lacking for the company to be able to conduct the appropriate demonstration activities and automate its platform.

SME-I Phase II: project description

Outreach channel. While looking for R&D funding for its platform development, Kiosked came across the SME-Instrument¹³⁸ and called upon a consultant in view of submitting an application.

Distinctive features. The company's innovative in-content advertising platform had allowed Kiosked to gain a solid position in the online advertising market. It decided to call upon the SME-I Phase II support

- ▶ As national support was considered inappropriate, more dedicated to earlier stages of development.
- ▶ Because demonstration support with an appropriate amount was necessary to the desired product upscale. Such support was offered in the form of a high amount of co-funding offered under Phase II.

Project description. The platform was already available but was to become more efficient and fed in by a greater customer outreach. Kiosked was awarded the Phase II support in the context of the project "*Longtail: Transforming digital in-content advertising to deliver global scale*"¹³⁹ The core objective of the project was to develop the critical capabilities of the platform in order to foster the targeted upscale¹⁴⁰. The goal was in this case to create an automated end-to-end service that would allow the in-content advertising platform to scale up and reach out to new customers globally.

Outputs. The company was able to conduct the necessary R&D but also upscale activities. It was in addition able to reach out to small and medium size publishers by enabling an automated end-to-end service. Kiosked eventually launched, with the EU support, an automated new service on the platform which has now reached global customers. By increasing the platforms automated end-to-end service, Kiosked was therefore able to further scale

¹³⁶ Source: Ref. Ares(2015)3394540 - 14/08/2015

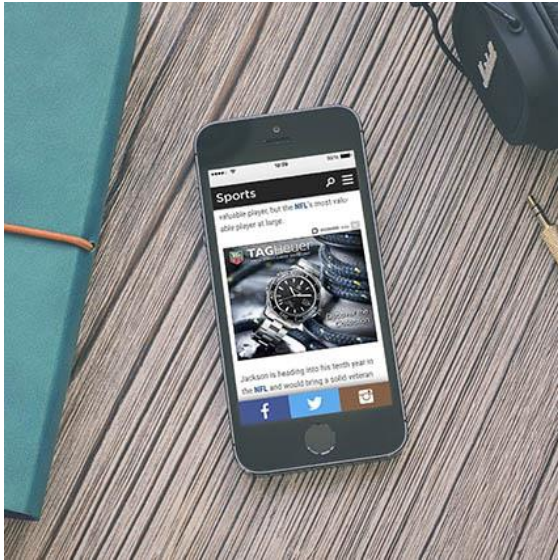
¹³⁷ Source: Ref. Ares(2017)3956102 - 08/08/2017

¹³⁸ Source: company interview, 01/12/2017

¹³⁹ Project Nr. 684016 – see Ref. Ares(2017)3956102 - 08/08/2017

¹⁴⁰ Source: company interview, 01/12/2017

up and match various content Publishers with advert providers. One of the key deliverables was the development of platform capabilities such as brand protection and pre-bid tech to match the demand from rapidly changing online advertising industry, both from technical and publishers' monetization point of view.



Contribution and value added of the SME-Instrument

Contribution. The project successfully led to the delivery of a self-service automated platform that allows customers to interact independently¹⁴¹. The SME-Instrument also benefitted the company as depicted below¹⁴²:

- ▶ **Technological development.** The first contribution of the SME-I support received by the company consists in the successful development of the critical properties of the platform. 7 key properties were necessary to the automation of content match-making. This development allowed for the targeted shift from a manual sales management model to an automated process. Internal efficiency gains were achieved.
- ▶ **Demonstration.** The project allowed for the upscale of the platform and the commercialisation of its functions. The upscale was necessary to generate significant revenues for the company.
- ▶ **Securing capabilities.** Two main of capabilities were developed internally, the first regarding the securing of relevant IPR, the other one regarding the development of relevant analytics.
- ▶ **Commercial capacity building.** The Phase II support was mobilised as to develop the commercial capabilities of the SME. This was operated in two main ways:
 - ▷ **Strategic business intelligence.** The Business Acceleration Services of EASME were supportive of the company, which could initiate a feasibility study regarding its possible penetration of specific markets.
 - ▷ **Communication and marketing.** In addition, the Phase II support helped the company build communication and marketing capabilities. The openness of the SME-I support toward market-oriented activities was perceived as of value to the SME commercial success.
- ▶ **Growth in employment.** The first action undertaken by the company concerned human capital development. Human resources were the main company expense line. Kiosked headcount grew from 20 to peak at 90 employees early 2016. Developers' headcount peaked to 30 at the same time.

¹⁴¹ Source: Ref. Ares(2017)3956102 - 08/08/2017

¹⁴² Source: company interview, 01/12/2017

- ▶ **Internationalisation.** The main market is currently the one of the United States (70%), followed by EMEA and APAC (mainly Japan and Australia). The company also has publisher relationships on the European market. Approximately 80% of revenue remains out-of-EU.
- ▶ **Additional investments.** The company representative confirmed the role of SME-I funding during the due diligence process that led the company to receive debt investment.

Without this investment and without building these capabilities, we would have not been able to reach the targeted revenue that fast"

Matti Korkalainen, SVP Global Business Operations at Kiosked

European Added Value

European Added Value (EAV)¹⁴³. The EAV of the SME-Instrument mainly consisted in some distinctive features that were flagged by the company, including the following¹⁴⁴:

- ▶ **Branding.** The company representative confirmed the value added by the SME-I label effect. This label facilitated the signature of an investment agreement between Kiosked and the European Investment Bank. It was also useful to the company in the establishment of its "global footprint"¹⁴⁵. Visibility was coupled to the label effect, offering press coverage and media airing for Kiosked.
- ▶ **Speed.** The SME-I appeared to be a faster option to be funded for close-to-market innovation activities. When comparing the Phase II process to other public funding streams, the company found that the process would be more efficient with the European track.
- ▶ **International scope.** The main reason for adopting the European SME-I funding track was however for the company the natural market fit. With global ambitions, the SME-I gets away from usual national approaches. The EU perspective brings according to the company representative a different angle to employment creation and partnership development that cannot be offered by other levels of innovation support.

¹⁴³ See Pierre Padilla and Geert Steurs (2016), "Innovation policy: Theory-Based Evaluation of European Added Value", LAP, ISBN-13: 978-3-659-79234-2; ISBN-10: 3659792349; EAN: 9783659792342

¹⁴⁴ Source: company interview, 01/12/2017

¹⁴⁵ Source: company interview, 01/12/2017

4.2.6 Fractus

Company. Fractus is an early pioneer in the development of geometry-based antennas, including internal antennas for smartphones, tablets and wireless Internet of Things devices.



