BSR consumer cleantech innovation ecosystem actors

THE CURRENT STATE OF THE CLEANTECH ECOSYSTEM IN THE BALTIC SEA REGION

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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/

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Executive Summary

This report presents the current state of the cleantech ecosystem in the Baltic Sea Region. It presents the relevant stakeholders in seven countries around the BSR. The report also describes and differentiates the terms *cleantech* and *consumer cleantech*.

The already existing actors relevant to the consumer cleantech field around the BSR have been identified and can be found using the **Cleantech innovation ecosystem actors** map, which also indicates the organizational type of the actors.

This report describes the general challenges for the stakeholders in their respective markets. Examples include lack of funding for companies and organizations, market size or domestic regulatory challenges. To conclude, The Smartup Accelerator Model is introduced and it is identified how the model - which serves in need of creating a united ecosystem - could help to solve some of the challenges is described.

SmartUp Accelerator is a collaboration project funded by the Interreg Baltic Sea Region as part of the European Regional Development Fund.

Consumer cleantech as one of the Cleantech sub-sectors

Traditionally, the term *cleantech* refers to any process, product, or service that reduces the negative environmental impacts through significant energy efficiency improvements, sustainable use of resources, or environmental protection activities. Now, cleantech solutions are emerging in consumer markets.

Consumer cleantech usually has to do with creating new markets and business models and changing the behavior patterns of consumers towards more sustainable lifestyles. These new types of innovations and the special features of consumer cleantech call for collaboration and an ecosystem with involvement of a range of actors. From the consumer's point of view, innovations in consumer cleantech are associated with their most resource-consuming activities. These include housing, transportation and food, and EU inhabitants spend almost 62% of their income on these three categories (Demos Helsinki, 2014).

The term consumer cleantech and the need for collaboration efforts in the field was first described by think tank Demos Helsinki in 2014. Through the initiation of the SmartUp Accelerator project, the process of building a Baltic Sea region ecosystem gathering consumer cleantech stakeholders began.

Cleantech around the Baltic Sea Region

While there previously has been no specific ecosystem for consumer cleantech around the Baltic Sea Region, there are organizations, clusters, and associations working in fields relevant to the consumer cleantech. These fields include cleantech, mobility and the food industry, to name a few. The cross-industrial nature of consumer cleantech means that stakeholders active in these various fields can all be highly relevant to the consumer cleantech ecosystem. Research and inter-

views conducted during the Smartup Accelerator project further show that consumer cleantech companies benefit from general business support methods, and that tools offered by accelerators and incubators are useful and applicable to their business cases. This also makes the most prominent business support organizations as well as science parks and research institutes around the region relevant to the emerging ecosystem.

Relevant organizations from the Baltic Sea Region have been gathered on this **map**. These organizations could be helpful for stakeholders ranging from cleantech enthusiasts and early-stage startups to investors and venture capital funds, looking to invest money in the consumer cleantech sector.

Clear frontrunners in the cleantech sector from the BSR countries are Finland and Sweden, who have both also been ranked TOP 3 in UNIDO's Global Cleantech Innovation Index. There are many interesting organizations and initiatives in the cleantech sector in these countries, and it is possible to note collaborative actions among them, where organizations from Finland are partnering with organizations from Sweden and vice versa.

For **Sweden**, it is easy to find companies interested in the cleantech sector under one **Swedish Cleantech** platform. Organizations representing the cleantech sector in Sweden can be found in different regions of the country. Regarding international opportunities, some of the organizations have regional hubs or partners outside Sweden, for example, **Cleantech Hubs - Innovations by Sweden** has created 3 international hubs to help Swedish companies to bring their innovations to these countries, as well as, to lower CO2 emissions and increase energy efficiency.

Finland as a country has a growing innovation ecosystem with large amounts of money invested in R&D (based on UNIDO's Global Cleantech Innovation Index). The cleantech sector is a strong part of the general ecosystem and Finland has been able to produce successful cleantech startups. Some of them have been included in the Global Cleantech 100 ranking, which means that they have been recognized not only locally but also globally.

