SmartUp Accelerator Proof of Concept / Testbeds

REPORT ON TESTBED ARRANGEMENTS FOR BALTIC SEA REGION CONSUMER CLEANTECH ACTORS THROUGH THE SMARTUP ACCELERATOR PROJECT

Madeline Langlois & Chris Ashe

Interreg Baltic Sea Region
EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND

SmartUp Accelerator is a collaboration project between seven countries around the Baltic Sea with the focus on building consumer cleantech ecosystems, activating its innovation actors and improving their skills to identify brilliant ideas and foster teams committed to creating new businesses. These startups and SMEs are aiming to reduce the environmental burden of consumption.
https://www.smartupaccelerator.eu/

Author: Madeline Langlois & Chris Ashe

Contents

SmartUp Accelerator Proof of Concept/Testbed Arrangements 3
SmartUp Accelerator Methodology..... 3
Smart Homes Testbed Arrangement 6
Smart Mobility Testbed Arrangement 8
Smart Consumption Testbed Learnings 10
SmartUp Accelerator Case Studies 11
Smart Homes Case Study..... 11
Smart Mobility Case Study..... 13
Smart Consumption Case Study..... 15
The SmartUp Accelerator post-COVID-19..... 16
Feeding into the SmartUp Accelerator Model 17

SmartUp Accelerator Proof of Concept/Testbed Arrangements

The SmartUp Accelerator is a facilitated process through which Baltic Sea Region (BSR) consumer cleantech SMEs and startups enter three competitions specifically devised to demonstrate consumer cleantech products/devices or services on international markets across the BSR. These three thematic competition phases and follow-up support by the SmartUp Accelerator consortium are what serve as the SmartUp Accelerator proof-of-concept/testbed arrangements.

Through open procurement rules, public funds were utilised to stimulate the innovation process within three thematic areas essential to consumer cleantech – Smart Homes, Smart Mobility and Smart Consumption – with the ultimate goal of developing the self-sustaining SmartUp Accelerator Model. The market entries of the selected startups, or ''SmartUps''[1], have been carefully monitored and examined throughout the three years of the project. Findings have been drawn from these three testbed arrangements[2], or proof of concept cases, through which the SmartUp Accelerator could proof various consumer cleantech innovations in a variety of settings across the Baltic Sea Region (BSR).

This report is a publication of how to stimulate a consumer cleantech ''ecosystem'' for SMEs and SmartUps in the BSR countries, supported by peer-to-peer reviews and three concrete proofing cases through which the processes for the experimental SmartUps were examined. The publication is targeted for companies and intermediaries and describes different paths, methods, tools and processes the SmartUp Accelerator project has implemented. Ultimately, this report shall serve as a guidebook in a virtual form that can be regularly updated with new cases and information and it is available to all parties interested and thus feed into the ongoing SmartUp Accelerator model. This publication is also in line with the EU guidance on how to support SME and innovation policy in the context of regional frameworks.

Consumer cleantech companies do more with less. They create new resources ('proliferation') via smarter use or re-allocation of available resources.''

SmartUp Accelerator

"This report shall serve as a guidebook in a virtual form that can be regularly updated with new cases and information…and thus feed into the ongoing SmartUp Accelerator model.''

SmartUp Accelerator Methodology

Through public procurement, the SmartUp Accelerator arranged yearly consumer cleantech pilot SmartUp competitions in the BSR countries, which served as the 'proof of concept' cases analysed in this report. To ensure the SmartUps with relevant consumer cleantech innovations were entered into the competition pilot rounds, matchmaking events were organised each year

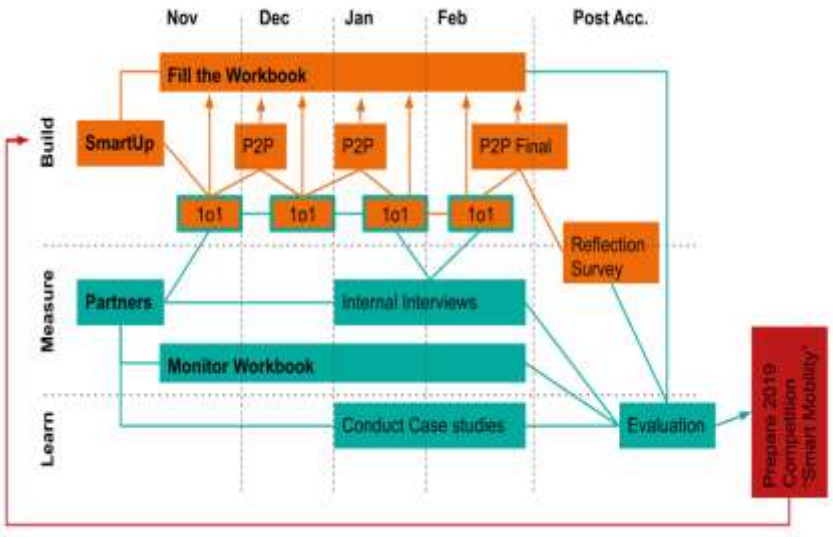
[1] A term coined by the SmartUp Accelerator consortium to describe a 'smart' or digitalised startup

[2] Testbed phases refer to three 'proof-of-concept' arrangements of the SmartUp Accelerator, in which the SmartUps were supported by the project consortium in pilot versions of a consumer cleantech ecosystem. These three testbed arrangements were differentiated by theme: Smart Homes, Smart Mobility and Smart Consumption. For the purpose of this report, 'testbed' and 'proof of concept' are used interchangeably.

in each partner country, which were targeted towards both intermediaries mapped out in preliminary market scan phases. Matchmaking events were held for each testbed or pilot phase (e.g. Smart Homes, Smart Mobility and Smart Consumption) and were focused on connecting intermediaries and potential start-ups with specific actions to elaborate on cross-border cooperation. The methodology behind the matchmaking events was to connect SmartUps' needs and potential markets with intermediaries' specific skills, experiences and focus areas, and ultimately encourage them to apply to partake in the SmartUp Accelerator competitions and thus the various testbeds for consumer cleantech innovation stimulation through the SmartUp Accelerator.