¹⁴⁶ It was founded in 1999 as a spin-off from the Polytechnic University of Catalonia¹⁴⁷. The company has a proven track record in innovation and licensing its award-winning geometry-based antenna technology to wireless device manufacturers in Asia, Europe and the US¹⁴⁸. The company holds a patent portfolio of more than 40 inventions protected through over 120 patents and patent applications worldwide.

Company trajectory

Solution. With the introduction of smaller size devices like smartphones and tablets, as well as the rise of the Internet of Things (IoT), a market opened for miniature antennas with multiband solutions. In this specific case study, Fractus developed "*Virtual Antenna™*", a patented antenna component with a unique miniature (10 times smaller in volume than conventional antennas) that allows multiband solution (2G, 3G, 4G)¹⁴⁹ or with multiband capabilities. Advantages span from size reduction and multiband operation to lowering the costs¹⁵⁰.

Trajectory. Fractus has been recognized by the industry as a technology innovator throughout the years. Among the numerous awards and honours, the company was named a 2005 Davos World Economic Forum Technology Pioneer, 2007 Elektra European Electronics R&D Developer and recognized by the European Patent Office for its award-winning inventions. Since its foundation, Fractus was granted multiple funds by the Spanish

Government in support of the research & development projects performed.

Fractus originally positioned itself as a products and services company, developing customised antennas for leading smartphone manufacturers (Samsung, LG, Siemens) and network operators (Telefonica). After several challenging years with an increasing number of clients using Fractus' patents on their smartphone models without paying royalties, its founders envisioned a move from a products and services company developing customised antennas designs for a limited number of very large clients to a technology-licensing company creating excellence in antenna technologies while serving numerous customers in multiple markets.

State of play before SME-I. Fractus was a successful company willing to expand its R&D capabilities and product offerings to clients across Asia, Europe and the US. Still it faced critical challenges:

- ▶ When competing in a fast-moving industry, the time-to-market can make a critical difference

¹⁴⁶ See company website at <http://www.fractus.com> (consulted on 06/12/2017)

¹⁴⁷ See university website at <https://www.upc.edu/en> (consulted on 06/12/2017)

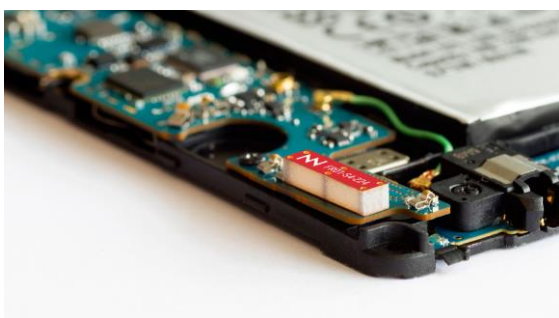
¹⁴⁸ See company website at <http://www.fractus.com> (consulted on 06/12/2017)

¹⁴⁹ Source: Ref. Ares(2017)4192963 - 27/08/2017

¹⁵⁰ Source: company interview, 01/12/2017

between a company and its competitors¹⁵¹. Acceleration was needed for Fractus to move towards relevant market opportunities faster than it could on its own.

- ▶ Although Fractus had already patented the technology, it needed support to hire engineers, sales managers and relevant staff needed to launch VATEch as fast as possible¹⁵².
- ▶ Access to finance for this particular project was a critical point too.



SME-I Phase II: project description

Outreach channel. Fractus learned about the SME-Instrument through a private consultant specialised in identifying funding tracks and supporting SMEs in their application for subsidies¹⁵³.

Distinctive features. Fractus Virtual Antenna™ Technology has been conceived to make the design of mobile products simpler, faster, and cost-effective¹⁵⁴. Such ambition implied a necessary demonstration phase for the prototype available to the company. The SME-I Phase II opportunity was

therefore appealing to the company for the following reasons:

- ▶ First, Fractus was operating closer to the market than usually allowed by most Research, Technology Development and Innovation (RTDI) grants. Appropriate funding was thus needed to fund the process of driving the technology through higher maturity stages.
- ▶ Finally, the high co-funding rate convinced the company that the Phase II support was appropriate to its needs and ambitions.

Project description. Fractus was awarded the Phase II support in the context of the project “*Virtual Antenna™ Technology: the Next Generation Antenna for Wireless Devices*”¹⁵⁵. The core objective of the project was to reduce the size of the antenna while enhancing its multiband solution and ultimately manufacture and test VATEch.¹⁵⁶ Once the technology behind the device was secured the aim was to translate it into a single mobile application¹⁵⁷. Fractus was able to build upon the patented technology and launch VATEch¹⁵⁸ thanks to the Phase II support.



¹⁵¹ Source: company interview, 01/12/2017

¹⁵² Source: company interview, 01/12/2017

¹⁵³ Source: company interview, 01/12/2017

¹⁵⁴ Source: Ref. Ares(2015)1829718 - 29/04/2015

¹⁵⁵ Project Nr. 674491 – see Ref. Ares(2017)4192963 - 27/08/2017

¹⁵⁶ Source: Ref. Ares(2017)4192963 - 27/08/2017

¹⁵⁷ Source: company interview, 01/12/2017

¹⁵⁸ Source: company interview, 01/12/2017

With its Phase II project Fractus was aiming for a product that would integrate all necessary components into one and consequently serve a broad range of customers' needs¹⁵⁹. The first step was to research electromagnetic simulations, validate parameters, and design and validate the VATech prototype.¹⁶⁰ Thanks to the Phase II support, a new "ALL mXTEND™" product was designed and manufactured.

Outputs. The project resulted in the development of 2 new products (RUN mXTEND™ and ALL mXTEND™) that act as an antenna components and can be used as a replacement of existing customized antennas in wireless devices such as smartphones, tablets, and laptops¹⁶¹. It also led to the development of the company network across the globe.

Contribution and value added of the SME-Instrument

Contribution. The SME-Instrument benefitted Fractus in different ways such as depicted below¹⁶²:

- ▶ **Accelerated demonstration.** The Phase II support allowed the company to move faster through the TRL stages separating the initial prototype from the market and its end product format. Besides the launch of two additional products, the investment in key resources was instrumental in accelerating the deployment of the technology to the market.
- ▶ **International Network development.** The Business Acceleration Services were mobilized by the company as to reach out to new partners and potential customers across the

world, particularly active on Chinese and Indian markets. Fractus representatives attended trade fairs in and out of Europe. They used the funding from the Phase II award as to finance the travels necessary to a broad diffusion and dissemination of the project results.

