BUSINESS
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PROGRAMMES TAKING THE ROAD, UP TO THE SKIES

Evaluation of Smart Mobility and Batteries, and New Space Economy programs of Business Finland

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BUSINESS FINLAND
We believe in the power of ideas. That's why we fund and help Finnish companies grow quicker and develop their innovations to become global success stories.

FOREWORD

Business Finland offers a broad range of export promotion services to help Finnish companies access international markets. This evaluation focuses on two specific funding instruments tailored for company groups: Exhibition Explorer and Group Explorer. These instruments are designed to support companies in participating in international trade fairs and in jointly exploring business opportunities abroad, using a collaborative, group-based approach.

The purpose of this evaluation was to assess the relevance, functionality and usefulness of these services and to provide insights that can support in their use and future development.

This impact study was conducted by Menon Economics. Business Finland extends its sincere thanks to the evaluators for their thorough and systematic work and expresses its appreciation to the steering group and all other contributors to this evaluation.

Helsinki, April 2025
Business Finland

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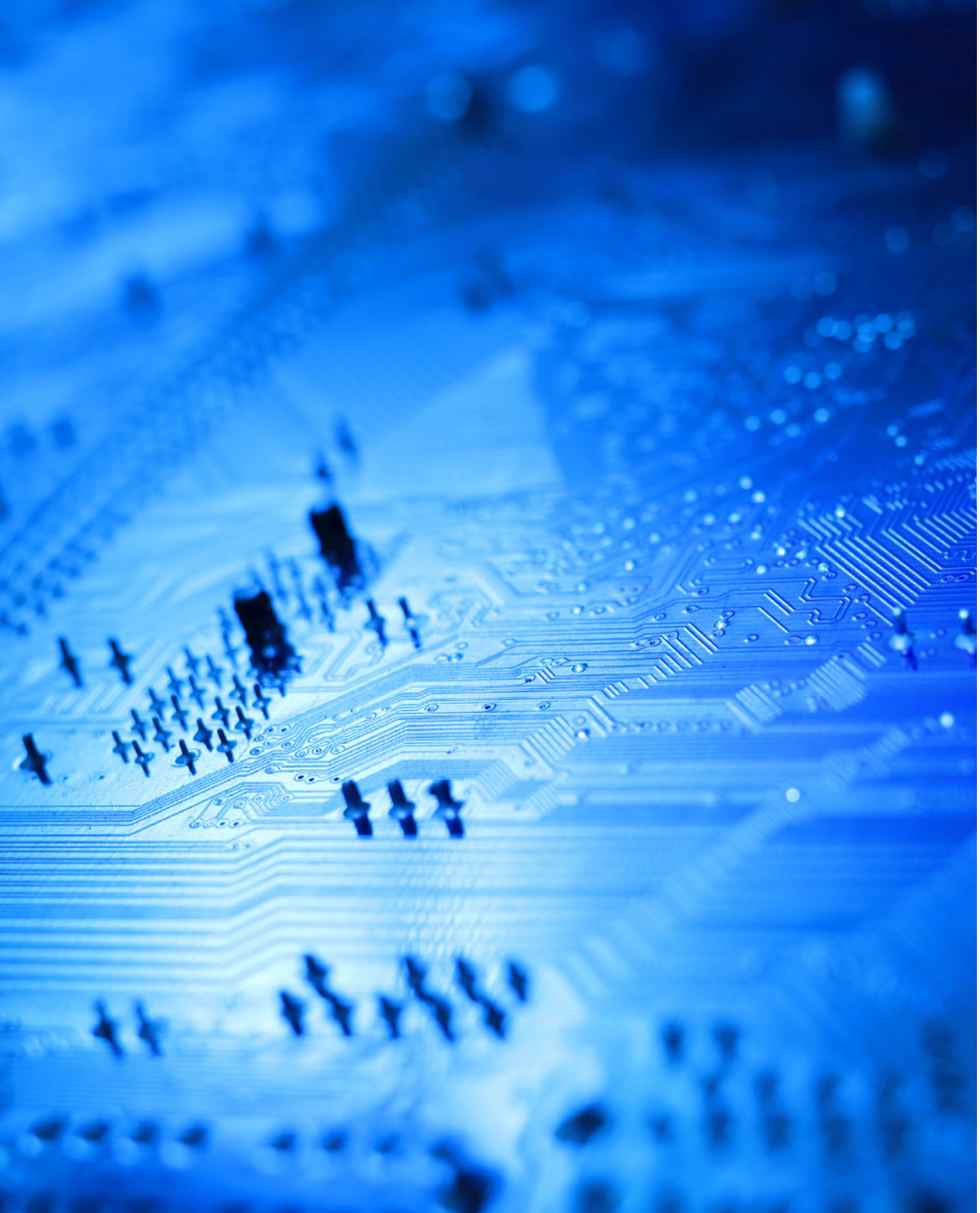


EXECUTIVE SUMMARY

This report provides an evaluation of two Business Finland programs: Smart Mobility and Batteries from Finland program and New Space Economy program. The objective of this report is to document results and contribute to the assessment of the two programs. For this particular study, we have employed the OECD evaluation model as our primary framework. This model has been tailored to ensure that the key questions are addressed and that the findings are relevant to Business Finland.

ACTIVITIES AND SERVICES IN THE TWO PROGRAMMES

The programs have undertaken a variety of activities and services to achieve their goals for the targeted industries. These mainly include funding of innovation and R&D projects, internationalization activities, which involves export promotion, attending fairs and delegation trips, as well as assistance with connecting to international actors and marketing Finnish producers, and analysis of specific markets. Additionally, they are involved in networking and ecosystem activities, which include meetings, events, forums, and other networking activities, both within the program and with external participants, such as industry ecosystems.

The two programs differ significantly when assessing the number and type of funding decision and the size of the two programs. This is illustrated in the table below.

THE BACKGROUND AND OBJECTIVE OF THE SMART MOBILITY AND BATTERIES FROM FINLAND AND THE NEW SPACE ECONOMY PROGRAMS

The New Space Economy and Smart Mobility and Batteries from Finland programs were two initiatives from Business Finland that were active from 2018 until the end of 2022.

- The Smart Mobility and Batteries from Finland program initially consisted of two separate initiatives, namely the Smart Mobility program and the Batteries from Finland campaign, before they were merged in 2021. The background of the program was a larger national initiative in the battery industry, and a desire to integrate Finnish companies into the European battery value chain. The program also aimed to promote development in the country's companies within smart mobility and logistics.
- The New Space Economy program was initiated to realize Finland's new space strategy, which involved a larger focus on Finnish companies delivering commercial solutions to, or based on, the space segment.

The main goals of both programs were to promote exports, build competitive ecosystems, accelerate innovation and R&D, develop new business models, strengthen existing companies in the area, and support new startups.

	NEW SPACE ECONOMY	SMART MOBILITY AND BATTERIES FROM FINLAND
Number of unique recipients	37	149
Number of funding decisions	52	225
Total funding from Business Finland	38.2 million EUR	195 million EUR
Loans to companies as share of funding from Business Finland	60 percent	11 percent
Grants to companies as share of funding from Business Finland	35 percent	72 percent
Grants to research and universities	5 percent	16 percent
Total size of program (Business Finland funding and company contribution)	59,5 million EUR	598,7 million EUR

PARTICIPANTS IN THE PROGRAMS

The New Space Economy program targeted the Finnish space industry, focusing on sectors such as small satellites, satellite subsystems and components, satellite data-based services, and software services/products. Among the companies that received funding for innovation and R&D, 46 percent are micro-sized, while 35 percent are large, highlighting a division between larger established firms and smaller start-ups. A significant share of these companies (76 percent) is geographically concentrated in Uusimaa. In contrast, the Smart Mobility and Batteries from Finland program encompassed a diverse array of companies in smart mobility, logistics, and battery technology. Here, 60 percent of the companies that have received funding are large-sized. While the recipients of this program's funding are more geographically dispersed compared to those in the New Space Economy, they still primarily cluster in Uusimaa, with 40 percent located there.

Participants in the two programs exhibit several shared traits and complementarities beyond their affiliation with the same industry or sector, such as the mobility, battery, or space sectors. These similarities are evident across three primary dimensions: the value chain, industry segments, and the Penta Helix Model. Firstly, in terms of the value chain, participants demonstrate complementarities by representing various roles within the chain, from suppliers to end-users, fostering vertical linkages. Such structure enhances the supplier-customer relationship, facilitating product and service development to meet market needs while offering insights into innovative solutions and technologies. Secondly, the horizontal complementarities within industry segments, whether in space or mobility/battery sectors, enable the creation of solutions applicable across segments and the exchange of experiences. Lastly, when examining participant types, complementarities are observed through the Penta Helix Model, which involves collaboration among startups, established companies, governments, academia, and investors. This model underscores the importance of these five sectors in driving societal and economic progress. Although most participants are businesses, both academia and government are also represented, contributing to a diverse and comprehensive group of participants.

TO WHICH EXTENT HAVE THE PROGRAM BEEN RELEVANT FOR THE PARTICIPANTS?

The relevance of the two programs can be evaluated by examining the demand they generate, as reflected in participants' motivations for joining and their assessment of the activities' relevance. Networking opportunities emerged as the primary motivational factor for joining both programs, with participants eager to connect with potential customers and partners within the ecosystem. Other key motivational factors include aspects related to research and innovation, as well as internationalization activities for the New Space Economy program. The reported motivational factors align with the goal of the programs. When asked which activities and services they found most relevant, participants primarily cited networking and ecosystem activities, followed by innovation and R&D projects.

An important aspect of relevance pertains to the distinction between broad and narrow programs. This distinction can be evaluated based on three dimensions: thematic scope, target group, and the services a program provides.

- **Services**: Both programs offer a diverse array of services, including funding for innovation projects, seminars, delegation trips, and market research, among others. Consequently, both programs can be classified as broad in terms of their service offerings. Broad programs in this regard offer a variety of services, which can create beneficial synergies by

addressing diverse needs within a single program, thus facilitating a comprehensive approach for companies with multiple objectives. They also consolidate contact points, making it easier for companies to navigate and access necessary services. In contrast, narrow programs in this regard concentrate on specific services, which can enhance the quality and effectiveness through focused expertise. Moreover, programs that specialize in a specific service can possess considerable economies of scale related to expertise and efficiency. For instance, a program focused solely on lending may excel in credit assessments. In contrast, programs offering a wide range of services are less likely to develop such specialized expertise, making cross-comparisons less viable.

- **Thematic Scope and Target Group**: There is a notable difference between the two programs concerning their thematic scope and target groups. The Smart Mobility and Batteries from Finland program encompasses a wide range of participants and targets various technologies such as automation, robotization, and electrification across several transportation sectors, including automotive, maritime, aviation, rail, trams, and construction machinery. In contrast, the New Space Economy program is more focused, concentrating on a single industry with a comparatively smaller participant base. Programs with a narrower focus have a greater potential to appear relevant, as they can tailor activities to meet the specific needs of the companies involved. This suggests that a program like the New Space Economy might find it easier to demonstrate its relevance. However, our findings do not indicate that participants in the New Space Economy program perceive the offered activities as more relevant than their counterparts in the Smart Mobility and Batteries from Finland program. Beyond the potential for more tailored activities and hence increased relevance, we have explored other advantages and disadvantages of having a program targeting a narrow or broad thematic scope/target group. These findings are summarized in the table below.