Following matchmaking events and competition phases, the SmartUp Accelerator arranged three innovation acceleration bootcamps (one per year in different countries) for BSR consumer cleantech SMEs and SmartUps. This activity is arranged within the scope of developing the pilot SmartUps selected from the procurement process of innovation competitions. These bootcamps could also be considered as pilots throughout the process of bootcamps, proof of concepts and market studies. The pilot SmartUps served as examples and validation of actions such as training material for intermediaries, proof of concept cases and testbeds and are vital for the successful implementation of the lasting SmartUp Accelerator Model, or BSR consumer cleantech network. Since the pilot SmartUps' involvement was very beneficial for the project, the consortium had chosen to implement a contract-based commitment based on the services provided. These pilot SmartUp competitions and following contracts were arranged back-to-back with important international thematic or investor events with the aim to increase the visibility to consumer cleantech.

Figure 1: Timeline for collecting data from the SmartUps' experiences within the Smart Homes testbed arrangement from November 2018-February 2019



SMARTUP ACCELERATOR METHODOLOGY

- Matchmaking Event
- Competition Phase
- Bootcamp
- Continuous partner support – 1-on-1 calls, workbook evaluations, peer-to-peer review/midterm review
- Case Study
- Final Review

TIMELINE

Smart Homes: April 2018 – February 2019

Smart Mobility: April 2019 – January 2020

Smart Consumption: January 2020 – August 2020

After the thematic bootcamps, the SmartUp Accelerator partner organisations provided assistance to companies engaged in consumer cleantech in regards to international market penetration. Proofing of this support was provided by interviews/case studies and intelligence on how to make their consumer cleantech solution(s) more impactful in the future, and moreover, to ensure the establishment of the SmartUp Accelerator model. Market trials should in best cases lead to successful market entries and valuable new references in global markets, yet learnings have been drawn from unsuccessful market entries as well, which is sometimes more beneficial for future SMEs' SmartUp intelligence. The SmartUp Accelerator aimed to enhance consumer cleantech companies' capabilities to collaborate in other BSR countries, while new references in international markets also increase their value from an investor's point of view.

Outlined in Figure 1 (page 5) is a timeline for collecting data from the SmartUps' experiences within the Smart Homes testbed arrangement from November 2018-February 2019, via the peer-to-peer (P2P) meetings, 1-on-1 (1o1) meetings with local SmartUp Accelerator partners, and a workbook exercise[3] to keep track of current and completed key performance indicators (KPIs). This timeline was communicated to the SmartUps at the Smart Homes bootcamp event in Gothenburg.

To attain consumer cleantech testbeds and proofing for SMEs and SmartUps in the BSR countries and a case study report of three concrete proofing cases attaining processes for the pilot SmartUps, the SmartUp Accelerator project created a timeline[4] and detailed methodology at the start of the project. Case studies and evaluations within the scope of proofing processes for supporting consumer cleantech SmartUps were scheduled to coincide with the yearly consumer cleantech pilot SmartUp competitions in the BSR countries, addressing three themes: Smart Homes, Smart Mobility and Smart Consumption. The aim was to strengthen the SmartUps' solutions as well being a pilot for the development of the innovation pro cess for the intermediaries. This publication aims to communicate the findings from the proofing of these innovation processes.

A main objective of the SmartUp Accelerator is for partners and ultimately all Baltic Sea Region consumer cleantech actors/intermediaries to learn how to create market entry opportunities not only in their own countries but also in the neighbouring BSR countries. This also entails learning to collaborate with partners to share knowledge, develop new networks about the transnational consumer cleantech ecosystem. To monitor the success of this activity within the SmartUp Accelerator, in addition to encourage peer-to-peer learning amongst SmartUps themselves, the SmartUp Accelerator held midterm and final review evaluation meetings during each thematic testbed arrangement of the SmartUp Accelerator: Smart Homes, Clean Mobility and Smart Consumption. In addition to varying thematic criteria, each testbed scenario was punctuated by differing variables: within the Smart Homes round, € 10,000 was allocated to SmartUps for their service provision; Clean Mobility midterm and final reviews were held individually rather than as

[3] The workbook exercise was introduced to the selected SmartUps prior to the bootcamp and lasted throughout the testbed phase. In the Smart Homes testbed phase, the workbook was simply a Google document to be updated as the SmartUps pivoted their roadmaps, adjusted or achieved their KPIs, and so on. In the second year during the Smart Mobilitiy testbed phase, adapting to the SmartUps' comments that the Google document work was tedious, the workbook took on a simplified form via Trello, an application used for task management. During the third year or testbed phase, the concept of the workbook was replaced entirely with 1-on-1 follow-up meetings, as SmartUps in year two had also reported that Trello updates had added unnecessary tasks to the programme during their final evaluations.

[4] Simplified timeline of the SmartUp Accelerator testbed phases are outlined in the sidebar on page 5.

ENGAGING STAKEHOLDERS

- Mapping BSR consumer cleantech stakeholders
- Identifying communication needs
- Awareness raising events: 14 National seminars and one international Webinar

DEVELOPMENT & LEARNING

- Competition: 89 applicants, 21 selected finalists
- Bootcamp: 3 bootcamps in Gothenburg, Riga and one online
- Acceleration: 3+ successful market entries
- Matchmaking (Networking): 7 events and one online

TRAINING & CAPACITY BUILDING

- Training about business logic and support measures for CC: 8 events
- Market studies: 130+ interviews
- Strengthening the internal capacity towards consumer cleantech

peer-to-peer exercises and no additional monies were granted to SmartUps; and Smart Consumption SmartUps received no additional monies from the programme but did undergo peer-to-peer midterm and final reviews. The findings from each round of midterm and final reviews are explored in the following chapters of this report.