- ▶ **Demand-side capacity building.** Fractus designed guidelines in written format as to raise awareness about its products. This awareness raising effort was mainly directed to product designers. The guidelines as well as the video tutorial (available on the web through an online channel that is publicly accessible and popular) both aim to provide explanations related to the integration of the antennas developed by Fractus into other systems. This line of dissemination is aimed at sensitizing the demand side.
- ▶ **Market penetration and growth.** The Phase II project led to two new products. While the company was active in product areas associated with a particular frequency range (Bluetooth and Wi-Fi), it penetrated a new market thanks to the SME-I: the one of mobile devices. Sales are now booming, steering the products developed toward a high-growth trajectory possibly for the years to come.
- ▶ **Growth in turnover.** Although Fractus generates revenue out of several licensing schemes that relate to a broader set of antennas, the commercial success of the project brings growth in sales and turnover to the company. Although confidential, information about the turnover collected during the case study research shows that the

¹⁵⁹ Source: Ref. Ares(2017)4192963 - 27/08/2017

¹⁶⁰ Source: Ref. Ares(2017)4192963 - 27/08/2017

¹⁶¹ Ref. Ares(2015)1829718 - 29/04/2015

¹⁶² Source: company interview, 01/12/2017

development of the company is both strong and highly promising.

- ▶ **Growth in employment.** Besides software and hardware-related expenses, the main expense line was the one of human capital. Human resources represented nearly 70% of the total project costs. Thanks to SME-I funding Fractus recruited engineers, supply chain and key account managers.
- ▶ **Secured market shares.** First adoption is a key to such technology: when an antenna is integrated into a mobile device, it is very likely that the system integrator will stick to the same provider. Acceleration was therefore key for the company to secure its market shares. New requests for antennas missed by Fractus would eventually result in a loss of (or lack of expansion in) market shares.
- ▶ **IPR Portfolio.** Fractus filed patent applications and strengthened its IPR portfolio along the implementation of the SME Phase II project. This stronger portfolio value is also a repository that can be exploited later by Fractus, as confirmed by the company representatives.

European Added Value

European Added Value (EAV)¹⁶³. The EAV of the SME-Instrument mainly consisted in some distinctive features that were flagged by the company, including the following¹⁶⁴:

1. **The right instrumental mix.** Besides the funding of the costs related to technological upscale activities, the company built on Phase II support as well as its Business Acceleration Services to develop its network and marketing capabilities.
2. **Appropriate support modalities** The Phase II support thus came as unique compared to other funding streams which usually offer lower co-funding rates, lower amounts and a less market-oriented focus. The company could therefore not only develop two new products but also strengthen its position on the Chinese and Indian markets.

Branding. The label effect applied to the Fractus case. The company representatives confirmed that besides the pride of being an SME-I awardee, the Phase II support brought a stronger visibility and reinforced the reputation of the company. Not only does the branding matter in Europe, it is also a credible stamp across the world.

"Without the SME-I we could not have launched these products on time"

Victor Noguera, Finance Director at Fractus

¹⁶³ See Pierre Padilla and Geert Steurs (2016), "Innovation policy: Theory-Based Evaluation of European Added Value", LAP, ISBN-13: 978-3-659-79234-2; ISBN-10: 3659792349; EAN: 9783659792342

¹⁶⁴ Source: company interview, 01/12/2017

4.2.7 ZenRobotics

Company. ZenRobotics¹⁶⁵ is a Finnish high-tech company founded in 2007. It specialises in Artificial Intelligence (AI)-controlled robotic systems for waste management. Based on the scientific work developed by the neuro-robotics research group at Aalto University, the company saw a potential in the combination of robotics with learning systems. The aim was to create a smart robot to develop in a commercial waste sorting management solution.¹⁶⁶



Company trajectory

Solution. The SME developed ZenRobotics Recycler (ZRR), “a robotic waste sorting system designed to lower costs, reduce manual labour, increase recycling efficiency and increase the purity of recycled materials”¹⁶⁷. The robot consists of a design software that can be applied to standard hardware components available in all waste processing fields in order to identify and bound recycle materials. ZRR is a “unique machine-learning based system, which gathers gigabytes of data of its environment, makes smart decisions and moves a robot arm in an unpredictable environment”.¹⁶⁸

Trajectory. ZenRobotics offers an innovative way to manage waste and classify materials for recycling. Since 2007 the company received multiple national loans and research and development (R&D) grants from the Finnish Funding Agency for Innovation (Tekes)¹⁶⁹. At this point the company had developed a prototype, had two customers as well as a subcontractor willing to manufacture the end product¹⁷⁰. However, more funding was needed

to finance additional R&D, scale-up and market outreach efforts¹⁷¹.

State of play before SME-I. ZenRobotics reached the prototyping phase but faced key challenges when it came to scale-up and reach commercialisation:

- ▶ ZenRobotics initially lacked the necessary market knowledge in understanding existing waste sorting processes¹⁷². Traditional waste plants are huge and usually crush items first and a disruptive solution was targeted in that context. A research step was therefore necessary to effectively reflect on the ways to achieve the smart automation of the process at stake. Design experience was also to be built in line with this goal. When introducing a smart robot, a big part of the process and ecosystem of the plant needed to be adapted. Moreover, due to different national regulations, waste plants are not all following the same standards,

¹⁶⁵ See company website at <https://zenrobotics.com/> (consulted on 01/12/2017)

¹⁶⁶ Source: company interview, 17/11/2017

¹⁶⁷ Source: company website at <https://zenrobotics.com/> (consulted on 01/12/2017)

¹⁶⁸ Source: Ref. Ares(2017)1988723 - 18/04/2017

¹⁶⁹ See company website at <https://www.tekes.fi/en/>

¹⁷⁰ Source: company interview, 17/11/2017

¹⁷¹ Source: company interview, 17/11/2017

¹⁷² Source: company interview, 17/11/2017

leading to varying characteristics from a plant to another.

- ▶ In addition, the company needed funding to operate the costly integration of AI into the robotic system. The installation process was also to be made more efficient. Its length and cost were mainly due to the shipping time of some hardware parts as well as to the time necessary to set the software parameters
- ▶ The company went through a difficult financial period in 2014, which made the desired investment in product improvement impossible for the company alone¹⁷³. At the same time, the company decided to step away from industrial robots and develop a manipulator that can get the full benefit of a smart software. This marked the moment when the company decided to step away from traditional robots toward smart systems. The company was falling short in cash flow and required financial capacity to be able to move forward.
- ▶ ZenRobotics was lacking market knowledge. This had to be built through (among other channels) human resources. These were overall lacking in the company, although they were necessary to the development and demonstration of the smart solution under the scope.
- ▶ The company shareholders feared dilution through the gathering of new private finance.
- ▶ The company had been very active in national support schemes and was to look for new funding streams. In order to further develop

their product, it was forced to look for other opportunities outside of Finland.



SME-I Phase II: project description

Outreach channel. ZenRobotics came across the SME-Instrument thanks to the promotion activities of the Finnish Funding Agency for Innovation (Tekes)¹⁷⁴. The SME-Instrument was appealing due to the high (70%¹⁷⁵) upfront payment option as well as the potential grant amount. The company decided to apply for support and called upon a consultant to support its application.