	ADVANTAGES	DISADVANTAGES
NARROW PROGRAMS	• Increased relevance by tailor activities to the needs for the specific companies • Increased opportunity to build a sense of industry community • Easier identification and activation of the target group, as it is more defined and smaller	• Limited synergies and complementarities if the target group is too narrow/small • Administrative overload for Business Finland and user complexity if too many narrow programs are offered
BROAD PROGRAMS	• Broader goals give the possibility to adapt offerings to evolving needs • Increased possibility of cross-sectoral collaboration, due to a broader target group • Increased possibility of cross-regional collaboration, due to a broader target group	• Reduced relevance due to lower possibility to tailor activities to participants needs • Reduces opportunity to build industry community, as the target group is broader

ADDITIONALITY OF THE SERVICES OF THE PROGRAMS

To assess the extent to which the activities and services of the programs have triggered results and impacts, it is crucial to examine what participants would have done if Business Finland's offerings had not been available. If participants would have undertaken the activities regardless of the programs' existence—indicating low additionality—then the results and impacts would have occurred independently, rendering the programs less relevant. Therefore, it is desirable for the programs to demonstrate high additionality, meaning they have prompted activities that would not have been carried out in their absence.

- Specifically, we explore the extent to which funding from the programs has triggered innovation and R&D efforts, as well as the degree to which the programs' activities and services have facilitated internationalization efforts of the participants.
- The additionality effect of the offerings related to innovation and R&D projects is particularly strong for the Smart Mobility and Batteries from Finland program. A substantial portion (42 percent) of participants would not have pursued their innovation and R&D projects *at all* without this financial support. Furthermore, none of the participants in the Smart Mobility and Batteries from Finland program would have executed their innovation and R&D projects to the same extent or incurred the same costs without the program. This indicates that numerous innovation and R&D projects would not have been under-

taken to the same degree by the participating companies without this program in place. In contrast, while there is some additionality related to innovation and R&D projects for the New Space Economy, it is to a lesser extent compared to the Smart Mobility and Batteries from Finland program.

- Regarding internationalization and export initiatives, the offerings of the New Space Economy program have been particularly impactful. Approximately 63 percent of participants in this program indicate that they would have engaged in internationalization efforts and export initiatives to a lesser extent and at a later stage if the program and its offering did not exist. For the Smart Mobility and Batteries from Finland program, the proportion is somewhat lower, but still considerable, at 50 percent.

THE ACHIEVEMENTS OF RESULTS FOR PARTICIPATING COMPANIES IN THE TWO PROGRAMS

Both the New Space Economy and Smart Mobility and Batteries from Finland programs have successfully enhanced participants' networking capabilities and ecosystem knowledge, though the extent and nature of these successes vary. Participants in both programs reported improvements in their understanding of the industry ecosystem and access to networking opportunities. These results align well with their initial motivations for joining the program, which focused heavily on networking. However, as illustrated in the graph below, participants in the Smart Mobility and Batteries from Finland program experienced even more substantial gains in ecosystem knowledge and networking opportunities. This is particularly intriguing given that these participants engaged less frequently in networking activities than those in the New Space Economy.

A related aspect of which New Space Economy differs from Smart Mobility and Batteries from Finland, is that it has more successfully fostered a sense of industry community, promoting greater collaboration and synergy. This success can be attributed to the program's more narrowly defined target audience, making it easier to build strong relationships and community bonds than the broader Smart Mobility and Batteries from Finland program. Additionally, it is likely that a sense of community already existed within the sectors targeted by the Smart Mobility and Batteries by Finland program prior to their launch, as these sectors were more established at the time, with several pre-existing ecosystems focusing on mobility and batteries.

Both programs also yield similar achievements in terms of technology and innovation development, with participants in both programs noting significant improvements in their access to participate in research and innovation projects, as well as increased technical development and innovation.

However, challenges remain in achieving outcomes related to access to capital. Participants from both pro-

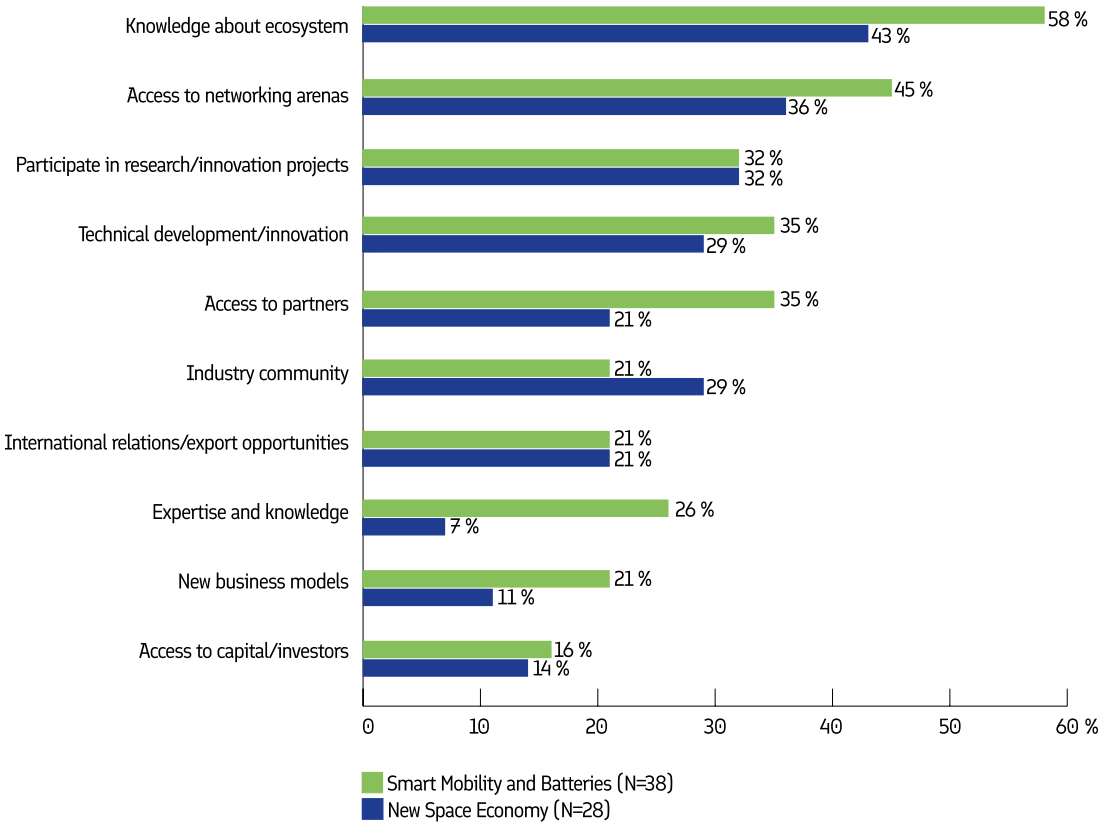


FIGURE 0.1: TO WHAT EXTENT HAS THE PROGRAM IMPROVED CONDITIONS FOR YOUR ORGANIZATION IN THE FOLLOWING AREAS? SHARE THAT HAVE REPLIED TO A LARGE/ VERY LARGE EXTENT. SOURCE: SURVEY BY MENON ECONOMICS (2024)

grams reported lower satisfaction in this area. Additionally, improvements in international relations and export opportunities were not prominently recognized by program participants. This is particularly surprising for the New Space Economy program, where international activities were a key motivation for participation and were to a higher degree reported as relevant. Despite these expectations, the perceived relevance of international activities was only moderate.

IMPACTS AND MECHANISMS OF IMPACT

Activities and results from such programs can contribute to long-lasting impacts for the companies and organizations that have participated in the programs, the industries they target, and society at large. In this report, we exclusively examine the impact on participants. There are primarily two reasons for this. Firstly, due to the financial constraints of this project, we have not been able to assess the broader impacts. Secondly, as these programs concluded relatively recently in 2022, identifying long-term effects is currently challenging.

The most significant impact experienced by participants in the two programs is increased competitiveness. This is followed by effects such as enhanced exports and a growing customer base both in Finland and abroad. These impacts are illustrated in the figure below for the two programs.

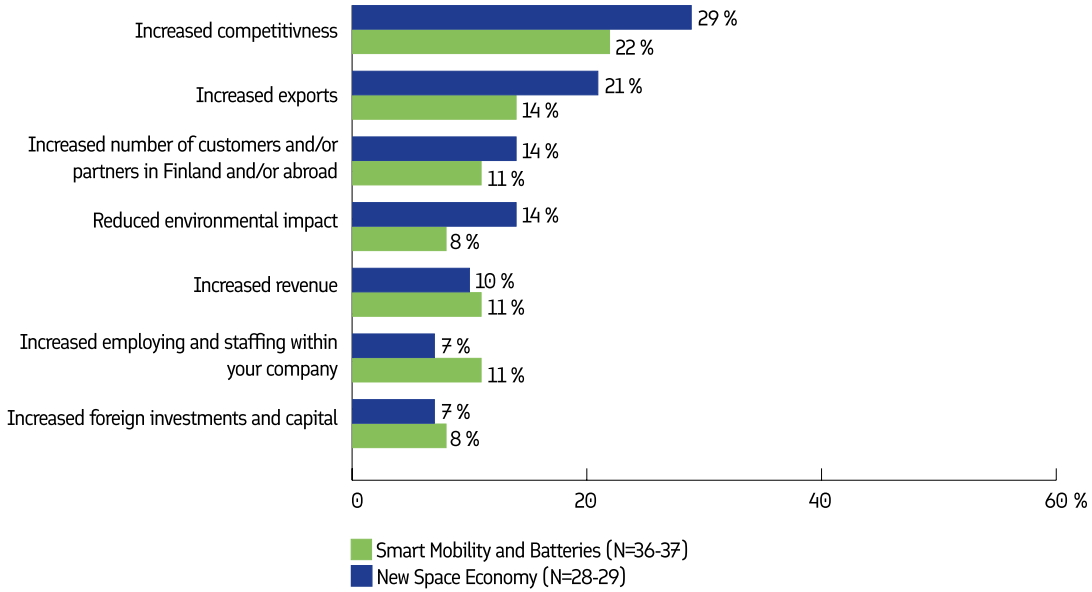


FIGURE 0.2: TO WHAT EXTENT HAS THE PROGRAM CONTRIBUTED TO TRIGGER THE FOLLOWING IMPACTS FOR YOUR COMPANY? SOURCE: SURVEY BY MENON ECONOMICS (2024)

The impacts experienced by companies are linked to a variety of factors, including the outcomes they have achieved, and the activities they have participated in. For the latter, we find that networking and ecosystem activities have been particularly important, especially for participants in the Smart Mobility and Batteries from Finland program. But which outcomes have been crucial for achieving these impacts?

- For participants in both programs, **increased competitiveness** has been an important impact. Several outcomes have been important here, with the most apparent pattern linked to technological development. This connection likely stems from both programs targeting industries (space, mobility, batteries, etc.) that have experienced substantial technological progression in recent years. Thus, companies from these sectors, that have successfully developed and/or implemented new technology, have consequently enhanced their competitiveness.
- Participants who reported experiencing **reduced environmental impact** also show results associated with increased innovation/research, technical development, and new business models. We consider these outcomes essential for facilitating green transition. Innovation/research and technical development play a crucial role in creating new green technologies, while new business models are central to a transition that may require changes in production methods or the alteration of products and target markets.
- Participants reporting an **increased number of customers and/or partners in Finland and/or abroad** also frequently demonstrate results related to enhanced knowledge of the ecosystem and access to networks. These factors collectively lay the ground-

work for increased collaboration with potential customers.

- As highlighted above, some participants have noted **increased exports** as an impact. For these individuals, particularly within the New Space Economy, strengthened international relations and export opportunities have been crucial.