Smart Homes Testbed Arrangement

Within the Smart Homes testbed phase of the SmartUp Accelerator, € 10,000 was allocated to SmartUps through public procurement (i.e. EU funds) and the midterm and final reviews were held as peer-to-peer learning sessions, during which SmartUps convened virtually together with target market partners, with the German SmartUp Accelerator partner to moderator the discussion and draw learnings and findings from the SmartUps' experiences.

Through final peer-to-peer review of the Smart Homes testbed arrangement, the meeting for which was held in February 2018, the SmartUps were asked if their original expectations of the SmartUp Accelerator programme, which they had established clearly in the midterm review in previous months, were met.

"According to the peer-to-peer sessions, SmartUps had joined the programme mainly for testbed purposes, and to engage in peer-to-peer learning and receive individualised advice and access to networks from international market experts (without bureaucratic barriers)."

According to the peer-to-peer sessions, SmartUps had joined the programme mainly for testbed purposes, and to engage in peer-to-peer learning and receive individualised advice and access to networks from international market experts (without bureaucratic barriers); i.e. testing out new frameworks to trigger thinking from new angles, establishing pilots. Other reasons for joining the programme included gaining access to new tools and obtaining adequate market data study if the selected market is feasible for commercial entry gaining hands-on sales opportunities. Any accelerator programme should be useful and "worth it" in regard to valuable time – and thus money – for the SmartUps. A key learning from the first round of acceleration is that SmartUps should feel like engaging any activity in the development of their business should allow for a good return on investment, and they should be able to recommend it to others.

Other reasons for joining the programme included gaining access to new tools and obtaining adequate market data study if the selected market is feasible for commercial entry gaining hands-on sales opportunities."

SmartUps surveyed following the Smart Homes testbed arrangement generally reported that the SmartUp Accelerator was pragmatic and straightforward, meeting most of their aforementioned expectations. Positive feedback included being exposed to new frameworks that questioned the SmartUps' business models, as well as access to peer to peer learnings. However, the most dissatisfied participant of the Smart Homes round of SmartUp Accelerator identified themselves as 'sales-oriented', so their expectation of the SmartUp Accelerator was to hopefully identify the early customers/stakeholders for the specific product and validate that they would be willing to pay, and that the acceleration process should occur only after a given market has been validated. However, multiple companies in the acceleration programme had gone into the acceleration phase with too little research on their target market, which ultimately proved problematic. The bootcamp itself was criticised for being too academically oriented, and that the focus of the bootcamp should have been more to fully align the mentor with the designated SmartUp and deliver a concrete ''next steps'' plan. This particular point from the SmartUps was in response to

the initial bootcamp being focused around ''speed dating''[5] rounds for SmartUps to meet with all partners in order to make the final decision for a target market. This feedback received during the Smart Homes bootcamp was addressed by SmartUp Accelerator partners by cutting the speed dating rounds in year two to facilitate advanced preparation of SmartUps (prior to the bootcamp). As a result, SmartUps were inclined to complete detailed market scans and background research prior to the bootcamp, therefore allowing the bootcamps to be more oriented towards planning the acceleration phase and next steps.

Additional critique of the Smart Homes testbed arrangement was that progress should be better monitored during the process, and that funds allocated to participating SmartUps should be released during the programme (rather than after the programme) to allow for execution towards the concrete plan. Progress was deemed to be ''a bit slow'' in reference to receiving real measurable quotations, pilots, deals, and so on.

In many cases, SmartUps move with opportunity rather than strategy.''

Throughout the SmartUp Accelerator Smart Homes round, the moments of greatest success were experienced via the 1-on-1 teleconferences with the local market project partners and players to open up the door for potential business, in addition to increased website traffic/international exposure and ultimately sales. On the other hand, one SmartUp reported that they could not attribute any major achievement to the activities within the acceleration phase, but they did achieve success in other markets. Another SmartUp reported that they themselves had made it difficult for the partners to support them since they ended up receiving significantly more traction on other markets than in the Baltic Sea Region (mainly the US and Asia), and therefore were not able to spend enough time on the scheduled activities between the 1-on-1 meetings with partners. The latter proved that in many cases, SmartUps move with opportunity rather than strategy – this was established with further discussion with the SmartUps.

SmartUps reported that some positive learnings from working with the international partners from the SmartUp Accelerator team were that the most efficient and effective way – and perhaps the only way – to network in a new market is through a party that already knows the potential partners and get introduced personally, and that in a few cases, the SmartUp Accelerator was able to affirm the SmartUps' potential in the selected market. Having a team that is very willing to support, continuously and efficiently follows up on meetings and calls, and offers useful tools (e.g. KPI road-mapping exercises) were also positive experiences from working with the SmartUp Accelerator. However, any intermediaries involved in consumer cleantech should side with caution when offering free tools to support SmartUps, such as road-mapping worksheets or KPI sheets[6], ensuring such tools are tailored to specific SmartUps' situations, as SmartUps reported that having to work with obsolete tools was especially frustrating. It is important to note that for