Distinctive features. The funding stream appeared relevant to the company for several reasons:

- ▶ The possible amount – deemed comparatively high – was a first reason for the company to apply for SME-I Phase II support.
- ▶ The co-funding rate – also deemed high – was another attractive feature of the SME-I Phase II support.
- ▶ The possibility of a pre-payment was another aspect that was of interest to the company.
- ▶ In addition, the focus of the SME-I, which is more market-oriented, was key to the

¹⁷³ Source: company interview, 17/11/2017

¹⁷⁴ Source: company interview, 17/11/2017

¹⁷⁵ In that specific case, the upfront payment was in practice not 70% of the whole grant amount but remained considerable (in the range of 30%).

ZenRobotics. National funding would tend to focus on lower TRL levels while close-to-market activities would be supported by debt financing, which was not the preferred option for the change targeted by the SME.

Project description. ZenRobotics was awarded the Phase II support in the context of the project “*Robotic Recycling Revolution*”¹⁷⁶. The core objective of the project was to revolutionise waste sorting by developing the ZRR prototype and demonstrate it into a reliable and commercially attractive robotic sorting system for Commercial and Industrial waste. The comparative value developed through this solution was aimed to outperform all existing sorting technologies in terms of picking speed, purity of sorted materials and investment requirements¹⁷⁷. The robot was developed in 10 months. In order to test the resulting system in a real environment, the company operated retrofit operations on a partner’s plant in the Netherlands. This on-site testing allowed for proper adjustments and while it showed rather negative results in the beginning, this process led to the successful adaptation of the prototype to the sorting chain.

Outputs. The first step was to use the SME-Instrument funding for R&D. ZenRobotics was able to buy new equipment and further develop its solution. Funding was also used to gain more knowledge of waste management ecosystems and to improve the company’s commercial potential. The result is a solution that is faster, more stable, and self-learning.



Contribution and value added of the SME-Instrument

Contribution. Thanks to the SME-Instrument and a responsive management from the side of the executive agency¹⁷⁸, in 2016 ZenRobotics had a breakthrough: it was able to apply Artificial Intelligence (AI) to waste plants and launch a new self-learning robot. The SME-Instrument benefitted the company in different ways. These benefits can be approached sequentially¹⁷⁹:

- ▶ **Company survival.** The SME-I support followed an internal company crisis regarding human capital. Thanks to the SME-I Phase II funding ZenRobotics could keep its employees while it was in a difficult financial position.
- ▶ **Independence.** In line with initial expectations, the company avoided a possible dilution of its shares thanks to the Phase II funding. Not only did the SME-I experience allow for the remaining independence of the company from new institutional investors, it also played the role of learning channel through which company representatives learnt about other opportunities (such as the guarantees and loans offered by European Union bodies).
- ▶ **Process learning and product design.** The first contribution of the SME-I was the learning benefits to ZenRobotics who could develop all necessary analyses of the waste sorting process and issues relevant to its automation. Following knowledge development was industrial design,

¹⁷⁶ Project Nr. 673690 – see Ref. Ares(2017)2081082 - 23/04/2017

¹⁷⁷ Source: Ref. Ares(2017)2081082 - 23/04/2017

¹⁷⁸ Source: company interview, 17/11/2017

¹⁷⁹ Source: company interview, 17/11/2017

involving performance improvement but also professional design.

▶ **Technical progress and demonstration.**

Through SME-Instrument funding, ZenRobotics was able to adapt the robotic features to fit AI and the specifics of waste sorting. It also managed to reduce assembly time thanks to the setting up of a remote installation feature based on a dedicated calibration tool. The Phase II support led to the successful application of general purpose AI to the robotic system. It implied investments in equipment and testing. The funding also led to adjustments in the hardware part, mobility adjustments being necessary for the arm to follow the movement decisions generated by the AI software agent on the basis of the sensed information.

▶ **Increase in commercial capacity.** The SME-I support helped the company buffer its demonstration efforts, facilitating the increase in sales capacity. The SME-I support also brought in market intelligence as the company was in need to develop further expertise regarding the classical waste sorting market.

▶ **Commercialisation of a competitive solution.** Thanks to the SME-Instrument, ZenRobotics developed a disruptive product with commercial outlook. Phase II support from the SME-Instrument allowed ZenRobotics to further develop its product from a prototype phase to a full-scale commercial product. The upgraded product was able to *i)* sort smaller objects faster and pick up larger and heavier ones, *ii)* detect new fractions (plastics, ferrous/non-ferrous metals) with 95% purity and recovery, *iii)* conduct testing and

demonstration remotely¹⁸⁰. One major breakthrough was that the operator can teach the robot which waste fractions he/she wants sorted. Previously, fractions were fixed by ZenRobotics ("wood", "stone", "metal"). The solution also allows for the building of smaller, more agile and much cheaper sorting plants (with no crusher needed).

▶ **Internationalisation.** The main clients of Zenrobotics are American and Japanese firms. The SME-I supported that internationalisation effort by providing the company with enough capacity to build a solid distribution network in these key markets.

▶ **New investments.** Besides supporting the demonstration of a disruptive product,¹⁸¹ the SME-I support created trust. This trust was instrumental regarding investors and convincing them to provide additional investments. After a difficult financial period, the company was in need of risk investment. In a way the "*SME-Instrument is quite close to risk investment*"-stated the company representative. The European support came in at a strategic moment, turning ZenRobotics into a successful and financially stable company. Additional investors have poured in and the company is currently in discussions with the European Investment Bank (EIB) and the European Fund for Strategic Investment (EFSI).

▶ **Market disruption.** Market impacts are expected as the solution addresses challenges such as important human resource issues relevant to the sector. The solution brought to the market is expected to challenge the business model of usual waste sorting companies competing with ZenRobotics. The

¹⁸⁰ See Ref. Ares(2017)1988723 - 18/04/2017

¹⁸¹ Source: company interview, 17/11/2017

solution is seen as disruptive, allowing for new-generation plants with practical comparative advantages (price, process, size, etc.) – which might affect the crusher providers' market for instance.

- ▶ **Growth in turnover.** 100% of sales are related to the SME-Instrument support which allowed for the demonstration activities to

result in the successful deployment of the smart robot developed by ZenRobotics.

- ▶ **Growth in employment.** As explained, the company could keep its employees and remain at a stable level of employment. Following its commercial success and accounting now for 32 employees, ZenRobotics is now recruiting and plans to hire about 15 more employees by 2018.

"The SME-I is quite close to risk investment; it is a serious option for a growing company"

Harri Holopainen and Ditty Damström, respectively Head of technology and Board member and Head of Finance at ZenRobotics

European Added Value

European Added Value (EAV)¹⁸². The EAV of the SME-Instrument mainly consisted in some distinctive features that were flagged by the company, including the following¹⁸³:

- ▶ **Label effect.** The European dimension of the SME-Instrument served as an "approval stamp" providing ZenRobotics with more credibility and a renewed branding of the company. This played an important role in the process of reassuring investors.