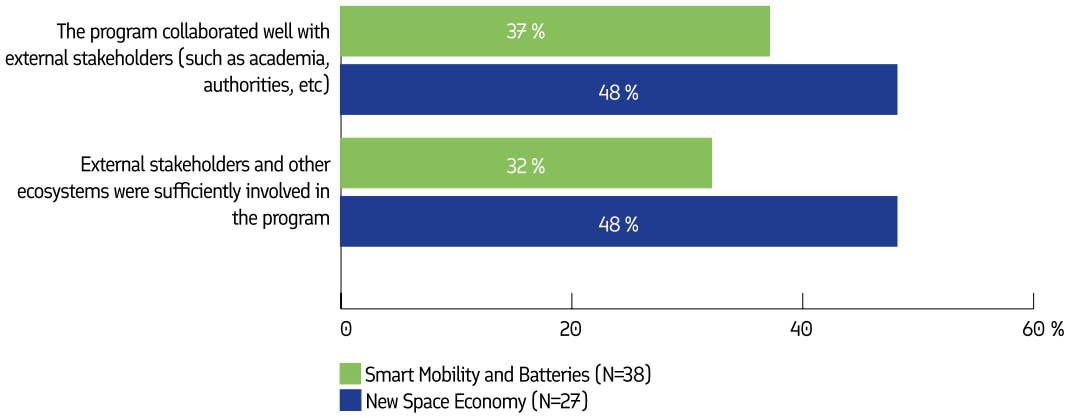


FIGURE 0.3: TO WHAT EXTENT DO YOU BELIEVE THE FOLLOWING STATEMENTS ARE TRUE? (TO A LARGE/VERY LARGE EXTENT). SOURCE: SURVEY BY MENON ECONOMICS (2024)

ADMINISTRATION, STAKEHOLDER PARTICIPATION AND BOTTLENECKS

Stakeholders are viewed as central players in the programs as they make significant contributions to the program, its activities and services. Our findings indicate that the participants of both programs are generally satisfied with the level of stakeholder involvement and collaboration. This raises the question of whether the programs could benefit from utilizing external stakeholders, and especially ecosystems, for managing or organizing activities such as networking. This is especially relevant if there are administrative resource limitations in Business Finland. This is further emphasized as the programs are considered as broad related to their service offerings, where many types of activities and services are being conducted. According to the participants, the program has generally been administrated well by Business Finland. However, fewer participants from the New Space Economy program see the necessity that it is Business Finland that should administer such networking activities. The fact that a significant number of participants in the New Space Economy program believe that networking activities could have been conducted by external stakeholders or ecosystems, highlights the possibility for these activities to be delegated.

Stakeholder collaboration and partnerships in network activities can significantly enhance resource efficiency, thereby expanding Business Finland's impact. Important

implications and practical recommendations must be considered regarding the extent and modes of stakeholder collaboration:

- **Leverage on regional and sector-specific Expertise**: Collaborate with regional ecosystems and sector-specific stakeholders who possess a deep understanding of local dynamics and industry needs. This approach will ensure the engagement of relevant participants and foster effective mobilization across diverse sectors.
- **Include a diverse range of stakeholders**: To avoid exclusion and ensure broad participation, involve a diverse range of stakeholders, including those with national reach. This strategy will mitigate the risk of limiting collaboration to narrowly focused organizations and ensure inclusivity across various companies and segments.
- **Align with other sector-specific efforts**: Coordinate network activities with ongoing sector-specific projects and initiatives that stakeholders are engaged in.

ASPECTS OF SUSTAINABILITY

Sustainability is central to Business Finland's strategy for 2025 and is integrated into various offerings like the Smart Mobility and Batteries from Finland program, which targets industries with significant environmental impacts and fosters green technology development. On the other hand, the New Space Economy program focuses on the space industry, where sustainability aspects are less prevalent.

A relevant topic is to what extent impacts of the programs have been relevant for aspects of sustainability. Our findings suggests that the programs have had limited success in reducing participants' environmental impact. Only 8 percent of Smart Mobility and Batteries from Finland participants, and 14 percent of New Space Economy participants reported substantial environmental benefits due to participation. This is somewhat unexpected given the former's stronger emphasis on green transition initiatives.

CONCLUDING REMARKS

Lastly, we have examined the overall satisfaction with the program. High satisfaction among participants indicates that they perceive the activities and services as relevant, well-executed, and capable of delivering the desired outcomes in terms of results and impacts for the participants. Overall, we find that the participants have largely been satisfied with the programs. According to our survey, between 40 and 50 percent of participants in the New Space Economy and Smart Mobility and Batteries from Finland programs reported being satisfied to a large or very large extent with the programs.

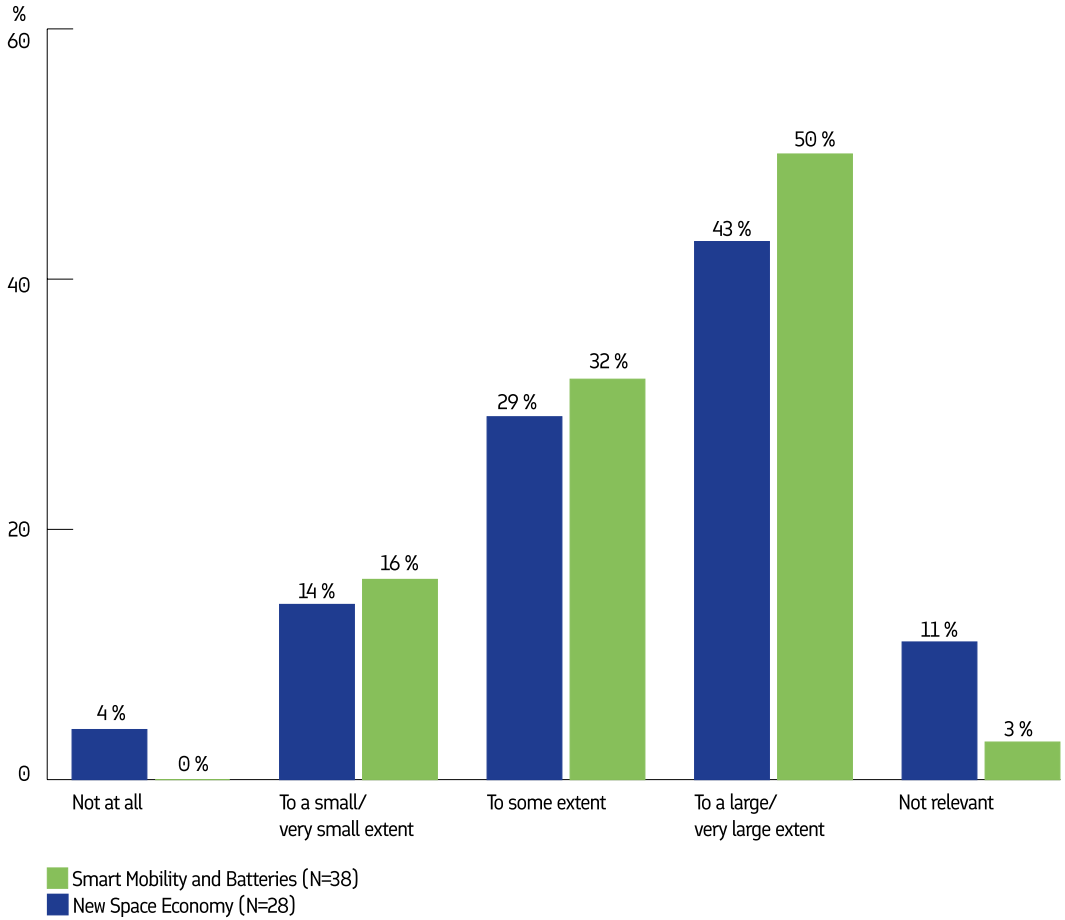
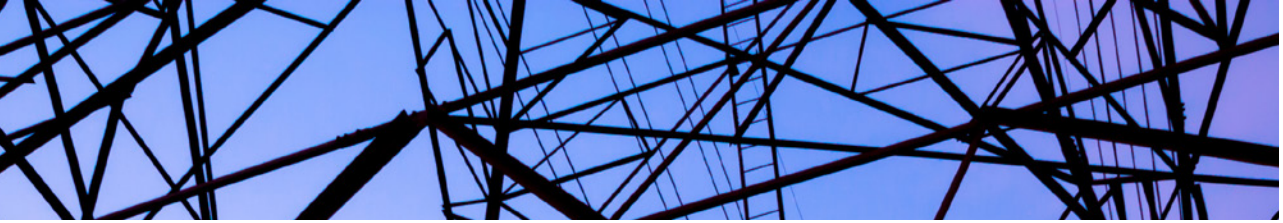


FIGURE 0.4: LOOKING BACK, TO WHAT EXTENT WERE YOU SATISFIED WITH THE PROGRAM AND IT'S ACTIVITIES/ SERVICES? SOURCE: SURVEY BY MENON ECONOMICS (2024)



1. INTRODUCTION

This report provides an evaluation of two Business Finland programs: Smart Mobility and Batteries from Finland and New Space Economy. Evaluations are crucial in ensuring that export promotion services are effective and efficiently designed. Therefore, the objective of this report is to document results and contribute to the assessment of the two programs.

Menon Economics is one of six suppliers of Business Finland on the Framework Agreement for Impact Assessment Services. This study of the two programs is conducted in parallel with three other studies of other programs.

1.1. METHODOLOGY AND FRAMEWORK

Menon possesses extensive experience in evaluating a wide array of public funding services and organisations and is acknowledged as an expert in evaluation methodology. For this particular study, we have employed the OECD evaluation model as our primary framework. This model has been tailored to ensure that the key questions are addressed and that the findings are relevant to Business Finland.

Accordingly, this evaluation addresses the following pillars of the OECD framework:

- **Relevance** – To which extent has the program been relevant for the actors in the targeted industries. In addition, we investigate the potential synergies and relationships between the key users of the programs.
- **Effectiveness** – Which objectives were achieved, and what would the outcome be without the programs. Aspects related to the administration of the programs, and the use of and collaboration with stakeholders.
- **Impact** – What impacts do we see and what have the mechanisms of impact of successful services been.
- **Sustainabilit**y – How does the perspective of sustainable development manifest.

To assess these questions, we have used the following sources of information.

- **Literature review** of documentation from Business Finland and other third-party analysis
- **Project funding data** from Business Finland
- **Customer Relationship Management (CRM) data** from Business Finland
- **Survey** targeting companies who have participated in the programs[1]
- **Interviews** with key representatives from Business Finland

INFORMATION ON THE SURVEY EXECUTION

In this study, we conducted a comprehensive survey aimed at gathering quantitative data on the two programs, focusing on aspects such as motivation, outcomes, impacts, and other relevant facets. The survey was designed to include both standardised questions and statements for consistent answers, as well as open-ended questions to allow for more detailed reflections.

The survey was distributed to participants of the two programs using email lists provided by Business Finland. The lists were reviewed by Menon to remove duplicates for companies. In addition, some email addresses were no longer valid, or the intended recipients had changed jobs or retired. Below, we present the adjusted response numbers considering these factors.

- **New Space Economy:** The survey was sent to 121 companies, with a total of 29 responses received. This yields a response rate of 24 percent.
- **Smart Mobility and Batteries from Finland:** The survey was sent to 310 companies, with a total of 39 responses received. This yields a response rate of 13 percent.

1 Please be aware of the following factors when interpreting the results and analyses from the survey. Firstly, we lack sufficient information on whether respondents have primarily participated in certain parts of the programs' offerings and therefore might only be providing feedback on those specific activities rather than the program as a whole. Secondly, several years have passed since the programs concluded, and there may be misunderstandings among survey participants regarding whether they are accurately recalling the correct program, as opposed to other programs or services offered by Business Finland. Lastly, the response rate for the Smart Mobility and Batteries from Finland program is relatively low at 13 percent, so findings should be interpreted with some caution.

1.2. READING GUIDE

This report is structured into two main parts: background information and analysis related to the evaluation questions. In Chapter 2, the two programs are introduced, detailing their background and objectives. Following this, Chapter 3, presents an overview of activities and services of the two programs, as well as the funding allocation. Chapter 4 offers an overview of the participants in the program, where we investigate especially the funding recipients, including their size, geographical distribution and industry sectors.

The second part of the report focuses on analyses based on the evaluation questions and the pillars of the OECD framework. Chapter 5 assesses the relevance of the programs in light of the participants' needs, exploring their motivation and view of relevance. The effectiveness of the services is evaluated in Chapter 6, highlighting the potential actions if the service did not exist, the results and impacts achieved by participants, as well as the mechanisms of impacts. In Chapter 7, we examine the administrative efforts of the programs, as well as stakeholder participation and collaboration. Chapter 8 addresses the sustainability aspects of the programs. Lastly, Chapter 9 provides the conclusion of the report, in which we delve into whether the goals of the programs have been met.