SMART HOMES TESTBED: KEY FINDINGS

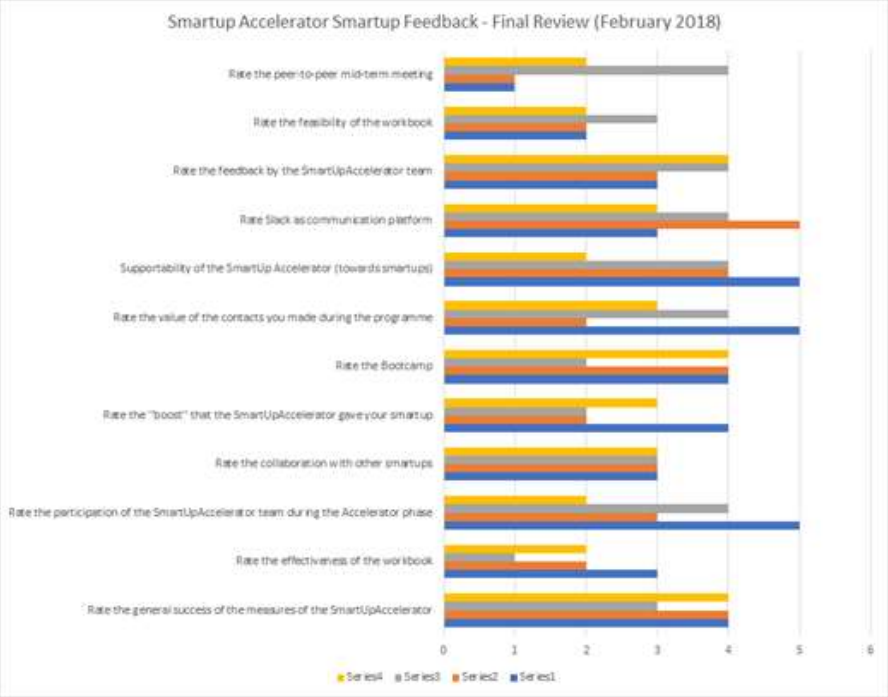
- Come prepared to networking sessions – research potential markets/partners ahead of time
- Tailored, personalised calls/meetings are most effective forms of interaction
- When funds are supplied, detailed monitoring of KPIs is required
- The most effective way to network in a new market is through a party that already knows the potential partners and to get introduced personally
- Follow up on actions from calls in a timely manner to 'keep the ball rolling'
- Tools that help SmartUps identify specific KPIs & timelines are most effective – the more tailored to a SmartUp's situation, the better

[5] Speed dating rounds were very brief (approximately 10 minutes) ''meet and greet'' opportunities during which SmartUp Accelerator partners from each country meet with SmartUps from each country to discuss potential points of entry for their international markets.

[6] Road-mapping refers to defining a strategy for entering an international market, in the case of the SmartUp Accelerator. During these workshops, SmartUps were asked to identify product strategies, tailor the 'plan of action' to target groups/stakeholders and assign broad (and specific) timeframes for market entry. Key Performance Indicators (KPIs) were also identified.

SmartUps to enter into new international markets it is fundamentally important that "homework" is done by the SmartUps – this will expedite and complement the process.

Figure 2: SmartUp Accelerator Final Review Survey (to accompany the Smart Homes Final Review)



Smart Mobility Testbed Arrangement

Two months following the SmartUp Accelerator Smart Mobility bootcamp in Riga, a midterm evaluation was held at the end of November 2019 to address the SmartUps' expectations, understanding questions or tasks, and progress. The midterm reviews for the SmartUp Accelerator Smart Mobility round were held individually, between target (international) market partners, domestic market partners and SmartUps. The SmartUps were asked about their goals regarding internationalisation/entering new markets, and how they have pivoted from their roadmaps [toward internationalisation, established during an intensive planning and consultation workshop at the bootcamp in Riga]. The most important point to be drawn from the midterm reviews was that the SmartUps that set very specific goals, in which a detailed plan in short-term and long-term was established, were most successful – this underpinned learnings from the Smart Home experience. For example, the SmartUp that made assumptions and simply reported their plan to have their first pilot in their target international market country within the next year did not end up acquiring enough traction (i.e. international partners, funding, etc.) to do so. Already within the first two months following the bootcamp in Riga, one SmartUp had brought new market entry plans to a complete halt due to company limitations – the conclusion to be drawn from this is that insufficient planning leading up to the bootcamp led to wasted time on behalf of the SmartUp, which was in no position to enter any international market for at least a full additional year. On

The most important point to be drawn from the midterm reviews was that the SmartUps that set very specific goals, in which a detailed plan in short-term and long-term was established, were most successful – this underpinned learnings from the Smart Home experience.''

the contrary, the SmartUp that had developed a detailed plan of attack, in which short-term goals of having first agreements with specific international partners as well as a one-year deadline for first sales in the international country were laid out, their intensive roadmap having been adjusted according to increased understanding of market needs, was ultimately successful in entering the Russian market.

The SmartUps were also asked to identify their main struggles thus far in terms of entering or planning to enter their target market within the Baltic Sea region. Mainly, the slow pace of making connections to possible clients was slowing down their momentum, lack of understanding of legal regulations and culture of the international market, and most prevalently, the lack of funding. To combat such challenges, the SmartUp Accelerator consortium had offered the SmartUps the most effective support through answering specific questions related to international market regulations, competition, partners, purchase behaviours and so on. With respect to funding, SmartUps often would use this as a basis of not being successful – upon detailed investigation, however, it was found not to be an accurate assessment, poor planning and market understanding would be more prevalent.

The final reviews for the SmartUp Accelerator Smart Mobility round were also held individually, between target (international) market partners, domestic market partners and SmartUps, in January 2020. When prompted to address the most valuable contributions from the partners in the accelerator programme/project, SmartUps responded that value came from access to the SmartUp Accelerator network, and the process of carefully evaluating opportunities to enter the given international markets; i.e. providing a context to the international market opportunities.

Overall, the initial bootcamp received positive feedback in terms of understanding the structure behind creating a roadmap and establishing KPIs. Additionally, all SmartUps had responded that they would recommend the SmartUp Accelerator, as the bootcamp and networking alone is a good 'investment' of time, in addition to access to any contacts and support in achieving future contacts. This feedback was not a surprise, as improved variations had been implemented into the Smart Mobility testbed arrangement – suffice to say that continual improvement quality feedback is required to keep the programme of high value to the SmartUps.

In terms of more technical learnings, engagement of the SmartUps on a digital platform had proven again to be difficult. For example, when comparing Slack to Trello as an engagement platform for peer-to-peer exchange amongst SmartUps and the project consortium, Slack is a good management tool and very helpful for communication. However, like any tools this should be managed. Using too many tools simply defeats the purpose of the communication tool – another key learning from the Smart Mobility reviews.