Until the end of 2019 , **The Cleantech Finland** program was running with the goal to make Finland the world's leading cleantech expert. As of 2020, it unclear clear if and who will continue this program, but Finland continues to have other organizations and initiatives supporting innovations and the cleantech sector. One such example worth highlighting is the **Merinova Technology Center**. Merinova Technology Center is supporting energy technology companies in the Vaasa region and carries different projects related to cleantech. In the past, it also had joint projects with clusters from Sweden.

In comparing **Russia** with Sweden or Finland using the UNIDO's Global Cleantech Innovation Index as reference, it can be noted that Russia is ranked at number 39 out of 40. Russia's lack of strong entrepreneurial culture, as well as a streamlined support structure for the general national innovation ecosystem, is often mentioned as one of the reasons for such low rating.

However, there are still a number of initiatives specifically for cleantech. There are also organizations that would be also valuable partners for consumer cleantech startups and SME's. In Saint Petersburg, the city which is the closest to the Baltic Sea, organizations like **St. Petersburg Cluster of Clean Technologies for the urban environment** and **St. Petersburg Technopark JSC** are prominent examples. The clusters' mission is to make St. Petersburg more environmentally friendly and safe for people living in the city. In this process, the organizations have managed to involve many members and partners, some of which also from foreign countries. The cluster itself is a member of international networks for cleantech organizations.

The **St.Petersburg Technopark** is working with different stakeholders within the innovation ecosystem. These include startups and SME's, as well as actors from the high-tech industry and cluster organizations. It encompasses all stages of innovation development, from university research to startups, from product prototypes to industry-specific solutions. The Technopark has created a relatively large ecosystem that includes more than 20 investors, more than 35 partners, and over 20 other tech parks.

Two of the smallest countries in the Baltic Sea Region - Latvia and Estonia, show signs of interest in the cleantech sector, but are also the only SmartUp Accelerator partner countries that have not been included in UNIDO's Global Cleantech Innovation Index ranking.

Germany, especially Berlin, is one of the main startup hubs in Europe and some say that a new startup is founded every 20 minutes in Berlin. With London being affected by BREXIT, more startup founders could choose to start their new venture in Berlin. Startups often come up with new innovations that will change the consumers' current behaviors and, in turn, the market. Based on the statement that Berlin is one of the top startup hubs in Europe, it could be expected that we will able to see many successful cleantech startups coming out of Germany, but in reality, the correlation is not that clear. However, there are initiatives in Berlin that were created to support green innovations and cleantech. For example **Eco-Innovation Alliance**, which is created to help young and innovative companies working with greentech solutions. Presently, the alliance has over 60 startups and they are set to take Germany to the top of the list of countries working with green innovations.

Berlin also has other initiatives for the cleantech sector, for example, **Smart City Berlin** or **Cleantech Business Park**. This type of business park would be a valuable asset for the broader community as not all BSR regions or countries have specific industrial or business parks for the cleantech sector.

Latvia has a cluster named **Cleantech Latvia**, which has more than 40 members, including some of the biggest universities in Latvia. *Cleantech Latvia* was also one of the founding members of the **Baltic Cleantech Alliance**, which was a project created with the aim to support SMEs on their global expansion strategies. The project ended in 2018.

An active player in the green sector is another cluster, **Green-Tech Cluster**, located outside of Riga. *Green-Tech Cluster* has two representative offices, one in Liepaja and another one in Ventspils in western Latvia. It has almost 60 members and 13 partners, many of which are international. The main aim of the cluster is to promote cooperation between companies and research, educational and knowledge transfer organizations at the local and international levels.

Estonia, despite its small size, is known for its successful startups. *Bolt* and *Transferwise* are only two of four "unicorns" (a startup company valued at over $1 billion) that were founded in the country. While Estonia is not included in different rankings or reports as one of the leading countries in the cleantech sector, there are different initiatives that support new companies in this field and the country even has one of the leading companies in cleantech. **Skeleton Technologies** is the name if this company which is a European market leader for ultracapacitors and energy storage systems for transportation, grid, and industrial applications. They are not only leaders in Europe, but they are also named a Global Cleantech 100 company by Cleantech Group 6th times in a row.