2. DESCRIPTION OF THE TWO PROGRAMS

The New Space Economy and Smart Mobility and Batteries from Finland programs were two initiatives from Business Finland that were active from 2018 until the end of 2022. The Smart Mobility and Batteries from Finland program initially consisted of two separate initiatives, namely the Smart Mobility program and the Batteries from Finland campaign, before they were merged in 2021. The background of the program was a larger national initiative in the battery industry, and a desire to integrate Finnish companies into the European battery value chain. The program also aimed to promote development in the country's companies within smart mobility and logistics. The New Space Economy program was initiated to realize Finland's new Space Strategy, which involved a larger focus on Finnish companies delivering commercial solutions to, or based on, the space segment. The main goals of both programs were to promote exports, build competitive ecosystems, accelerate innovation and R&D, develop new business models, strengthen existing companies in the area, and support new startups and innovation.

This chapter provides an overview of the two programs, including their objectives and goals. Both programs were initiatives by Business Finland aimed at developing networks, promoting exports, funding innovation and R&D, and attracting foreign investments in their respective sectors.

2.1. NEW SPACE ECONOMY PROGRAM

The New Space Economy program is an initiative from Business Finland that was active from March 2018 to December 2022. The program aimed to operationalize Finland's national Space Strategy, which was updated in 2018. It sought to develop and scale the Finnish Space industry in light of significant technological advancements that paved the way for substantial commercialization of space-related solutions. Additionally, the initiative aimed to coordinate industry development and facilitate expansion into the global market. This was done through developing ecosystems for the industry, both with funding of projects and helping them with exposure against international markets. In the following, we will describe the program's purpose, background, and objective.

BACKGROUND AND OBJECTIVE

Before 2000, the space domain was predominantly dominated by larger governmental entities. In the early 2000s, significant technological advancements occurred, enabling private companies to manufacture space infrastructure faster, cheaper, and better than what was previously possible. This development lowered the barriers for developing space-related products and services, allowing private companies to explore business opportunities and enter the market. This resulted in increased start-up activities and technological innovation globally. Finnish entrepreneurs participated in the development and established a Finnish space sector with global significance.

In 2018 the Finnish national space strategy was updated, and the strategy's focus shifted towards space activities aimed at leveraging private business opportunities and new business models. The goal was to renew and grow Finnish space sector to be a significant global player in the New Space Economy. Several representatives of the New Space Economy administration (from Business Finland) were involved in developing the Finnish space strategy, which reinforces the program's connection to the national strategy for the sector. The objective of Finland's National Space Strategy, which was also New Space Economy program objective, was: "To make Finland the world's most attractive and agile space business environment that benefits all companies operating here, by 2025." In the wake of the updated strategy, Business Finland launched the New Space Economy program to operationalize the National

FIGURE 2.1: NEW SPACE ECONOMY PROGRAM AND FINLAND'S NATIONAL SPACE STRATEGY SHARED OBJECTIVE AND STRATEGY

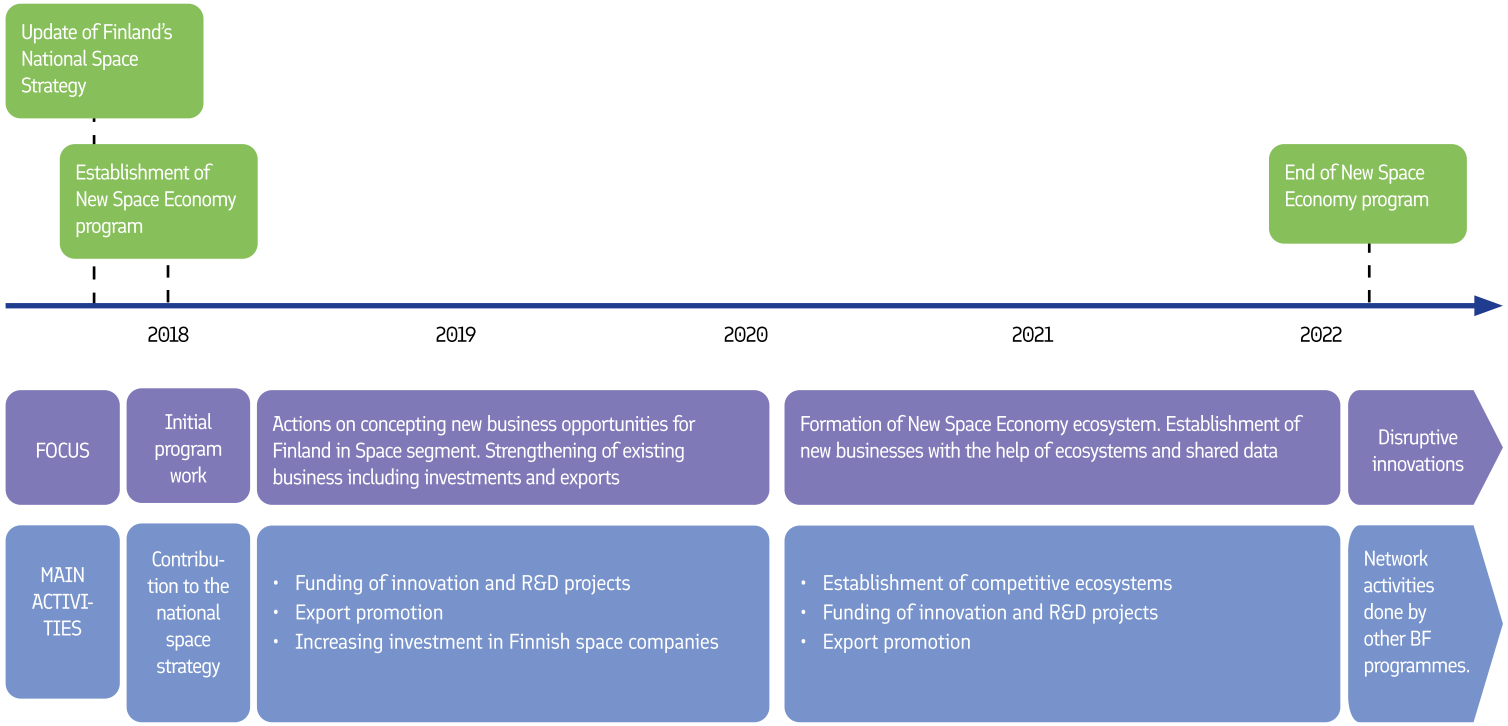
OBJECTIVE	STRATEGY
To make Finland the world's most attractive and agile space business environment that benefits all companies operating here, by 2025.	Finland is an attractive operating environment for the developers and adapters of the space sector. We have supportive legislation and a comprehensive field of easily approachable operators. Our companies base their operations on versatile expertise and are global leaders in producing and applying space solutions. The enterprises and research organisations operating in Finland resolve the challenges of sustainable growth by means of top-class space activities in close cooperation with the operators of the target market and the scientific community around the world. Companies and research organisations operating in Finland renew the utilisation of space in a sustainable way and participate in the best space projects

Space Strategy and its objectives. The figure below illustrates the program's vision and objectives, which align with the national space strategy.

PROGRAM DEVELOPMENT

The New Space Economy program and its operational focus evolved from its inception in 2018 until its conclusion in 2022. Initially, the program focused on identifying Finland's advantages in the sector and strengthening existing companies in the field. Later, it proactively worked on developing new business models and opportunities based on these strengths and possibilities. The program has contributed to developing and supporting Finnish companies in this sector by building ecosystems, supporting projects for innovation and R&D, and assisting with export promotion, international delegations, and other internationalization activities. In the figure below, we illustrate the program's development with key events.

FIGURE 2.2: ILLUSTRATION OF THE DEVELOPMENT OF THE NEW SPACE ECONOMY PROGRAM.



CONNECTION WITH ESA AND INCUBATOR

The New Space Economy program has maintained a close collaboration with European Space Agency (ESA) throughout its operational period. This included joint activities such as policy work, information distribution, and communication with authorities, but primarily focused on funding Finnish space projects.

Finland became an associate member of the European Space Agency (ESA) in 1987 and achieved full membership in 1995. Since then, Finnish industry has actively contributed to various ESA programs, notably in Science & Exploration, Safety & Security, and Applications. Finnish companies have participated in over 50 ESA missions, with

over 100 companies involved. Finland's current priorities include satellite 5G integration, natural resources monitoring, autonomous systems, and cybersecurity.

ESA is an independent organization (not an EU agency) where Finland is a member and pays a membership fee. ESA serves as a technical management organization who managing space programs on behalf of its members and distributing funding of projects, which is financed through the members' fee. Many of ESA's programs are voluntary, allowing members to choose and allocate funds to projects of interest. The New Space Economy program oversees the flow of Finnish projects, requiring a recommendation letter for Finnish companies wishing to bid, both before and after program initiations. Business Finland, through the New Space Economy program, sets guidelines for which Finnish companies should receive funding, and then the ESA administration executes based on these guidelines. Since NSE could set guidelines for fund allocation, they ensured that ESA's efforts aligned with Finland's national space strategy.

FIGURE 2 3: ILLUSTRATION OF COLLABORATION BETWEEN NEW SPACE ECONOMY AND ESA

ESA's efforts to fund Finnish projects are facilitated through the European Space Agency's Business Incubation Centre in Finland (ESA-BIC), which was established in 2017. The incubator supports Finnish entrepreneurs and startups both financially and technically to realize their potential. The goal is to assist startups in introducing new technologies to ESA and its partners or adapting existing ESA technologies, like satellite data, for terrestrial applications. Nearly 20 startups have participated in the program.

During the program's active period, aligning ESA projects was crucial. Collaboration with ESA involved close communication with the New Space Economy program to avoid duplication of efforts. ESA aimed to increase participation from new companies, thus expanding the Finnish space industry beyond a small, recurring pool of companies and fostering technological development. The New Space Economy program facilitated this expansion, increasing the diversity of companies eligible for ESA funding.

The collaboration created clear synergies, particularly administratively, by minimizing overlap and expanding the pool of companies accessing ESA funds. ESA functions primarily as a procurement agency, providing 100 percent funding for many initiatives, unlike the New Space Economy program, which typically offers partial funding. This full funding aspect of ESA is financially attractive but comes with stricter administrative requirements and less flexibility due to the obligatory ESA reporting cycle.

Many small companies or start-ups initially engaged in smaller projects with the New Space Economy program and transitioned to larger ESA projects. A notable example is the strategic allocation of Finnish funds. Decisions on funding areas, such as earth observation or telecommunications, were influenced by the New Space Economy program to align with the national space strategy.

The collaboration and structure between NSE and ESA are illustrated in the figure above.

2.2. SMART MOBILITY AND BATTERIES FROM FINLAND PROGRAM

The Smart Mobility and Batteries from Finland program is an initiative from Business Finland that was active from 2019 to 2022. Until the beginning of 2021, the program consisted of two separate initiatives, namely Smart Mobility program and Batteries from Finland campaign. However, the initiatives were merged in early 2021. The Smart Mobility program was launched to capitalize on the evolving mobility market, where transportation increasingly relies on software and smart solutions, presenting international business opportunities for Finland. The Batteries from Finland campaign was initiated to address Finland's initial lag in the rapidly growing battery industry driven by the rise of electric vehicles and renewable energy. The initiative aimed to coordinate industry development and facilitate expansion into the global market. This was done through developing ecosystems for the industry, both with funding of projects and helping them with exposure against international markets. In the following, we will describe the program's purpose, background, content, activities, and objective.

BACKGROUND AND OBJECTIVE

The Smart Mobility and Batteries from Finland program aimed at supporting Finnish companies and start-ups in the smart mobility and battery sector, and assisting Finland in becoming significant part of the European battery value chain. The program's objectives were to contribute to the establishment of new companies and support international expansion and exports.