When asked about the benefits of providing a free accelerator programme, and if a given SmartUp would be more active if a fee between € 2,000 and € 5,000 would have been charged, as with commercial accelerators – in other words, how would the SmartUp's attitude be different if it would cost money to take part? – one SmartUp responded that the accelerator would lose companies that are willing to get involved but do not have the sufficient funds. Rather than charging a fee, perhaps only the founders should be in attendance at the bootcamp and in the accelerator rather than opening the participation up to any members of the company, basically getting engagement with senior staff which align their strategies to the accelerator as well.

SMART MOBILITY TESTBED: KEY FINDINGS

- SmartUps that set very specific goals, in which a detailed short-term and long-term plan for internationalisation was established, are most successful
- Unsuccessful market entry is often characterised by lack of market understanding and poor planning
- Using too many communication channels/tools simply defeats the purpose of the communication tool
- When supporting a SmartUp, limit communication to the CEO or key decisionmakers so advice can be acted upon in a timely manner
- Access to the SmartUp Accelerator network (i.e. a BSR consumer cleantech network) is highly valuable

Smart Consumption Testbed Learnings

The midterm and final reviews for the SmartUp Accelerator Smart Consumption were held collaboratively as peer-to-peer virtual meetings in spring and summer 2020. Outside of the points that there was no additional funding given to the SmartUps and peer reviews (rather than 1-on-1 evaluations) were held, the main variable that separated the Smart Consumption round of the SmartUp Accelerator was the global COVID-19 pandemic. This is a highly important factor to keep in mind when comparing testbeds within the SmartUp Accelerator, as the global pandemic brought an air of almost complete uncertainty that, in the least, forced SmartUps to drastically change their plans for internationalisation. The in-person bootcamp to be held in Berlin was cancelled mere weeks before the actual event, and roadmaps drawn up during the virtual bootcamp sessions in March 2020 asked SmartUps to address COVID-19 into their revised plans for internationalisation to their best of their abilities – while partners and SmartUps knew full-well that the only thing that was certain was uncertainty.

Nevertheless, the SmartUps did factor the global impact of COVID-19 into their roadmaps toward internationalisation to the best of their abilities, with some SmartUps using the next four months to delve deep into research and development, or to develop more national pilots. The Smart Consumption midterm peer-to-peer review was held a few months after the online bootcamp, during which SmartUps with the support of partners attempted to create roadmaps and establish relevant key performance indicators (KPIs) with respect to the COVID-19 crisis. When inquired on how their plans for internationalisation established during the bootcamp had changed, some SmartUps reported simply that internationalisation was no longer on the agenda, or that there would be a 'six-month delay', at best. The German SmartUp, who had relied on business with small Chinese companies, had even opted out of the SmartUp Accelerator process entirely as a response to COVID-19. Others, on the contrary, had redirected work as a result of consultations with their respective international market partner. The Swedish SmartUp was invited to partake in a Horizon 2020 R&D application bid as a direct result of discussions with their hosting partner in Germany. The Finnish SmartUp had to put on hold their operations and expansion plans directly due to the situation, which naturally affected also their financing round.

The final review for the Smart Consumption testbed phase was held in August 2020, at the end of the extended round due to COVID-19. The peer-to-peer discussion was fluid and rather informal, taking place online during the European holiday months, encouraging further knowledge transfer and exchange amongst SmartUps. The SmartUps discussed how, by joining the SmartUp Accelerator, they were looking to get some new leads, as well as some information and suggestions on how to expand to other countries, which was a constant amongst all SmartUp rounds. The SmartUps also concluded together that establishing clear and achievable KPIs, especially in times of such uncertainty, could provide a lot more clarity in terms of reaching small goals on the road to a much larger one – this was a concept that was particularly important for them to 'stay on track' during times of such uncertainty.

Main findings from the final peer-to-peer review in August 2020 were centred on establishing a contingency plan in the face of a global crisis such as the COVID-19 pandemic. The SmartUps shared the ways in which they now virtually present their products – one of which being a tangible board game that, for various reasons, had no plans to be available in digital form. The main learnings from the SmartUps were to make virtual meetings as focused yet personable as possible –

SMART CONSUMPTION TESTBED: KEY FINDINGS

- SmartUps who were able to quickly develop a contingency plan in the face of a global crisis such as the COVID-19 pandemic are most effective
- Face-to-face meetings are more productive than virtual meetings
- Network, network, network! Joining the BSR consumer cleantech network will likely open up many new opportunities for SmartUps and intermediaries in the future (especially as in-person meetings are not possible during a global pandemic)

and find ways to make such meetings highly interactive and engaging to retain the attention and interest of the audience. All SmartUps had reported that the bootcamp would have been preferable face to face (or at least a mix), and all had suggested is to have a review/reflection SmartUp Accelerator session at the soonest possible time, mainly for networking purposes.

Finally, and most importantly, all participating SmartUps expressed their interest in engaging in a self-sustaining consumer cleantech ecosystem/network (e.g. the SmartUp Accelerator Model) following the project-end. They affirmed their interest in developing an ''alumni network'' of SmartUp Accelerator participants by sharing LinkedIn information and other means of contact as soon as possible. This sort of clear communication of key actions on which to follow up has proven to be vital for producing results.

All participating SmartUps expressed their interest in engaging in a self-sustaining consumer cleantech ecosystem/network (e.g. the SmartUp Accelerator Model) following the project-end.''

Figure 3: The final peer-to-peer discussion between BSR SmartUps

SmartUp Accelerator Case Studies

An outcome of the SmartUp Accelerator is a detailed case study behind the three proof-of-concept areas around the BSR and a description of the increased business opportunities through companies' market entries and international references evaluated and tested by the participating ''SmartUps''. They may even create a spinoff effect when other companies gather information and inspiration from the peer experiences and make effort to follow their paths to the test facilities. The case studies are publicly available on the SmartUp Accelerator website and form one of the building blocks to the developed SmartUp Accelerator Model.