One organization that is responsible for supporting new cleantech ventures and innovations is **Cleantech ForEst**. This non-profit organization supports and funds early-stage green technology startups, helps them advance their export relations, advances environmental awareness and business-science cooperation, and supports energy experts. Cleantech ForEst also has an office in San Francisco.

Additional examples are **Tallinn Science Park Tehnopol** and **Sunly**. *Tehnopol* is a research and business campus with the mission of helping startups and SMEs grow more quickly. Tehnopol has a separate cleantech direction that, with its 5 years of existence, was the first institutional seed in the now-emerging cleantech ecosystem. Tehnopol also is one of the partners in the Smartup Accelerator project.

Sunly is the only Estonian corporate investor that specializes in cleantech companies. *Sunly* also hosts a hub for cleantech and energy technologies startups in collaboration with Cleantech ForEst. The hub draws together companies from the relevant areas offering investments and access to regional and international networks.

Poland ranked #24 in UNIDO's Global Cleantech Innovation Index. This placement is lower than Sweden, Finland and Germany, but Poland made the biggest improvement of all countries in ranking and moved up 13 places. Poland is investing increasing amounts for R&D in the cleantech sector and filling more patents in this sector. Also, the population's perceived entrepreneurial opportunities have increased by far.

Poland's initiatives in the cleantech sector includes the **South Poland Cleantech Cluster**. The overall objective of the cluster is the realization of the state and the policy of the region by providing a faster growth in the region's cleantech companies, creating new and attracting foreign companies, investment and talent.

As mentioned at the beginning of this report, consumer cleantech is associated with the biggest resource-consuming activities from which one of them is food. Poland has one specific cluster for food - **Food4Good**. The cluster's management is planning to deepen cooperation with science and research institutions related to agriculture, food economy and health, as well as with other domestic and foreign cooperative relations. The cluster also has cross-border cooperation with similar organizations in Germany.

The Polish ecosystem has recently become a more friendly environment for startups and innovations, and the country has grown its tech and startup reputation across Europe. This contributes positively to consumer cleantech actors as well, as many general support initiatives for startups and SMEs are fully applicable also for those who are working in the consumer cleantech sector.

From the Polish startup report, the most "Silicon Valley"-like region in Poland is Lower Silesia and the city of Wroclaw. Wroclaw also has the largest technology park in Poland, **Wroclaw Technology Park**. It is a place where the business of any size can find business support. The park has support programs, office space and special labs for research and prototyping.

Unmet needs and challenges

Examples in this report show that each SmartUp Accelerator partner country has some level of projects and initiatives supporting innovations relevant to consumer cleantech. However, there are some challenges that remain, and collaboration and a united ecosystem could strengthen consumer cleantech opportunities around the Baltics Sea region.

One of the challenges stressed by startups in dialogue with the SmartUp Accelerator partners, is later-stage funding. There are many incubators, projects and other initiatives supporting early-stage companies, but it is harder to raise extra funding when the company is past the seed stage. This could be solved if a network, or the ecosystem, supports connections between startups, SMEs and investors from different countries.

Another challenge, which is of special importance to consumer cleantech, is the local market size in which the startup is operating. As consumer cleantech solutions work with new business logic and supports changing the behavior patterns of consumers, reaching a larger critical mass of customers is critical. For one, companies on often small markets need to reach the early adopters. Secondly, impact from new and more sustainable consumer behaviors is increased with reach. Looking to acquire customers outside the local market is a challenge, and support from target market organizations would be beneficial. Again, a united ecosystem, working with the same mission, would be a valuable forum.

The third challenge is domestic regulation. Sometimes, good consumer cleantech solutions are limited by market legislation. In some instances, companies would benefit from exploring other markets where market factors and regulation might allow for pilot testing or market introduction.