As mentioned, the Smart Mobility and Batteries from Finland program consisted initially of two individual initiatives. Until their merger in 2021, the initiatives operated

independently, each with its own goals, objectives, activities, and administration.

SMART MOBILITY PROGRAM

The Smart Mobility program was launched in response to the significant market potential within mobility, where the industry was undergoing major changes, with cars and other means of transportation becoming increasingly relying on software and smart solutions. Initially, the program focused on the transport sector and logistics, smart solutions, digitization, new fuels, and technology to minimize emissions. Over time, the scope was expanded. The landscape covered a wide range, including all types of transportation methods and technologies, as well as platforms. One key activity in the early phase was to identify ecosystems important to the users encompassed by the program. More than 20 ecosystems relevant to the mobility sector were mapped out.

Initially, Smart Mobility in Finland was characterized by numerous uncoordinated activities and diverse stakeholders engaging with the topic, which hindered the full realization of potential value. Smart Mobility program was initiated to coordinate industry development and leverage synergies between stakeholders. The program focused in 2019 and 2020 on actions on concepting new business opportunities within mobility and strengthening the existing international business`s investments and export.

BATTERIES FROM FINLAND CAMPAIGN

The Batteries from Finland campaign was launched in response to urgent demands from both governmental ministries and the industry itself for Business Finland to devise a strategy to integrate Finland into the European battery value chain. At the time, there was a prevailing belief that Finland had already missed its opportunity in the battery industry. However, Finland aimed to reverse this trend with the Batteries from Finland campaign. The campaign was sparked by the significant growth in the battery industry due to the rising use of electric vehicles and renewable energy. Although Finland initially lagged behind in this rapidly evolving industry, it set a clear goal to enhance its competitiveness.

Finland has focused on certain areas where they identified competitive advantages, including the mining industry, battery raw materials refinement, technologies and services relevant to battery production and use, as well as charging technology and recycling solutions. Finland is one of the few countries with substantial reserves of all the key minerals used in the production of lithium-ion batteries: cobalt, nickel, lithium, and graphite. Finland's strengths also include recycling expertise, a commitment to sustainable development, an active innovation environment, and the development of business ecosystems formed by companies and research institutes.

PROGRAM DEVELOPMENT AND MERGING OF THE TWO INITIATIVES

During the program period, the two initiatives were merged. There were several reasons for why the decision to merge the two initiatives were taken:

- The two separate initiatives shared a significant thematic overlap and targeted the same missions, such as the Zero Carbon Future. Additionally, they had several thematic overlaps in areas such as electric cars and vehicles. From Business Finland's perspective, there was little desire to have initiatives with overlapping target audiences.
- In 2021, the Head of the Smart Mobility program was given other responsibilities, leaving the program without a Head of Operations. The Batteries from Finland campaign was also approaching its end, making it natural to continue it alongside Smart Mobility.
- Furthermore, there was a need to change the direction of Smart Mobility due to developments in the field.
- Merging the programs was also seen as a way to achieve greater synergies and improved cost-efficiency.

The Smart Mobility program required a redirection due to significant changes in its operational environment. There was a strong global and European transition towards a sustainable low-carbon future, enhanced by opportunities from the EU Green Deal and Horizon Europe. The pandemic had substantial impacts, reducing the use of public transportation and shared services due to virus concerns, alongside a general decrease in mobility from increased remote work. Additionally, shifts in the logistics environment, marked by a rise in online shopping and package deliveries, and the accelerating e-mobility transition, necessitate adaptation to meet the emerging market's needs and expectations.

The Smart Mobility program and Batteries from Finland campaign focused on different activities tailored to the unique needs of each sector. For Smart Mobility, the emphasis was on export promotion and support, with smaller-scale innovation funding compared to the battery sector.

In the Battery from Finland campaign, innovation funding played a role, particularly in the early stages, through proactive support for feasibility studies. The program also expanded its activities across Europe, building networks in key markets such as Brussels, France, and Germany. A major milestone was Finland's successful application for funding under the EU's Important Projects of Common European Interest (IPCEI),[2] enabling significant support for Finnish companies. Initiatives like the Battery Alliance and Horizon Europe were crucial in connecting Finnish companies with European markets and fostering collaboration.

The rapid growth of the battery sector in Europe created exponential opportunities, and the program supported this by offering platforms for collaboration and facilitating

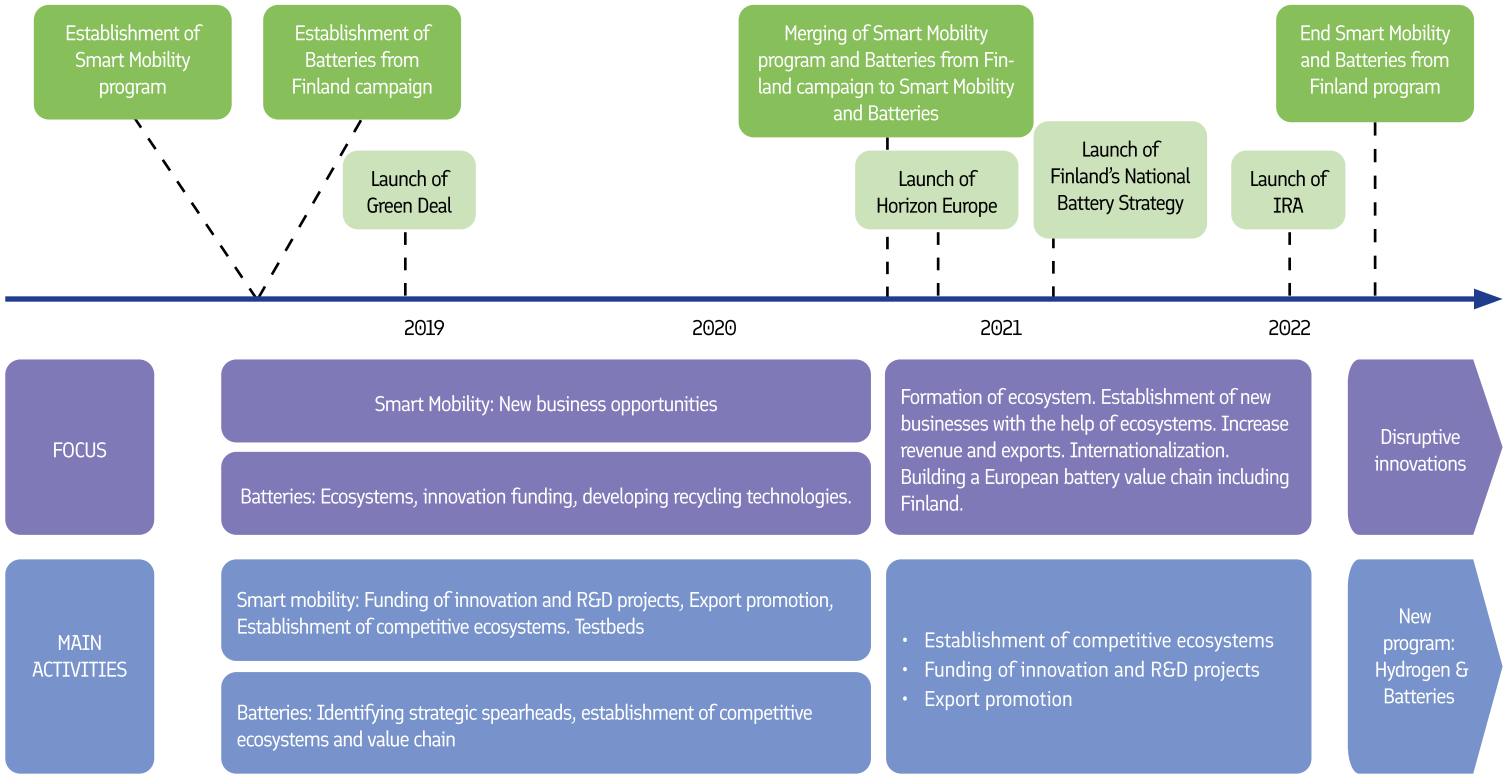
2 Ministry of Economic Affairs and Employment of Finland (2021). Finland strongly involved in new EU scheme for sustainable and innovative battery industry. Press release, published 26th of January, 2021 – available **here**.

market access. Invest in Finland also contributed through partnerships, enhancing the program's reach and impact.

In the figure below, we illustrate the program's development with key events.

Please note that in the following chapters, we do not primarily differentiate between the two periods of the program (before and after the merger). This approach applies to our presentation of funding, participants, and other evaluation questions.

FIGURE 2.4: ILLUSTRATION OF THE DEVELOPMENT OF THE SMART MOBILITY AND BATTERY FROM FINLAND PROGRAM.



3. ACTIVITIES, SERVICES AND FUNDING IN THE PROGRAMS

The programs have undertaken a variety of activities and services to achieve their goals for the targeted industries. These mainly include funding of innovation and R&D projects, internationalization activities, which involves export promotion, attending fairs and delegation trips, as well as assistance with connecting to international actors and marketing Finnish producers, and analysis of specific markets. Additionally, they are involved in networking and ecosystem activities, which include meetings, events, forums, and other networking activities, both within the program and with external participants, such as industry ecosystems.

Even though, the New Space Economy and the Smart Mobility and Batteries from Finland programs have both mobilized significant funding for innovation and R&D projects, there are distinct differences. The New Space Economy has triggered 59.3 million EUR in funding, of which 38.2 million EUR have been contributed by Business Finland (predominantly loans), and 21.1 million EUR as self-financing from participating companies. In contrast, the Smart Mobility program generated 598.2 million EUR, of which 195 million EUR are from Business Finland (primarily as grants), and 403.4 million EUR from the compa-

nies. Both programs featured a few large funding decisions that received a substantial share of the funds.

In this chapter, we will describe the activities and services carried out by the programs. Furthermore, we will take a closer look at the funding aspect of the program, diving deeper into the funding provided, its magnitude and distribution.

3.1. ACTIVITIES AND SERVICES THAT HAVE BEEN EXECUTED

We have reviewed the programs' activities and services, which cover a wide range of offerings. However, it is possible to categorize these into three key activities and services based on their characteristics and objectives. These categories are outlined below:

- **Funding of innovation and R&D projects**: Receipt of funding for innovation and R&D projects, as well as participation in projects that have received support from the program.
- **Internationalization activities**: Export promotion, e.g. attending fairs and delegation trips, as well as assistance with connecting to international actors and marketing Finnish producers. Analysis of specific markets.
- **Networking and ecosystem activities**: Meetings, events, forums and other networking activities, both within the program and with external participants, like industry-ecosystems.

Other activities not mentioned above include work and consulting with Finnish authorities and the EU. The program administrators possess in-depth knowledge of their sectors, including challenges, opportunities, and barriers, which has made them valuable to government efforts. This expertise has been particularly useful in the development of policies and strategies aimed at promoting economic growth in these sectors.

NEW SPACE ECONOMY PROGRAM

The New Space Economy programs carried out a wide range of activities, from funding research and innovation projects to export-oriented activities. The New Space Economy allocated funding to various innovation and research projects within the space segment, benefiting both research institutions, universities, and commercial companies, however most of the funding went to companies. One of the major areas of focus is internationalization, where the program undertakes different activities to promote exports from Finnish company. This includes organizing international delegations and other export promotion efforts. But also, activities aimed at increasing the visibility of Finnish companies, and actions to achieve a significant increase in export and revenue levels for the companies, as well as

increasing capital funding for the Finnish space sector. The New Space Economy program has also developed an extensive network for companies within its ecosystem, facilitating numerous networking activities and events where participants can meet, discuss business opportunities, and form collaborations. In the table below, we summarize some examples of activities that have being carried out.