- ▶ **Globalisation of the company's activities.**

ZenRobotics' ambition to expand in the EU waste management market proved to be more difficult than foreseen. During the project, the company realized that the waste industry is highly fragmented both within the EU and globally. Each country has unique traditions, waste fraction definitions and varying levels of EU directive or other legislative compliance. Waste is different, fraction definitions are different, plant processes are different, alternative process costs are different and waste feeding is different. This in turn means that such robot as the one developed by the SME must be able to deal with all the existing differences and variations. The waste industry is also conservative, which forced ZenRobotics to seek early adopters globally. Financing that R&D effort has been the key enabler of ZenRobotics globalization activities¹⁸⁴. The

¹⁸² See Pierre Padilla and Geert Steurs (2016), "Innovation policy: Theory-Based Evaluation of European Added Value", LAP, ISBN-13: 978-3-659-79234-2; ISBN-10: 3659792349; EAN: 9783659792342

¹⁸³ Source: company interview, 17/11/2017

¹⁸⁴ Source: company interview, 17/11/2017

company made use of Business Acceleration Services: it participated in trade fairs in Germany, Japan and the US trade fairs, linking up with possible resellers. Japan and the United States became key markets, while the European outlook is positioned on a longer-term perspective for the SME.

- ▶ **Access to risk finance.** Besides providing demonstration support when it was not accessible to the company in desirable terms, the SME-Instrument opened new financing perspectives to the company. These include debt-financing options offered by European bodies such as the European Investment Bank (EIB).

4.2.8 Xpand Biotechnology Company trajectory

Company. Xpand Biotechnology is a Dutch SME developing cell cultivation (bioreactor) and regenerative medicine (calcium phosphate-based materials) ¹⁸⁵ technologies. Since its launch in 2004, Xpand Biotechnology has the ambition to take its products from the lab to the market.¹⁸⁶



Company trajectory

Solution. Xpand Biotechnology developed a new generation of orthobiologics: EpitaxOs, a nano-structured bone regeneration solution “*which induces the formation of bone by attracting the patient’s own stem cells to the defect site and stimulate them to make autologous bone (in situ bone tissue regeneration)*”¹⁸⁷. This solution is typically used in spinal cord application at lower costs and in a less invasive manner compared to other existing practices¹⁸⁸. Consequently, the product also has a social impact due to a faster patient recovery rate and thus reducing healthcare costs¹⁸⁹.

Trajectory. EpitaxOs is based on an innovative material with disruptive potential in the spinal and dental market. The company frequently participated in projects supported by the European Framework Programme (FP) for Research and Technology Development. Before the SME-Instrument, EpitaxOs’ Technology Readiness Level (TRL) was at a prototyping/pre-demonstration stage (TRL6)¹⁹⁰. At this point the solution could not be launched nor commercialised. The company made use of the Phase II support as to be able to cross the Valley of Death and bridge the TRL stages separating the prototype from the market.

¹⁸⁵ See company website at <http://www.xpand-biotech.com> (consulted on 05/12/2017)

¹⁸⁶ Source: company interview, 28/11/2017

¹⁸⁷ Source: Up2Europe (2017), “Growing bone fast and cost-effective (CHARME)”, available at https://www.up2europe.eu/european/projects/growing-bone-fast-and-cost-effective_38377.html

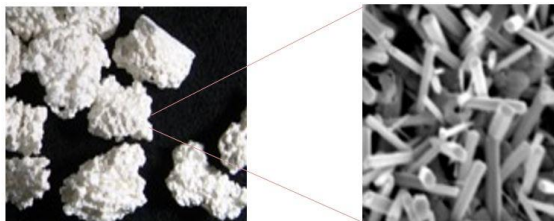
¹⁸⁸ Source: company interview, 28/11/2017

¹⁸⁹ Source: company interview, 28/11/2017

¹⁹⁰ Source: company interview, 28/11/2017

State of play before SME-I. After more than a decade focused on science and development, Xpand Biotechnology's EpitaxOs product achieved market approval for the largest market segments in the EU and the US.¹⁹¹ However, the company faced key challenges when it came to reach a higher technology maturity level and in making the product commercially viable.

- ▶ From a technological development perspective, it was necessary for EpitaxOs to mature from TRL6 to TRL8/9. This required further development to reach a product that would fit market demand. The objective was to produce sufficient volumes and ensure market penetration.
- ▶ Xpand Biotechnology lacked the commercial experience necessary to efficiently identify partners, clients and relevant market targets¹⁹². Commercial network development was thus needed by the company, not only to reach out to clients but also distribution partners.



SME-I Phase II: project description

Outreach channel. The company representative knew about the SME-I because of a long track

record as a researcher supported by Framework Programme (FP) funding under previous programming periods. The company called upon the help from a subsidy advisor¹⁹³ to draft and submit its application.

Distinctive features. The company was looking for a funding track that would support it overcome the commercialisation and market penetration challenges associated to the new solution¹⁹⁴. In addition, the limited availability of innovation funding at the national level made the SME-I demonstration support track appealing to Xpand Biotechnology.

Project description. Xpand Biotechnology was awarded the Phase II support in the context of the project "CHARME"¹⁹⁵. The core of the project was to lead to i) higher TRL maturity, ii) the development of a commercial scale production, iii) demonstrate the clinical efficiency, performance and superiority of EpitaxOs, and iv) market penetration¹⁹⁶. A very important step was to conduct market research and identify relevant industries and underlying players. With a prototype already available, Xpand Biotechnology aimed to scale up the production of EpitaxOs to sufficient volumes for market penetration.

Outputs. With the Phase II support, the company was able to scale up its orthobiologic product (1 to 4mm granulates) to an industrial production scale. It also managed to partner with a market research and sales company, move that was soon after followed by the first sales¹⁹⁷.