Smart Homes Case Study

Key findings from the Smart Homes round were found through an interview with Fourdeg, a B2B SaaS (Business-to-Business Software-as-a-Service) company for heating optimisation from Finland. Service improves indoor comfort and saves in "end user" heating costs. In an interview with Fourdeg following their experience within the Smart Homes round, they concluded that the

support they received from the SmartUp Accelerator was highly effective in that they were able to establish contacts with key partners in the international market and receive very helpful market insights from the local SmartUp Accelerator partner. Fourdeg seemed to be most successful in their internationalisation because they went into the SmartUp Accelerator programme already having decided the target market to enter – a seemingly obvious step to take before entering such an acceleration programme that most SmartUp Accelerator SmartUps were not certain about. With SmartUp Accelerator, Fourdeg was able to receive a second iteration of their plan to enter their chosen foreign market and a problem-solution match, as companies were included in the consulting of Fourdeg at the bootcamp (i.e. investors). Their value proposition has not changed that much – rather, it was adapted slightly for the international market context based on highly detailed, tailored advice from the local target market partner, an intermediary organisation themselves.

''With SmartUp Accelerator, Fourdeg was able to receive a second iteration of their plan to enter their chosen foreign market and a problem-solution match…''

The biggest challenge for Fourdeg throughout the SmartUp Accelerator was physically not spending enough time in their target market country, Poland (only a week and one meeting). The SmartUp Accelerator programme was considered by Fourdeg to be ''excellent in getting the network'', but the Smart Homes testbed period was too little time to close deals. Without the Polish SmartUp Accelerator partner's engagement, meetings would not have been possible, according to Fourdeg. Another challenge Fourdeg faced within the SmartUp Accelerator is that partners seemed to have trouble putting plans into action (i.e. ''getting the real money moving''). Fourdeg offered that partners should understand that their work is valuable but also better identify where to focus (i.e. prioritise). Time is money, and everything done should add value to the SmartUps.

A key learning from this case study would be in support of offering only valuable tools with which to support SmartUps, such as detailed models for analyses of potential markets.''

Finally, Fourdeg concluded that, for them, teleconference peer-meetings were not that useful and impact was missing. To Fourdeg, the teleconferences were good for reporting. A learning from this could be to ensure peer-to-peer meetings are particularly engaging and enabling of meaningful collaboration. For the future SmartUp Accelerator bootcamps, Fourdeg offered that the target countries analysis workshop at the bootcamp should be extended and Excel exercises for analysing the [international] markets could be useful to have real calculations to support decision making. A key learning from this case study would be in support of offering only valuable tools with which to support SmartUps, such as detailed models for analyses of potential markets.

The Polish SmartUp Accelerator partner that supported Fourdeg in their successful market entry into Poland is the Foundation for Technology Entrepreneurship (FTE), a dynamically developing organisation that helps corporations and large enterprises to collaborate with innovative technology SmartUps. As the operator of the MIT Enterprise Forum Poland accelerator, licensed by the Massachusetts Institute of Technology (MIT), and the partner of the MassChallenge International Accelerator Programme, FTE is one of the unique companies in the Polish market to offer efficient and full preparation of corporations for an innovation model based on collaboration with SmartUps.

During an interview with FTE as a part of the Smart Homes case study, FTE reported that supporting Fourdeg's successful market entry took time and involvement, starting with emails to different intermediaries within their network. They were mainly to use the contacts they already had to be most effective. Some contact was established with companies that could be potential partners, and some with other organisations that could be interested in Fourdeg and their product. After introductory emails, another part of the work was simply calling companies and other institutions to arrange interviews and meetings, online telos, direct exchange, etc., then arranging 1-on-1 meetings in Poland. FTE also managed to put Fourdeg in direct contact with technology partners in Poland, organising meetings for Fourdeg with a couple of companies and investment funds, which was achieved thanks to their networks and the direct contacts.

Collaboration with the Baltic Sea Region consumer cleantech ecosystem is a two-way street – in supporting Fourdeg, FTE also gained valuable experiences and stronger connections. As a result of their work with Fourdeg, FTE's network expanded, and they are now more visible on the market as an organisation that supports SmartUps. Also, this tightens cooperation between existing partners because there are more crossings in their paths, and thanks to this, they can exchange ideas and come up with new ideas – and this is definitely something that causes the existing consumer cleantech ecosystem to become more dynamic to grow. These findings are vital in supporting the value-added approach in ''selling'' the SmartUp Accelerator model to investors, intermediaries and large companies in the recruitment of such key players to the SmartUp Accelerator model, i.e. the consumer cleantech ecosystem.

Collaboration with the Baltic Sea Region consumer cleantech ecosystem is a two-way street – in supporting Fourdeg, FTE also gained valuable experiences and stronger connections.''

Smart Mobility Case Study

The case study for the Smart Mobility SmartUp Accelerator round was created through interviews with another success story from Finland – the internationalisation of Perille, which offers intercity and local transport route search and ticket purchase in one platform, into the Russian market. Prior to the bootcamp, Perille had planned to enter the German market. However, at the bootcamp, Perille had decided that it was more feasible to expand to Russia with their service as they had a common border, which was further supported by the representative from the Russian SmartUp Accelerator partner during the bootcamp.

At the bootcamp in Riga, Perille fine-tuned their expansion plan to Russia together with the Russian SmartUp Accelerator partner, The St. Petersburg Foundation for SME Development, which is a not-for-profit, non-governmental business support institution as well as independent professional business consultancy established with the assistance of the Government of St. Petersburg. Throughout the acceleration period, the SmartUp and Russian partner had frequent online discussions, via email or any other messenger means, as a part of their ''fact-finding phase''. Perille would double-check their expectations or ideas regarding expansion frequently and easily with the Russian partners, and together they developed concrete list of companies they wanted to meet. Key to the success of Perille in Russia, where Perille established five partners by the end of the Clean Mobility round, was receiving plenty of support from the Russian partners' team to reach these clearly identified companies, because they were Russian companies and ''not necessarily so willing to cooperate or willing to communicate directly with us [without any established rapport]''. In this way, Perille received a significant amount of help from the Russian partners, who managed to convince the local Russian companies that Perille would be a good use of time.