ACTIVITY	EXAMPLES
Funding of innovation and R&D projects	52 funding decisions to innovation and R&D projects. The New Space Economy program also assisted ESA with customer service and project selection for support and funding from ESA's incubator. The program also arranged "New Space Economy Challenge", where participants was invited to pitch Co-innovation type joint projects.[4] Further information about funding distribution is provided in chapter 3.2, the recipients of funding in chapter 4 and the specific innovation and R&D projects in appendix B.
Internationalization activities	Participation at *Space Tech Expo Europe* in Bremen, Germany with a Finish Pavilion with Finnish companies in 2019, 2021 and 2022. Delegation to Japan in 2022, promoting Finnish companies within defence and space. Finland Pavilion with Finnish companies at *International Astronautical Congress* in Paris in 2022. Organising *Finland Italy Industry Days* focusing on defence and situation awareness/cyber, in Milan/Genova together with AFDA and Italian Leonardo Group. Organizing market access workshops for Germany and US.
Networking and ecosystem activities	Facilitating *Space Business Forum* five times a year. Distributing the New Space Economy Newsletter to approximately 250 recipients per month. In 2019 and 2022 The New Space Economy facilitated program planning with the industry for ministerial meetings, together with ESA. Different matchmaking events, like ESA and LSIs[5] in Finnish Space Industry Days and with local space cluster BavAiria in Munich. Organizing New Space Economy track in the Arctic15 start-up/investor event and joint New Space/Cyber side event for Slush 2022.

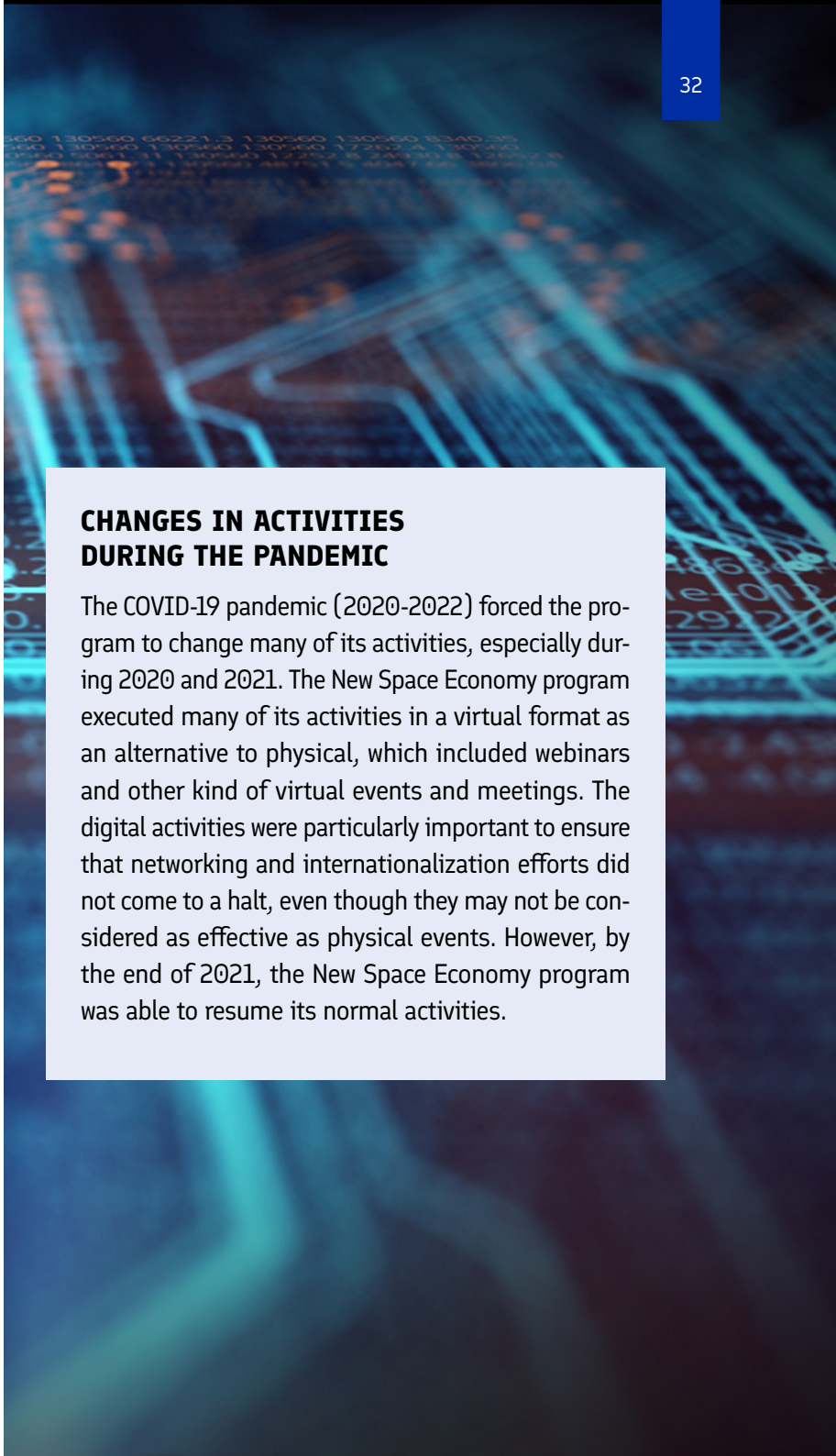
TABLE 3-1: EXAMPLES OF ACTIVITIES THAT HAVE BEEN EXECUTED BY THE NEW SPACE ECONOMY PROGRAM[3]

3 The table does not include all activities that have been carried out, but rather a selection to illustrate what has been done.
4 However, it was difficult to find consortia with enough participating companies, which would meet the Business Finland funding requirements.
5 Large System Integrators: Companies specializing in bringing together component subsystems into a whole and ensure that those subsystems function together, like Airbus Defence and Space Ltd.

One of the main activities within ecosystems and networks, as well as the program as a whole, was the New Space Business Forum. The event was facilitated by the New Space program five times a year and served as an important arena for the exchange of information and ideas between industry, government, and research. Another key event has been the annual Finnish Satellite Workshop, the largest space-related event in Northern Europe, led by Aalto University with support from Business Finland and other stakeholders.

One of New Space Economy program main goals is to make Finnish space sector a significant global player and increase its exports. The main targeted countries for the Finnish export initiative are Germany, USA and Japan. Market analyses for the space sector were conducted in these countries, with the aim of assisting Finnish companies in their export efforts.

The graph below both illustrates the number of participants in activities and services offered by the program, as well as the types of activities/services provided. Participation in the New Space Economy program peaked in 2021 and 2022, following lower participation levels in 2019 and 2020. The graph also illustrates the diverse range of activities and services being offered, with seminars and events being the most prevalent. These included sector-specific events such as regular market updates, presentations of analyses, and the Space Business Forum, one of the program's key activities, which attracted a significant number of participants. Webinars were primarily conducted during the COVID-impacted years of 2021 and 2022.



CHANGES IN ACTIVITIES DURING THE PANDEMIC

The COVID-19 pandemic (2020-2022) forced the program to change many of its activities, especially during 2020 and 2021. The New Space Economy program executed many of its activities in a virtual format as an alternative to physical, which included webinars and other kind of virtual events and meetings. The digital activities were particularly important to ensure that networking and internationalization efforts did not come to a halt, even though they may not be considered as effective as physical events. However, by the end of 2021, the New Space Economy program was able to resume its normal activities.

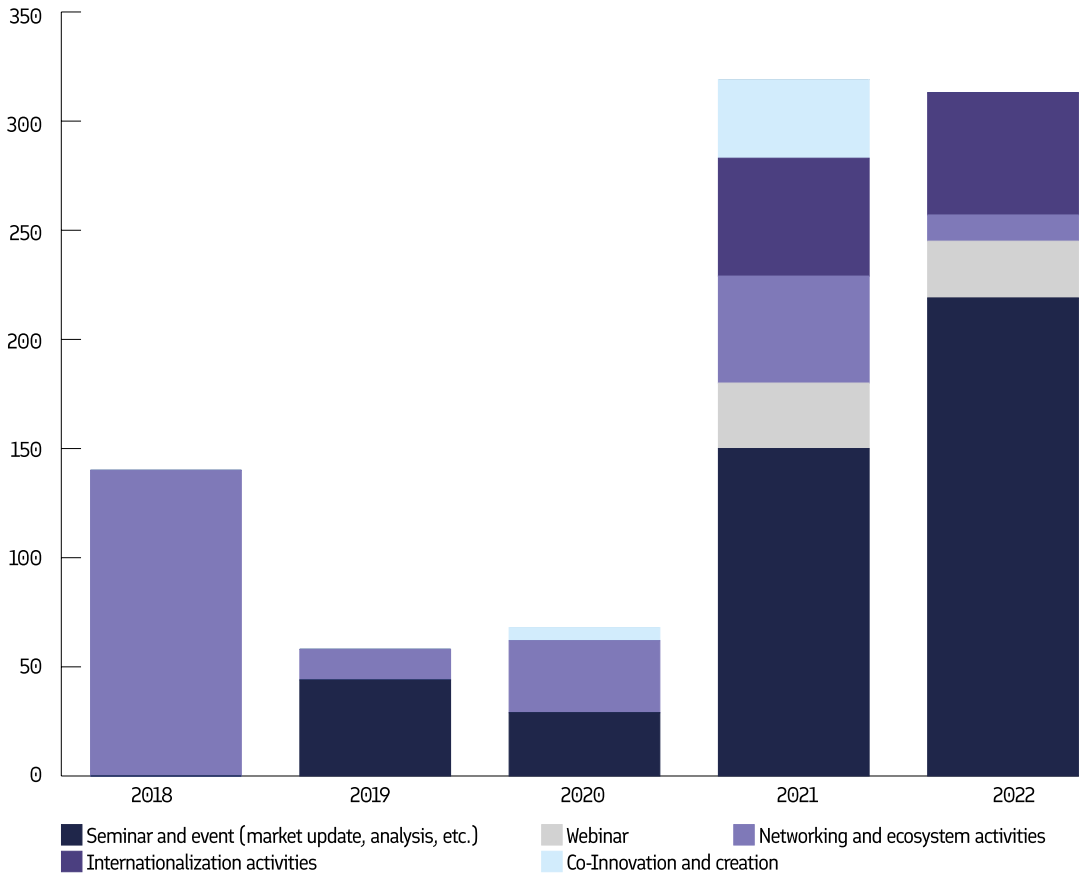


FIGURE 3-1: NUMBER OF PARTICIPANTS PER YEAR AT DIFFERENT SERVICES AND ACTIVITIES OF THE NEW SPACE ECONOMY PROGRAM. SOURCE: CRM-DATA FROM BUSINESS FINLAND (2024), PROCESSED BY MENON ECONOMICS

The first years of the program stands out in terms of both the type of activities and the number of participants. As previously mentioned, there were fewer participants in 2019 and 2020. The years 2018 is particularly distinct, as the program initially offered only networking and ecosystem activities. The New Space Economy program was launched in 2018, coinciding with the consolidation of Finpro (the Finnish Trade Promotion Organization) and Tekes (the Finnish Funding Agency for Technology and Innovation) into Business Finland. Being one of the first programs under the newly established Business Finland meant there was no predefined framework or tools for managing such programs, impacting the activities and administration in the early years. Initially, as program leaders have emphasized, the focus was on mapping existing networks and establishing robust ecosystems for already-established companies before moving forward with innovation, new business models, and internationalization efforts.

Overall, 46 activities and services were carried out during the program's duration, with a total of 914 participants, of which 169 participants were unique. It should be noted that these numbers are based on CRM data and may not include all participants or activities due to possible registration gaps. Note that the activities and services mentioned here, as well as in the figure above, do not include innovation and R&D projects that received funding from Business Finland.