¹⁹¹ Source: Ref. Ares(2017)4758162 - 29/09/2017

¹⁹² Source: company interview, 28/11/2017

¹⁹³ Source: company interview, 28/11/2017

¹⁹⁴ Source: company interview, 28/11/2017

¹⁹⁵ Project Nr. 674282 – see Ref. Ares(2016)5962653 - 17/10/2016

¹⁹⁶ Source: Ref. Ares(2016)5962653 - 28/10/2016

¹⁹⁷ Source: company interview, 15/11/2017

Contribution and value added of the SME-Instrument

Contribution. Thanks to the CHARME project and a flexible management from the side of the executive agency¹⁹⁸, a successful business alliance has been concluded which allowed for the global launch and market approval of a unique and cost-effective bone graft product, currently marketed under the name MagnetOs¹⁹⁹. The SME-Instrument benefitted the company as follows²⁰⁰:

- ▶ **Demonstration.** Xpand Biotechnology had already developed a functional prototype. More resources were needed to expand the clean room capacity and operate the costly animal and pre-clinical testing. Through the SME-I, the upscaling process was delivered and the product was able to reach the market.
- ▶ **CE Marking.** Through the SME-Instrument support, Xpand Biotechnology had the resources to meet the requirements of the applicable European Commission (EC) directives. Consequently, MagnetOs achieved CE marking, an important step towards its commercialisation in Europe.
- ▶ **Food and Drug Administration (FDA) approval.** Phase II support enabled the company to conduct the pre-clinical trials needed to achieve FDA approval in the US. Given that the US is a key market, where the largest bone graft industries are located, regulatory compliance and authorizations were essential to the commercialisation envisaged by the SME in the US.
- ▶ **Commercial capacity.** The company built upon Business Acceleration Services as to be present in relevant trade fairs and events, link up with partners and develop sales forces. This improved commercial capacity translated into a new version of the end-user packaging attributed to the product. It also translated into choices, such as the decision not to prioritize given Asian markets over other lead markets.
- ▶ **Commercialisation and market expansion.** It was through the networking events organised in the ambit of the SME-Instrument that Xpand Biotechnology was able to meet and collaborate with Kuros Biosciences²⁰¹ a commercial partner whose aim is *et al*/to commercialise and sell MagnetOs in the US and the UK. Besides the commercialisation of its solution directed to spine treatment, the company currently considers a possible expansion to another promising market (dental).
- ▶ **Internationalisation.** The company is expanding internationally and plans on developing on the American and British markets in the very near future. In its oversea market, it follows a trajectory from the Eastern part of the American Coast, progressively expanding west.
- ▶ **Growth in employment.** The company hired additional employees thanks to the Phase II support received. This round of recruitment aimed at strengthening different company capabilities (commercial, technical and supply chain).
- ▶ **Growth in turnover.** At the moment sales details remain confidential. However, growth in

¹⁹⁸ Source: company interview, 28/11/2017

¹⁹⁹ Please note that during the project Xpand Biotechnology changed the name of the product from EpitaxOs to MagnetOs

²⁰⁰ Source: company interview, 21/11/2017

²⁰¹ See company website: <http://www.kuros.ch/>, consulted on 05/12/2017

turnover is noticed and expected from the internationalisation of Xpand Biotechnology. In the coming 4 to 5 years the SME will be 100% based on MagnetOs which results from SME-I support.

- ▶ **Merger.** Trade fairs and conferences on spine surgery provided Xpand Biotechnology with the opportunity to identify partners. Kuros Biosciences was identified first as an appropriate partner, and second as a good candidate for a merger. The two companies thus merged in January 2017. Together, they ambition the position of global leader in orthobiologics and spinal treatment, building among other things upon the innovative product of Xpand Biotechnology and the sales force of Kuros Biosciences.
- ▶ **Investment perspectives.** The SME-I came in support of Xpand Biotechnology's will to find additional investors. Among other benefits, it allows the company to be more financially attractive to potential investors.

European Added Value

European Added Value (EAV)²⁰². The EAV of the SME-Instrument mainly consisted in some distinctive features that were flagged by the company, including the following²⁰³:

- ▶ **Internationalisation ramp.** The Xpand Biotechnology market is considered as international in nature. The national market was thus too limited for the company to grow. Before expanding internationally, the presence of the SME on the EU market was important as to achieve the success necessary to compete out of Europe. In that sense, a successful product commercialization in Europe can be used as a demonstration of the product commercial success to the world²⁰⁴.
- ▶ **Demonstration support.** The SME-I complemented the lack of national support to demonstration according to the company representative. It comes as an appropriate amount but also the right support modalities mixing technological and business activities to an appropriate extent.

"Without the SME-I we would not have had the product and there would be no merger"

Frank-Jan van der Velden, Founder of XPand Biotechnology

²⁰² See Pierre Padilla and Geert Steurs (2016), "*Innovation policy: Theory-Based Evaluation of European Added Value*", LAP, ISBN-13: 978-3-659-79234-2; ISBN-10: 3659792349; EAN: 9783659792342

²⁰³ Source: company interview, 28/11/2017

²⁰⁴ Source: company interview, 28/11/2017

4.3 SME-Instrument Phase II: cross-case analysis

How and why do SMEs reach out to the SME-I and decide to apply for Phase II support.

The access to Phase II support mainly depends on a few main channels. More importantly, its value proposition matches existing SME needs. Its features address the obstacles faced by SMEs willing to innovate and deploy internationally.

How do companies learn about the SME-I? The case studies show that most of the supported SMEs did not know the SME-I in the first place. Company representatives came across the SME-I programme thanks to **internet** searches (2, 4, 7), the **promotion** of the programme done by another (public) organisation (3, 5, 6) or private **consultants** specializing in public fundraising (1, 3, 4²⁰⁵, 8²⁰⁶). The companies could then further learn about the support available, participating for instance to dedicated **events** (such as in the case 5).

What were the attractive features of the SME-I Phase II support? The features of the SME-I Phase II that proved attractive to the successful Phase II awardees were mainly the following:

1. The possibility for SMEs to apply as **single applicants** (2, 5);
2. The **scope** of the programme which focuses on close-to-market innovation and mixes both a classical RTDI²⁰⁷ and more market-oriented approaches (1, 2, 3, 4, 5, 6, 7, 8);

3. The financial modalities associated to the Phase II support, covering a/ the **absolute funding amount**, b/ the **possibility of an upfront payment** and c/ the **co-funding rate** (1, 2, 3, 4, 5, 6, 7, 8).

What are the challenges SMEs seek to address with SME-I Phase II support? Key obstacles faced the awardees and motivated their application for Phase II funding. These obstacles were of different kinds:

4. **Technology-related.** Each of the supported project required knowledge-based development activities to overcome particular technical challenges. These ranged from technological upscale to certification-related activities (1, 2, 3, 4, 5, 6, 7, 8).
5. **Access to "close-to-market" finance.** Each of the companies approached in this study needed financial support for close-to-market activities. Such activities (mainly demonstration-related – 1, 2, 3, 4, 5, 6, 7, 8) are very often risky but usually not (or hardly) covered by regular public funding streams²⁰⁸. This proved crucial for the SMEs (such as in case 7 in which the company was concerned with the heavy weight of clinical trials) in need of cash flow, or having high infrastructure and equipment-related costs (i.e. 2).
6. **Pace.** Time-to-market was a critical challenge for several companies under the scope (such as 1, 4, 6 and 7) for which fast market moves can

²⁰⁵ In this specific case, the company decided to make use of consulting support after identifying the SME-I as a serious opportunity via internet searches.

²⁰⁶ In this case, prior FP experience was the key for the company representatives to be aware of the existence of European funding streams.