The fourth challenge is the durability of different projects and initiatives. During the making of this report, it was noted that some of the projects started in the cleantech sector were funded by EU money. After the project deadline, the work with the initiatives did not continue. Most likely, the projects have not been continued because of lack of necessary funding for them. This shows that a self-sustaining model for the continuous work of the consumer cleantech ecosystem must be found. It should also be noted that intermediaries, i.e. key stakeholders in the ecosystem, are often project-based financed with specific goals, deadlines, budget, and other administrative restrictions (for example public procurement). It can therefore also be challenging to join resources, such as for organizing joint events, sharing marketing costs, and to share costs for experts or services.

The fifth challenge is that there can be a competitive atmosphere between intermediaries themselves. Competition between organizations can raise the level of services they are offering and be a good way to benchmark. The challenge can lie in that they are competing for the attention of the same startups. Intermediaries are offering quite similar services and are covering more or less the same topics. Usually, the same startups meet the requirements of different intermediaries. In addition to this, intermediaries are competing for the best experts and mentors as the number of them is quite fixed. Intermediaries working in the same field, in this case, cleantech or consumer cleantech, usually use the same communication channels and keywords to attract companies to their program and services offered. It can be confusing for the audience and they will be lost in all the flow of information.

Recommendations for organizations working in the consumer cleantech sector

There are a number of recommendations SmartUp Accelerator would like to provide for other organizations working in the consumer cleantech sector.

Choosing the thematic focus areas.
It is good to see so many organizations working in the cleantech sector. However, business support organizations such as incubators or clusters should choose a few main focus areas. In Smartup Accelerator, the partners chose to focus on three key areas - *Smart homes, Smart Mobility* and *Smart Consumption*. This supported narrowing down on what kind of companies the project would focus on, helped in communication during all phases of the project, and attracting relevant stakeholders to the project.

Creating partnerships.
After having selected a few key focus areas, it is easier to find relevant partners that can support goal fulfillment. Partners can be local or international to help scale operations of organizations or find client organizations to enter new markets. It should be kept in mind, that value should be shared in both ways between partners. In the case of *Smartup Accelerator*, each of the partners had local partner organizations that could help smartups that participated in the acceleration phase to try and enter new markets and test their business models.

Initiate dialogue
Organizations working in the cleantech sector should initiate dialogue between different stakeholders such as government organizations or big companies. As mentioned, one of the challenges is related to domestic regulation. If the dialogue between organizations is started as early as possible, it can lead to better legislation in the country which can help to bring new business and cleantech innovations to the market. For example, the Smartup Accelerator partners have been in dialogue with local government organizations during conduction of market studies in the fields of smart mobility, smart homes and smart consumption. This allowed for identifying areas which should be investigated and perhaps revised, for countries to be able to implement new solutions related to the consumer cleantech sector. The information additionally contributed in the ability to support companies in their process of selecting a target market during the SmartUp Accelerator acceleration phase.

Organizing events.
In order to attract public attention to the consumer cleantech sector, environmental problems and new innovations, organizations should organize open events. This will not only educate a wide variety of stakeholders and give them valuable information, but it will also present the organization as one of the industry experts. During the time of Smartup Accelerator, each of the partners organized a set of events that were open for anyone to join. This allowed for communicating all the relevant information about the project (e.g. application for acceleration phase), to raise awareness, and to profile the partners as industry experts.

Access to capital.
As mentioned in the previous section, both startups and established organizations lack funding to realize all of their business goals. In the case of startups, the issue is mainly access to investments after the seed stage. A recommendation is to map out all relevant venture capital firms locally and abroad, and create a connection with them for startups to help attract funding.
But for organizations, a main action point is attracting money to further develop ongoing projects launched with EU co-financing. If new and valuable partnerships have been established during a project, it is recommended that together these organization looks for new opportunities to apply for extension projects or to set up a separate fund for cleantech projects and attract private capital to it.

Cooperation instead of competition.
While competitiveness can be a challenge for intermediaries as they compete in the same markets for the same customers, the Smartup Accelerator example shows that organizations from one or several countries can cooperate and achieve greater things than had they operated on their own.