SMART MOBILITY AND BATTERIES FROM FINLAND PROGRAM

The Smart Mobility and Batteries from Finland program carried out a wide range of activities, from funding research and innovation projects to export-oriented activities. The program has funded innovation and R&D projects aimed at enhancing innovation and developing new business models within the smart mobility and batteries segment. One of the program's objectives has also been to increase exports from Finnish companies in this field, attract foreign investment, and integrate Finnish companies into the European battery value chain. To achieve these goals, the program has conducted various internationalization activities. These include organizing international delegations, participating in overseas exhibitions, and other initiatives to promote Finnish companies and enhance their visibility in the international market. Additionally, the program has been deeply involved in various ecosystems relevant to its users. Given its wide thematic scope covering multiple areas, several ecosystems have proven significant for its different users. Initially, the Smart Mobility and Batteries from Finland program mapped out all relevant ecosystems for its users and identified those with the potential for the greatest impact. Subsequently, they have worked closely with these ecosystems to develop Finnish companies and environments in their domains. Ecosystems provide a robust platform for fostering structural collaboration between companies and

other strategic partners, such as research institutions.

In the table below, we summarize some of the key activities within the different activity categories to illustrate the work of the Smart Mobility and Batteries from Finland program.

ACTIVITY	EXAMPLES
Funding of innovation and R&D projects	225 funding decisions to innovation and R&D projects. Further information about funding distribution is provided in chapter 3.2, the recipients of funding in chapter 4 and the specific innovation and R&D projects in appendix B.
Internationalization activities	Traveling with Team Finland Business Delegation to Michigan in 2020 to promote Finnish companies working with energy, batteries, mobility and marine autonomy. Conducting over 35 virtual media events in Asia and Europa about Finnish battery industry, resulting in over 70 articles in various medias. Participated in Autotech Detroit in 2022 with Finnish automotive operators, and Smart City World Expo Congress in 2022. In 2021 the program conducted four Nordic Battery Thursday events with a total of over 700 registrations from 45 different countries.
Networking and ecosystem activities	Participation at the Digital Transportation Days in 2019 in Helsinki and arranging Smart Forestry Webinar in 2021. Also attended Mobility 2.0 virtual congress in 2020.

TABLE 3-2: EXAMPLES OF ACTIVITIES THAT HAVE BEEN EXECUTED BY THE SMART MOBILITY AND BATTERIES FROM FINLAND PROGRAM[6]

The graph below illustrates the number of participants at the different networking and ecosystems activities, as well as internationalization activities. The number of participants in activities and services under the Smart Mobility and Batteries from Finland program peaked in 2021 and 2022, similar to the trend observed in the New Space Economy program. In the program's early years (2018 and 2019), activities were limited to networking and ecosystem development, which aligns with the program leaders' emphasis on the importance of such initiatives, particularly for the Smart Mobility program. Notably, these years also marked the period when the program consisted of two

6 The table does not include all activities that have been carried out, but rather a selection to illustrate what has been done.

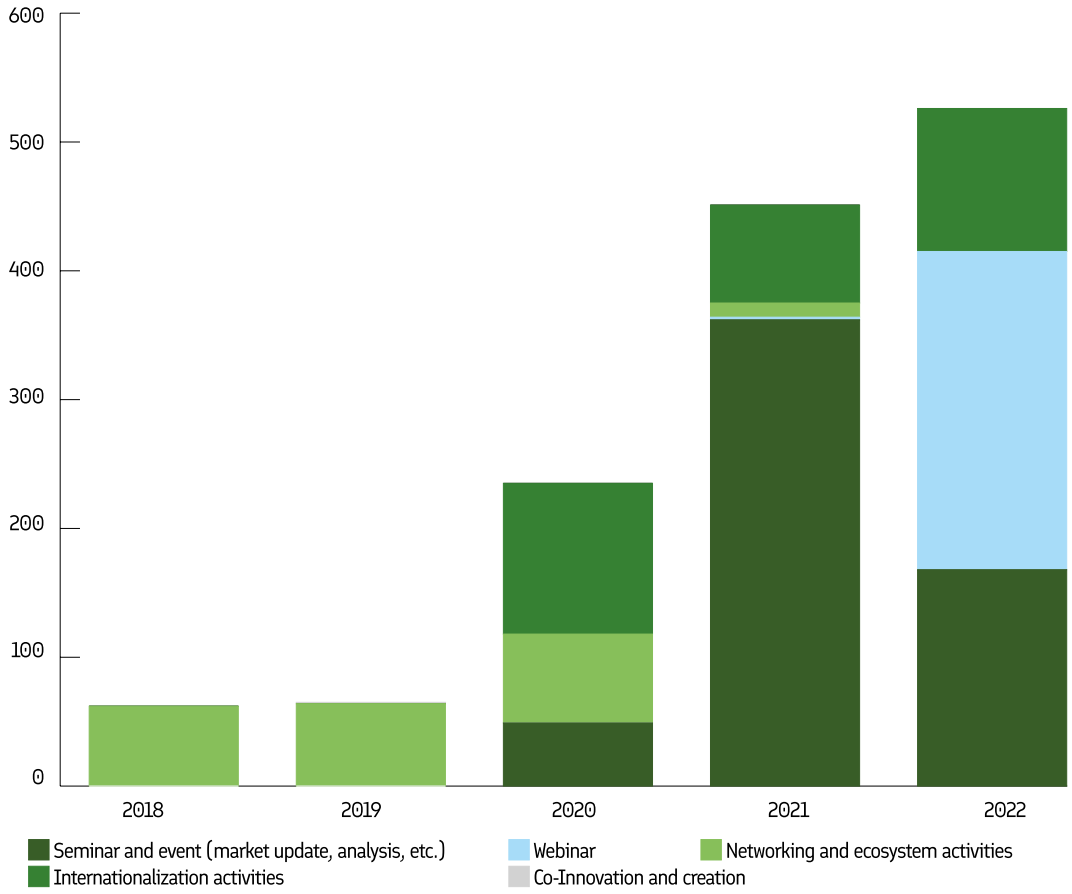


FIGURE 3-2: NUMBER OF PARTICIPANTS PER YEAR AT DIFFERENT SERVICES AND ACTIVITIES OF THE SMART MOBILITY AND BATTERY PROGRAM. SOURCE: CRM-DATA FROM BUSINESS FINLAND (2024), PROCESSED BY MENON ECONOMICS

separate initiatives. In the subsequent years, there was a greater variety of activities and services, especially after the initiatives were merged at the end of 2020. Webinars became particularly prominent during the COVID-affected period, with 2022 witnessing a significant increase in their use. The shift to digital formats during the pandemic resulted in webinars largely replacing physical events and activities. These webinars were often utilized for smaller-scale events, such as market updates, analysis presentations, and meetings catering to a geographically dispersed industry.

Overall, 45 activities and services were carried out during the program's duration, with a total of 1,398 participants, including 1534 unique participants. It should be noted that these numbers are based on CRM data and may not include all participants or activities due to possible registration gaps. Note that the activities and services mentioned here, as well as in the figure above, do not include projects that received funding for innovation and R&D.

3.2. FUNDING - SIZE AND DISTRIBUTION

A part of the two programs involved distributing funding from Business Finland to various innovation and R&D projects. In this subchapter, we take a closer look at the funding allocated to innovation and R&D projects from the two programs.

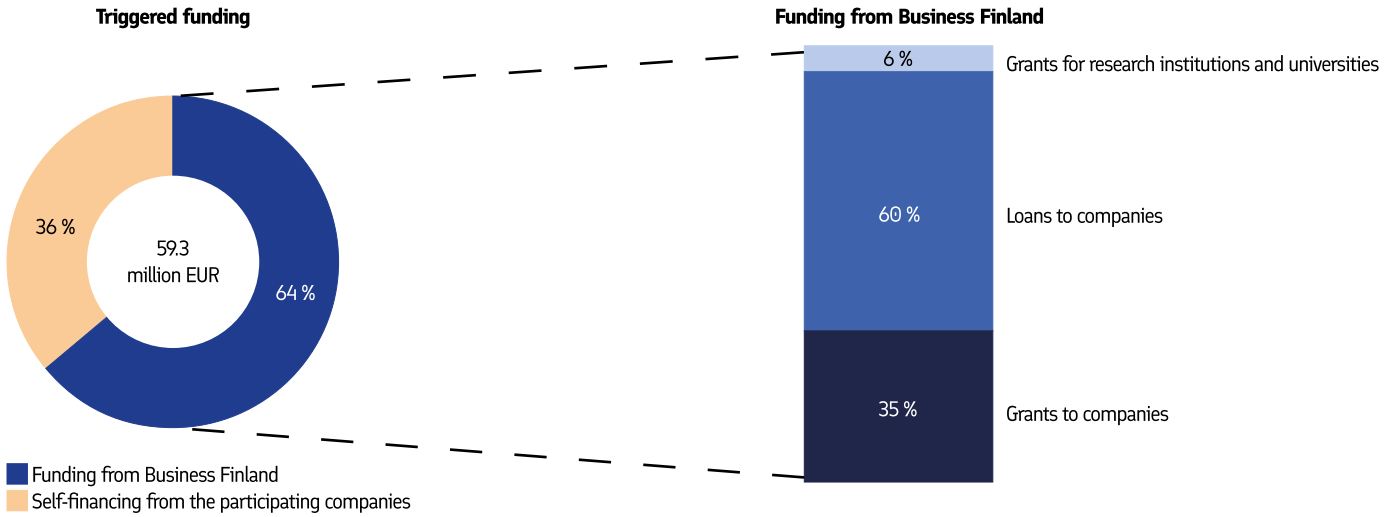


FIGURE 3-3: OVERVIEW OF THE TOTAL TRIGGERED FUNDING FOR THE PARTICIPANTS OF THE NEW SPACE ECONOMY PROGRAM. SOURCE: DATA FROM BUSINESS FINLAND (2024), PROCESSED BY MENON ECONOMICS

NEW SPACE ECONOMY PROGRAM

The program has overall triggered 59.3 million EUR in funding[7], with 38.2 million EUR contributed by Business Finland[8], while 21.1 million EUR represents self-financing from the participating companies. Of Business Finland's contribution, 13.2 million EUR was allocated as grants to companies, 22.9 million EUR as loans to companies, and 2.1 million EUR as grants to research institutes and universities. Thus, the largest portion of the funding was allocated as loans to companies (60 percent), followed by grants to companies (35 percent), as shown in the figure below. A smaller share of the funding was provided as grants to research institutes and universities (6 percent).

7 In addition to funding from Business Finland, 102 million EUR of ESA funding was directed, by Business Finland, to projects specifically supporting the goals of both Finnish Space Strategy and New Space Economy program, during the during the New Space Economy program.

8 The total funding from the New Space Economy program to innovation and R&D-projects was 28.2 million EUR over its operational period from 2018 to 2022. Additionally, 10 million EUR was funded in 2023 after the program was ended. If we include 2023, the total funding from the New Space Economy program was therefore 38.2 million EUR.

As illustrated in the figure below, there have been large variations in the size of funding that have been distributed over the years, with tops in 2018, 2021 and 2023. In each of these three years, funding of approximately 10 million EUR was allocated in individual funding decisions, resulting in significantly higher funding disbursements in these years compared to the other years.