SMART HOMES CASE STUDY: KEY LEARNINGS

- Highly specific target market analysis is needed before entering an international market
- Local partners or connections to local intermediaries are vital in international market entry
- It is mutually beneficial for intermediaries to support SmartUps & engage in interregional cooperation

Figure 4: Finnish SmartUp Perille meeting with Russian SmartUp Accelerator partners in St. Petersburg

Perille's biggest challenge in entering the Russian market was definitely the communication and language challenges with some of the companies, in addition to understanding the legal environment. To support their challenges, The St. Petersburg Foundation for SME Development made use of their wide network of partners. With two companies, they had direct contacts to decision makers, as well as the Russian Finnish Chamber of Commerce and the General Consulate of Finland in St. Petersburg. Immediately following the bootcamp in Riga, the Russian partner prepared formal personal letters for every company, with the description of the Perille idea and their plans for the international market. Then, they held several telephone negotiations with every company, answering any specific questions about Perille and their services and making suggestions for possible cooperation. Following all the introductory calls, The St. Petersburg Foundation for SME Development agreed on a meeting between Perille and four Russian companies, and to overtake a wider market, a meeting with a passenger cruise company, along with several day cruises (which provide a special one-night trip from St. Petersburg to Helsinki and back).

Additionally, The St. Petersburg Foundation for SME Development suggested that involving external partners during early stages of internationalisation/international market entry (e.g. during the bootcamp, in the case of the SmartUp Accelerator) has many benefits. The St. Petersburg Foundation for SME Development especially praise the involvement of the Chambers of Commerce, as external organisations such as these have a wide list of partners as well as information on specific issues of business or relevant events in different countries, which have a real benefit to market entry.

SMART MOBILITY CASE STUDY: KEY LEARNINGS

- There is a significant value in network – local partners are vital to overcoming barriers to entry
- It is much easier to contact the companies and to arrange meetings for a local partner than for any international SmartUp
- Face-to-face meetings should be held whenever possible
- Include external partners during early stages of internationalisation, or international market entry
- Involve the Chambers of Commerce – external organisations such as these have a wide list of partners as well as information on specific issues of business or relevant events in different countries, which have a real benefit to market entry

To summarise, findings exposed through the Smart Mobility case studies that it is much easier to contact the companies and to arrange meetings for a local partner than for any international SmartUp. As Perille was already fully operating in the Finnish market and already had partnerships with most important players in the industry, The St. Petersburg Foundation for SME Development could demonstrate to potential Russian partners how the service is organised in Finland, and what the competitive advantages were. Another conclusion drawn by the Russian SmartUp Accelerator partner, a prominent intermediary for SMEs, was that cooperation with external experts can bring new ideas on business development as well as opportunities to find new partners. Additional synergies could be reached if the external partners are interested in cooperation, ultimately benefiting the entire consumer cleantech ecosystem.

''Findings exposed through the Smart Mobility case studies that it is much easier to contact the companies and to arrange meetings for a local partner than for any international SmartUp.''

Smart Consumption Case Study

The final case study was an examination of the Smart Consumption testbed phase, in which SmartUps were amidst the beginning of the COVID-19 pandemic in Europe. Originally, the Estonian SmartUp, Suckõrs, who produces and sells 100% biodegradable and natural reed straws, was targeting the German market due to market size, market readiness and great feedback from German customers. However, COVID-19 pandemic struck Europe at the beginning of the acceleration phase, causing disruption on all levels. Plans for internationalisation came to a screeching halt for Suckõrs, causing virtually all sales to drop to zero. Suckõrs responded by planting 60,000 trees to become carbon neutral for two years and thus further their reputation within the 'consumer cleantech' ecosystem. They also began to offer personalised straws, which was of interest to some small SmartUps and thus increased their sales. In terms of the roadmap they conducted at the bootcamp, this changed completely because of their newly established contacts two very large and well-known companies. The German market entry activities were not fully cancelled, however – they still made some contacts and analysed the market in detail with support of the German SmartUp Accelerator partner. Social media marketing pivoted due to COVID-19, as well, now marketing the personalised straws and utilised social media influencers to spread the word. As a result, e-commerce tripled their online sales.

Constant self-analysis, such as making summaries of the work done and following KPIs…were also key to [the SmartUp's] ability to stay afloat during the COVID-19 pandemic.''

Suckõrs also was able to use the ''extra time'' as a result to slowed operations during the COVID-19 pandemic to further R&D efforts. Constant self-analysis, such as making summaries of the work done and following KPIs (i.e. production capacity and number of clients), were also key to their ability to stay afloat during the COVID-19 pandemic. The Estonian SmartUp also reported that access to international contacts and consultations regarding market conditions in Germany by the German partner were also very helpful. The German partner, atene KOM, works on funding projects particularly related to digitalisation, smart solution concepts for local and regional and national strategies and sustainable development, thus offering a wide network and repertoire of experiences as a form of SmartUp support. In turn, the German partner, atene KOM, was able to expand their network in terms of engaging with the potential partners and the SmartUp themselves. atene KOM will become a part of the future consumer cleantech ecosystem, so this has added value to their activities.

Main findings from the interviews with the German partner were examined keeping in mind the COVID-19 pandemic hit Europe at the very start of the Smart Consumption round of support. atene KOM reported that, despite COVID-19 initially bringing Suckõrs's business operations to a halt, they had supported Suckõrs to the best of their abilities in regards to German market expansion by opening up our networks and sharing relevant contacts and expertise. From thorough market and competitor scans to consultancy services on specific market issues, the German partner utilised their skills and resources to support Suckõrs. Due to COVID-19, it was not possible to hold any in-person meetings between Suckõrs and any relevant contacts in Germany, which was a major setback for internationalisation plans, but bilateral web meetings were organised whenever possible.