Smartup Accelerator Model

In 2017, 10 partners from 7 countries around the Baltic Sea jointly started SmartUp Accelerator. Led by **Innovatum AB** from Sweden and **Demos Helsinki** from Finland, the project is focusing on building a consumer cleantech ecosystem.

Partners of this project believe that one ecosystem, united by one goal – to foster the consumer cleantech sector, thus improving the overall quality of our lives, could unveil groundbreaking opportunities for companies and other stakeholders within the ecosystem.

The consumer cleantech ecosystem, created by partners from the Baltic Sea Region, will be presented under the name Smartup Accelerator Model. The Model will be a platform for all stakeholders interested in consumer cleantech. It will provide its members with manuals, case studies, market insight, information of community organizations, etc. Of course, as for any ecosystem, for it to work, it will require peer support and sharing of value not only from the founding members but from everyone who decides to join it.

This ecosystem also will address some of the challenges that were mentioned in the previous section. The vision of the Smartup Accelerator Model is that it will gather not only support organizations and startups and SMEs, but also big corporations and investors. This means, that it could be a possible solution to the lack of later-stage funding. Companies in the model can use this ecosystem as a platform to present themselves and meet investors from different countries.

During the Smartup Accelerator project, three acceleration phases were launched, to help companies enter new markets. Each of the project partners now has knowledge on how to work with small and medium-sized consumer cleantech companies, and what methods and tools to use. Smartup Accelerator partners will share this knowledge with those who join Smartup Accelerator Model and beyond. This could help more companies to go outside their domestic market and reach the critical mass of customers for their business model to work properly.

In addition to knowledge on how to work with companies entering foreign markets, Smartup Accelerator will share knowledge and findings of markets (size, local legal regulations, big players, etc.) of each of the countries around the Baltic Sea Region. This kind of information will support companies in making better choices in terms of which could be the most suitable country and strategy for their business case. As the Smartup Accelerator Model will grow by the number

of its members, more knowledge and information will be accumulated between everyone and it will become increasingly valuable.

When noting that many initiatives fail to continue their operations after no longer having funding, it makes it even more clear that the Smartup Accelerator Model should be self-sustaining. This means that it should have ways for delivering and distributing value between ecosystem members with low or no cost over a long period. For now, Smartup Accelerator will be managed by using different digital tools that are accessible to everyone and do not require big investments.

Regarding the challenges created by competition between intermediaries, inside this ecosystem, all members should try to take the best from each other and learn how to cooperate instead of competing. For example, if one intermediary has access to high-class experts, their expertise or services can be offered to other ecosystem members. In this case, even the cost could be shared. Regarding the communication between intermediaries and startups, founders of the Smartup Accelerator Model will suggest guidelines based on experiences from the project.

While the true results and benefits of this kind of ecosystem will be visible only over a period of time, the partners of Smartup Accelerator believe that this kind of ecosystem, representing stakeholders from different countries and fields, could lead to much faster growth of consumer cleantech and that it would give great benefits both for all its stakeholders.

Joining the Smartup Accelerator Model

The project consortium has aimed to improve the prerequisites for consumer cleantech by increasing the skills, visibility, and connectivity of people within the sector. Yearly consumer cleantech competitions for startups and SMEs (i.e. smartups) and the following bootcamp and acceleration phases have essentially provided the backbone to the Smartup Accelerator model and all learnings and materials will be available to the network. Ultimately, this will strengthen the capabilities of smartups and the innovation support tools will make engagement and processes with smartups easier and more effective. This will support innovative stakeholders all around the BSR and grant more consumers access to sustainable alternatives in their daily lives.

Value Proposition:

"The SmartUp Accelerator platform gathers passionate smartups, prominent intermediaries and influential large companies and investors in the consumer cleantech field around the BSR. It is a platform for consumer cleantech front runners that opens up for new opportunities and powerful collaborations by joining forces across sectors and borders."

If you want to learn more about our value proposition or join the network, send an email to your **local partner** and we will get back to you!

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