²⁰⁷ Acronym referring to "Research, Technology Development and Innovation"

²⁰⁸ See for instance Els Van de Velde, Christian Rammer, Pierre Padilla, Paula, Schliessler, Olga Slivko, Birgit Gehrke, Valentijn Bilsen, and Ruslan Lukach (2012), "Exchange of good policy practices promoting the industrial uptake and deployment of Key Enabling Technologies", étude conduit pour le compte de la Commission européenne (DG ENTR)

prove critical and often hampered by the lack of appropriate resources.

7. **Marketing and commercial capacity.** Some of the supported SMEs needed a reinforcement of their marketing capabilities as to better understand their market, reach out to (potential) users and facilitate the uptake of their solutions through appropriate adoption and distribution channels (3, 4, 5, 6, 7, 8). This need was particularly targeted by the Business Acceleration Services implemented in the context of the SME-I.
8. **Human Resources (HR).** The need for skilled (and sometimes less skilled) human capital was also critical to several companies (1, 2, 4, 7). Human resources were the main expense line for most of the companies under study.
9. **Link to the international demand side.** In several cases, one or more link(s) was/were to be further developed with potential end users across borders, users who could for instance provide specifications or integration opportunities (2, 3, 4, 5, 7, 8).

The contribution of the SME-I Phase II support can be observed at various levels.

The forms of contribution of the SME-I to the commercial success of Phase II awardees are multiple as are the trajectories followed by the SMEs themselves²⁰⁹. The analytical work led to cluster the contributions in terms of their position in the overall logic of action.

How does the SME-I Phase II help SMEs build the appropriate **capacity** to deploy their innovations to the market? The Phase II support received by

companies helped them address key challenges and take advantage of important opportunities. The SME-I contributed to SMEs' increase in capacity from different angles:

10. **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. The SME-I therefore allowed for an increase in capacity in all SMEs (1, 2, 3, 4, 5, 6, 7, 8).
11. **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 further improve their strategies and better succeed on their target markets (3, 4, 5, 6, 7, 8). Some even went beyond, building upon project results to develop a new line of expertise and provide new services on that very basis (i.e. 6).
12. **Building demand capacity.** A link was operated to the demand side through the Phase II activities undertaken by some of the applicants, leading to the possibility to build a demand capacity on the user side (1, 2, 3, 5, 7).
13. **Securing Intellectual Property Rights (IPR).** IPR are critical competitive assets. IPR portfolios were either developed or strengthened during the Phase II support

²⁰⁹ One of the companies for instance survived a difficult market period and eventually deployed a technology that has now the potential to drastically impact the targeted market; another one is an incubated start-up that went through an accelerated growth phase; etc.

process (1, 2, 4, 5, 7), often as a result of the support of the Business Coaching (i.e. 5 and 7).

14. **Remaining independence.** The possibility for SMEs to receive public funding guaranteed their independence (2, 3, 7). This appeared to be key to the company representatives 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 (2, 3, 7).
15. **Mutating business model.** Some of the technological and market developments pursued by the participating companies implied fundamental changes. These could be organizational (such as in case 6), production-related (such as in case 3), etc. For some of the awardees, the Phase II award supported key adjustment in the company business model. It led to a structural modification of the initial company revenue generation model (such as 2, 5, 7) 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 (i.e. case 7).

What are the results and effects of the SME-I Phase II support over the supported companies? First, the SME-I Phase II support proved instrumental in **linking technological progress to market opportunities:**

16. **Research, Technological and Product Development.** The support helped all awardees 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 (1, 2, 3, 4, 5, 6, 7, 8).

17. **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 II support allowed SMEs to go through the demonstration phase faster, bridging the Valley of Death toward The Technology Readiness Level (TRL) 9²¹⁰ in a more efficient way (1, 2, 3, 4, 5, 6, 7).

The SME-I Phase II support also created important **network effects** in the benefit of the supported SMEs:

18. **Visibility and outreach.** The Business Acceleration Services offered by the SME-I proved key to their recipients. The participation of companies to fairs and events brought by the SME-I support led them to be more visible and reach out to new players in Europe and beyond (1, 2, 3, 6, 7):
 - a. **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 (1, 2, 3, 4, 5, 6, 7).
 - b. **Access to international markets.** The access to international markets by Phase II awardees in view of reaching out to a broader set of possible clients (1, 2, 3, 4, 5, 6, 7, 8) and partners (1, 2, 3, 5, 6, 7, 8) was facilitated by the SME-I not only in Europe but also in Asia (1, 2, 3, 4, 5, 7).

What are the commercial results and impacts resulting from the SME-I Phase II support? The support provided to the companies strengthened them and exposed them to cross-national networks.

²¹⁰ See European Commission Decision C(2017)7124 entitled HORIZON 2020 – WORK PROGRAMME 2018-2020 (General Annexes)

Besides the conservation of market shares (i.e. 1), this increase in capacity resulted in several forms of **commercial success**:

19. **Market Validation.** Market validation was obtained as a key result of the Phase II support (2, 4, 5, 8). Awardees could establish links with the user side in order to receive consumer feedback on their product(s)/service(s).
20. **Accelerated commercialisation.** The SME-I Phase II funding accelerated the innovation and commercialization process (1, 2, 4, 5, 6, 7). 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 (1, 7), for instance by providing an opportunity to reach demonstration results and/or access lead-users or distributors faster (1, 2, 3, 7, 8).
21. **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-I Phase II activities undertaken by almost all supported SMEs (1, 2, 3, 4, 5, 6²¹¹, 8).
22. **Penetration of and growth on new markets.** Some of the SMEs could enter and grow on new markets thanks to the received Phase II support (1, 4, 5, 7, 8).
23. **Market disruption potential.** Two cases led to the development and upscale of a prototype that has now the potential to completely disrupt the targeted market(s) as a result of the SME-I experience (3, 7).

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

24. **Growth in turnover.** The SMEs under the scope benefitted from an increase in turnover as a result of their SME-I experience (1, 2, 3, 4, 5, 6, 8). Some of them even consider that their current sales and commercial success are 100% based on their SME-I award (2, 3, 7, 8) or to a great extent (nearly 80% in cases 4-5 and 85% in case 6 for instance).
25. **Growth in employment.** All SMEs increased their human capacity (1, 2, 3, 4, 5, 6, 7, 8) in the first place. In addition, the SME-I led to an increase in employment in all SMEs and for different skills categories (1, 2, 3, 4, 5, 6, 7, 8).
26. **Additional investment: investors’ outreach and leverage effect.** The Phase II support played a leverage role toward potential investors (2, 3, 4, 5, 6). A mix of influences can be observed in that respect:
 - a. **Risks diminution.** The SME-I award provided the awardees with additional financial capacity and more credibility positively perceived by potential investors (2, 3, 4, 6, 8) who could build upon the success developed by the awardee under the Phase II project (2) or even acquire/merge with the SME (6, 8).
 - b. **Facilitated access to investors.** It also supported the SMEs’ investors outreach efforts in the context of the Business Acceleration Services (2, 3, 4, 5).