Intensive desk research allowed the German partner to conduct thorough market scans for key players and develop further market insight and scope in regards to the German competitors (or potential partners) of Suckõrs. Suckõrs produces and sells reed straws, which are 100% natural (i.e. no bioplastic, no chemicals, just reed) and decompose in all natural environments, thus setting them apart from some other German companies in the saturated sustainable straw/reusable straw market in Germany. However, the market for plastic straw alternatives is highly saturated in Germany. The German partner therefore had offered support in identifying contacts not only in Germany but also internationally, making use of their global networks. This point further supports the need to establish a self-sustaining consumer cleantech network across the entire Baltic Sea Region – especially in a post-COVID-19 world in which international collaboration efforts require well-established networks and infrastructure to be successful. This further supports the need to establish a self-sustaining BSR consumer cleantech network that will last beyond the project lifetime.

The SmartUp Accelerator post-COVID-19

Some insights from the SmartUp Accelerator Smart Consumption case study were highly centred on the effects of the COVID-19 pandemic, which completely shocked the world's markets. The Smart Consumption testbed phase was just beginning when COVID-19 hit Europe in March 2020, just weeks before the SmartUp Accelerator Smart Consumption bootcamp. The bootcamp, originally planned to be held in Berlin, ultimately took place as a webinar, during which internationalisation roadmaps were created and key performance indicators (KPIs) were established while keeping in mind the impact of COVID-19. All SmartUps reported that face-to-face meetings would have drastically improved the situation, although this was completely out of the hands of the SmartUp Accelerator. Any doors that were able to be opened to new funding opportunities or approaches, such as entering into a Horizon 2020 bid in the case of the Swedish SmartUp, were more welcome during COVID-19 times than ever. The SmartUps who quickly shifted focus from trying to work around face-to-face meetings to research and development were more successful than those engaged in high volumes of video conference substitutes to meetings that may not have needed to take place. Those SmartUps that responded to COVID-19 with plans to pick up business discussions ''once COVID-19 was over'', rather than pivoting their roadmaps to include a detailed step-by-step COVID-contingency plan, were less successful.

More interestingly though were the SmartUps' and partners' responses to the restrictions on business and physical meetings due to the COVID-19 pandemic. One SmartUp had built a new

SMART CONSUMPTION CASE STUDY: KEY LEARNINGS

- Successful SmartUps conduct constant self-analysis, such as making summaries of the work done and following KPIs (i.e. production capacity and number of clients)
- Make web meetings as personal and frequent (yet with purpose) as possible, especially when it is not possible to hold in-person/ face-to-face meetings
- Conduct thorough market scans prior to entering an international market
- In a post-COVID-19 world, international collaboration efforts require well-established networks and infrastructure to be successful

scenario on their digital platform (i.e. a digital pilot, or digital twin), so there were new opportunities to obtain insight, all whilst adapting plans to proceed with operations and expansion once the COVID-19 situation improves. Another SmartUp zeroed in on obtaining the necessary permits to sell their product in other countries in the Baltic Sea Region and beyond. They also spent downtime redirecting marketing to online social media platforms through which their product could be sold directly, which in turn tripled their sales.

In conclusion, the ability of the SmartUps to pivot efficiently and effectively to the COVID-19 pandemic is what will cause them to ''make it or break it'' – in addition to favourable market conditions, above all. The main question as to how exactly they would do this is unfortunately still an unknown to many of them.

The ability of the SmartUps to pivot efficiently and effectively to the COVID-19 pandemic is what will cause them to make it or break it''.

Feeding into the SmartUp Accelerator Model

Proofing and validation phases within the SmartUp Accelerator project offered valuable input and experiences to participating partners within and outside the consortia. The idea behind such proofing and validation phases is not only to receive valuable feedback to improve the SmartUp Accelerator processes year by year within the project lifetime, but also to assess important experiences of the validation and development of supporting structures and tools toward the development of the final SmartUp Accelerator model. Furthermore, the training materials developed within the project have been closely linked to the findings of this report, further adding value to this publication as a ''guidebook'' for adopting the SmartUp Accelerator concept throughout the BSR. With the SmartUp Accelerator, the partnership learned how to create entry opportunities not only in their own country but also in neighbouring BSR countries, as well as how to collaborate with international partners and effective share their knowledge, new networks and information about stimulating consumer cleantech across the Baltic Sea Region, thus presenting the BSR as a hub of innovation and a place where SMEs can thrive, ultimately having economic benefit to the BSR regions.

''The three SmartUp Accelerator testbed arrangements allowed for 21 consumer cleantech innovations to be proved for international market readiness across the BSR – a vital step in establishing the basis for the SmartUp Accelerator model.''

The objective of this report is to assess how to facilitate consumer cleantech companies and prove their innovations in Baltic Sea countries, through market entry and commercialisation through sales. The three SmartUp Accelerator testbed arrangement allowed for 21 consumer cleantech innovations to be proved for international market readiness across the various Baltic Sea Regions – a vital step in establishing the basis for the SmartUp Accelerator model. The findings of this report are derived from the three SmartUp rounds – and resulting case studies and findings from trainings and peer-to-peer evaluations – for the purpose of attaining processes for the pilot SmartUps. Specifically, this publication is targeted toward companies and intermediaries and has outlined different paths, methods, tools and processes when a testbed/proof of concept possibility has been achieved successfully. This can serve as a guidebook in a virtual form that can be regularly updated with new cases and information and it is available to all parties interested through the virtual SmartUp Accelerator platform, post-project end. In addition to being in line with the EU guidance in how to support SME and innovation policy(s) in the context of regional frame, this report above all serves as a necessary stepping stone in the development of the ultimate project objective: the stimulation of the consumer cleantech ecosystem and the development of the self-sustaining SmartUp Accelerator Model.