²¹¹ This case features the development of new services out of the initial commercial success of the project.

European Added Value (EAV) of the SME-Instrument Phase II.

The concept of “*European Value Added*” or “*EAV*” refers to the value added by acting at the European level rather than another government level (local, regional, national, and to some extent supra-European).

What is the value added by operating at the European level? In the context of the case studies, the SME-I Phase II support received brought a distinctive value at different levels:

27. **The SME-I Phase II support offered a unique combination of features that are key to close-to-market innovation:**

- a. **Market orientation.** The market-oriented design of the Phase II 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 (1, 4, 5, 7, 8).
- b. **Co-funding rate, 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 (1, 2, 4, 5, 6, 7, 8).
- 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 TRL which lose one or the other of the SME-I characteristics presented in this paragraph (2, 5).

- d. **Appropriate instrumental mix.** Under Phase II, the SME-I 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 (1, 2, 5, 6, 7).

28. **The SME-I branding had a “label effect” that offers a unique credibility stamp.**

Companies benefitted from the reputational value of the SME-I. The “*European stamp*” was of particular value for the SMEs on European but also world-wide markets (1, 2, 3, 4, 5, 6, 7).

29. **The support was offered at an appropriate (international) level.**

The scope and ambition of the SME-I is international in nature. In that sense, the SME-I offered a particular value compared to regional, national and other EU SME innovation measures. It combined hybrid support tools with a unique internationalization footprint (1, 2, 3, 4, 5, 6, 7, 8). It offered an access to a wider market of competences and expertise, as well as easier links to international markets in and outside Europe.

30. **The SME-I was perceived as complementary to other European, national and regional schemes.**

Several companies experienced public support schemes in the past (1, 3, 4, 7, 8) prior to their SME-I experience or in combination with it (6²¹²). In most cases, this support was mainly mobilized

²¹² The company having developed a synergetic framework in the context of which they could also use the Business France services to lever their commercial outreach.

for earlier developments conducted at lower TRL for each of the solutions depicted under the case study section. A complementary role is seen for the SME-I in that respect as it

addresses different innovation stages and needs that are not only technology-related but also market-driven.

Box 1: The case studies confirm some of the key strengths of the SME-I Programme

What else do we learn about the key features of the SME-I Phase II support? When considering the channels that led to positive effects and/or impacts, it is possible to distinguish key positive features of the SME-I Phase II support. A selection of key insights is presented below:

- ▶ **Scope.** The scope of the programme (needs addressed, objectives and rationale) is adapted to the key technological and non-technological challenges of the supported SMEs. Its emphasis on higher TRL levels as well as on the internationalization potential of innovative SMEs are of particular relevance to company applicants. Above all, the integration of (technological) innovation and market-oriented features into one support scheme proved to be a core distinctive value of the programme.
- ▶ **Funding.** Critical amounts of funding are necessary to the implementation of demonstration and close-to-market innovation activities. The amount of funding offered in the context of the Phase II programme is appropriate in that respect. It is adapted to the so-called Valley of Death challenge and is associated to an attractive co-funding rate and the possibility for the company to benefit from pre-payment.
- ▶ **Business Acceleration Services.** Although they were made mandatory only recently, Business Acceleration Services already proved successful to the recipients who were consulted. Their further integration with the “hard” part of the Phase II support (funding) is seen as positive by most SMEs who could absorb new competences and build new networks thanks to this “soft” instrument.
- ▶ **Programme management.** The SME-I is implemented by the Executive Agency for SMEs (EASME). 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). It was unanimously perceived in a positive way by the company representatives. An example is provided in the context of Case 5 where it is explained that light and flexible management from the side of EASME allows for a better use of resources and capabilities in the supported company.

5. Conclusion

This report emphasized the SME-I Phase II support in order to understand whether and how the SME-I Phase II support was leading to positive results. Two action lines were established for the expert panel to answer the following two questions.

Q1: What are the proportions of projects showing: 1) demonstrated or 2) upcoming market success as well as 3) no particular or even 4) negative results?

Action Line 1: Classification. The classification exercise shows that more than a quarter of SME-I Phase II projects led to highly positive commercial success. In addition, a large share of positive to highly positive commercial success is observed among the finalized Phase II projects under the scope.

This comes in line with the fact that from the finalized Phase II projects under the scope, the SME-I Phase II support led to a very limited number of negative commercial outcomes. The analysis

should of course be nuanced by the fact that neutral ("C") projects do not show (yet) commercial success but can cover a (sometimes highly) promising potential – opening the door to potentially greater impacts than the ones observed so far.

In terms of segmentation, the experts found that the in this first batch of finalized Phase II projects, younger companies show more SME-I Phase II commercial success and that Small companies show more commercial success than medium and micro-companies.

Q2: What is the contribution of the SME-I to the commercial success of Phase II Awardees?**Action Line 2:**

Contribution Analysis. Based on eight case studies and a cross-case analysis, this investigation track led to a comprehensive view on "how" the SME-I contributes to the commercial success of Phase II awardees. It shows the following:

- ▶ **The SME-I reaches out to relevant Small and Medium Enterprises (SMEs) with various needs and access channels.** SMEs access the SME-I through various channels, usually to address key challenges and/or catch opportunities offered by the SME-I (such as "fast moves" on a dedicated market). SME applicants usually find the SME-I Phase II support particularly attractive due to design and technical features that illustrate its value proposition.
- ▶ **The SME-I plays the role of an accelerator that very strongly contributes to the commercial success of Phase II awardees.** It helps SMEs build the appropriate capacity to

deploy their innovations to the market and accelerates technology deployment. This acceleration is critical and combined to unique (international) network effects. The combination of deployment acceleration and internationalization supported the awardees in achieving their market success.

- ▶ **The SME-I positively affects the economic performance of its Phase II awardees.** It allows SME awardees increase their company turnover, but also creates more jobs by fostering employment in these companies. In addition, it facilitates the investment process by increasing the outreach potential and diminishing the risk profile of awardees.

- ▶ **The SME-Instrument brings European Added Value (EAV) at different levels.** Its value starts with its unique design and technical features (market orientation, pre-payment, co-funding rate, support amount, internationalization, soft/hard innovation support tools, etc.). It can be observed in its unique "*label effect*". Its international nature is probably the most explicit sign of EAV, in combination with the complementary position of the SME-I with regard to other innovation support schemes found at regional and national levels.

Finally, some key strengths could be identified. The first is its scope: it mixes international and close-to-market innovation concerns. It also offers critical amounts of funding as well as appropriate Business Acceleration Services and Coaching that not only support the company during the award's duration but also helps it in the sustainable development of its own capabilities. In addition, it offers a flexible and adaptive form of grant and support management provided by EASME that was highlighted as a key strength by the company interviewees.