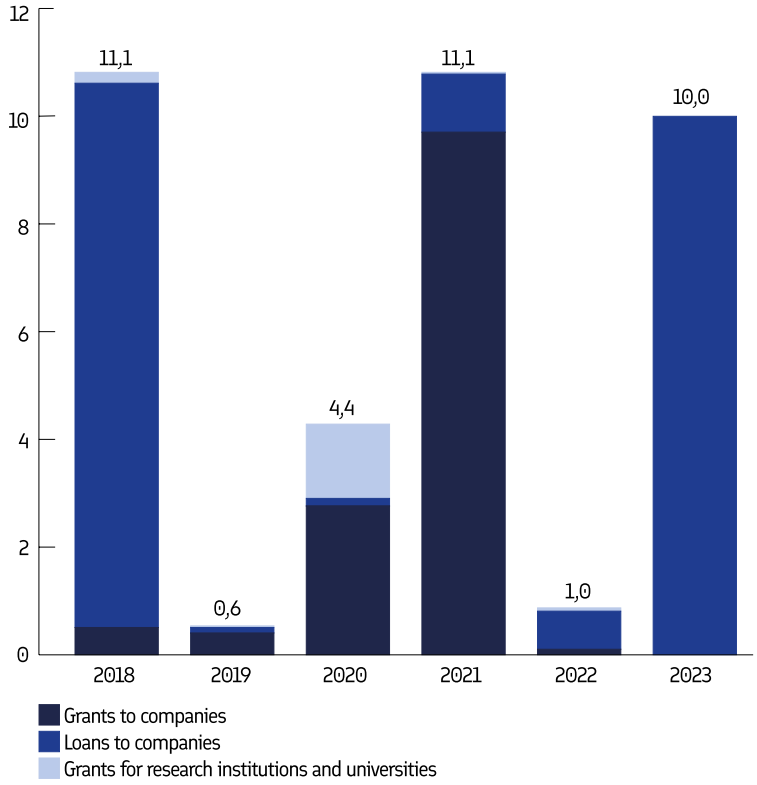


FIGURE 3-4: TOTAL FUNDING PER YEAR FROM NEW SPACE ECONOMY PROGRAM IN MILLION EUR. SOURCE: BUSINESS FINLAND, PROCESSED BY MENON ECONOMICS

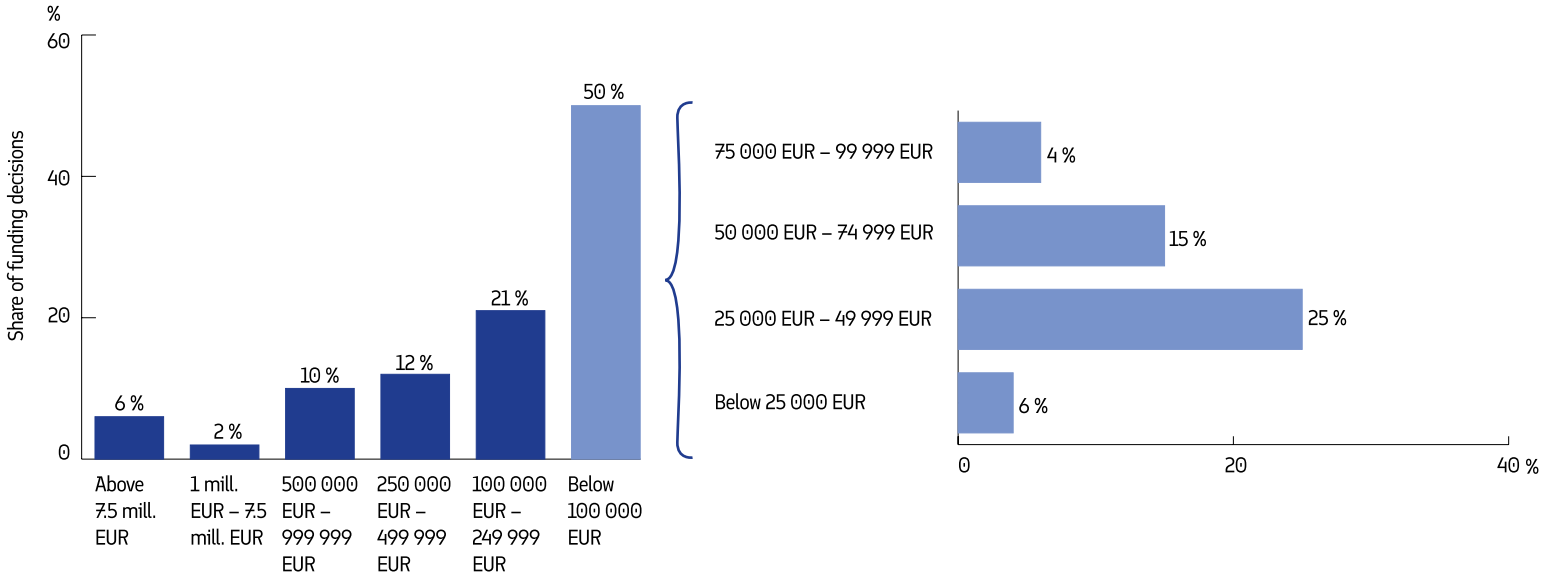


FIGURE 3-5: SIZE OF ALL 52 FUNDING DECISIONS IN EUR FROM NEW SPACE ECONOMY PROGRAM DISTRIBUTED BY SIZE (LEFT), AND RIGHT IS SHOWING FUNDING BELOW 100 000 EUR. SOURCE: BUSINESS FINLAND, PROCESSED BY MENON ECONOMICS

During the period, 52 funding decisions have been made in the New Space Economy program.[9] The graph below illustrates the size of each funding decision. The largest funding was 10 million EUR, while the smallest was 10,000 EUR. Half of the projects have received under 100 000 EUR. According to the former program head, the large number of small funding decisions relates to funding provided to companies participating in ESABIC incubator. Three of the projects (6 percent of funding decisions) have received the vast majority (77 percent) of the total funding.

In the table below, we present statistics for the various funding categories (loans versus grants). For both grants and loans, we find that the average is lower than the median, this suggests that there are a few large funding decisions that stand out and drive up the average.

9 Number of funding decisions also include the funding that was given in 2023, after the program was ended.

	GRANTS TO COMPANIES	LOANS TO COMPANIES	GRANTS FOR RESEARCH INSTITUTIONS AND UNIVERSITIES
Average	255,000 EUR	440,000 EUR	41,000 EUR
Median	50,000 EUR	324,000 EUR	60,000 EUR
Max	9,410,000 EUR	10,000,000 EUR	1,120,000 EUR
Min	35,000 EUR	126,000 EUR	10,000 EUR
Number of funding decisions	30	11	11

TABLE 3-3: STATISTICS FOR THE VARIOUS FUNDING CATEGORIES, FOR NEW SPACE ECONOMY. SOURCE: BUSINESS FINLAND, PROCESSED BY MENON ECONOMICS

In total, 52 funding decisions have been made to 37 unique recipients, indicating that some recipients have received funding multiple times. This is illustrated in the figure below. We observe that the majority of those who have received financial support for projects have only done so once (78 percent), accounting for 29 out of 37 unique companies. However, some have received support multiple times, with 5 companies receiving it twice, and one company receiving support six times.

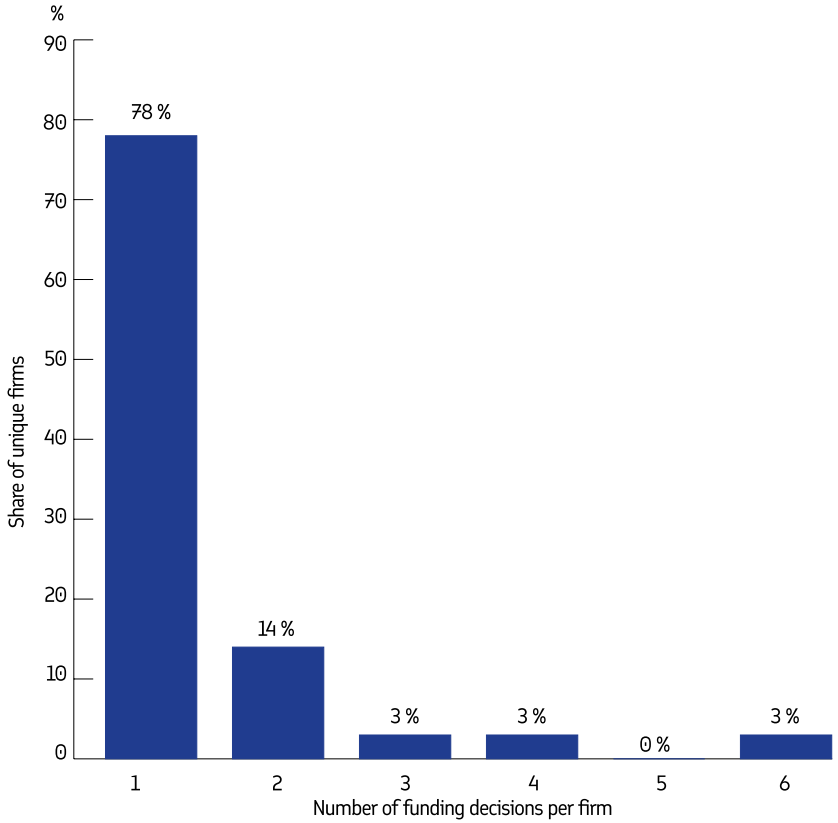


FIGURE 3-6: NUMBER OF FUNDING DECISIONS EACH UNIQUE FIRMS HAVE RECEIVED FROM NEW SPACE ECONOMY PROGRAM. SOURCE: BUSINESS FINLAND, PROCESSED BY MENON ECONOMICS

SMART MOBILITY AND BATTERIES FROM FINLAND PROGRAM

The program has overall triggered 598.2 million EUR in funding, of which 195 million EUR was provided by the Business Finland[10], and 403.4 million EUR was matching funding from participating companies. Of Business Finland's contribution, 140.8 million EUR was allocated as grants to companies, 21.8 million EUR as loans to companies, and 32.1 million EUR was grants for research institutes and universities. Thus, the largest portion of the funding consisted of grants for companies (72 percent), followed by grants for research institutes and universities (16 percent) and loans to companies (11 percent), as shown in the figure below. In addition, 0.5 million EUR was funded from European Regional Development Fund (ERDF), distributed through Business Finland for innovative projects.

10 The 195 million EUR exceeds the initial plan to distribute 100 million EUR through the program.

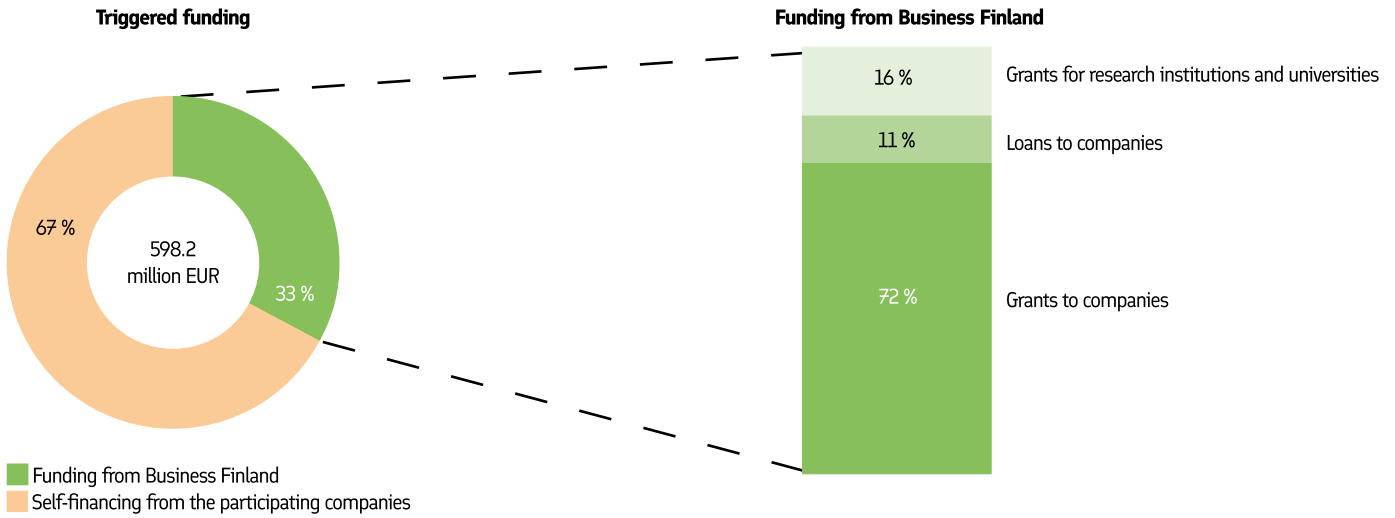


FIGURE 3-7: OVERVIEW OF THE TOTAL TRIGGERED FUNDING FOR THE PARTICIPANTS OF THE SMART MOBILITY AND BATTERY PROGRAM. SOURCE: DATA FROM BUSINESS F LAND (2024), PROCESSED BY MENON ECONOMICS

As illustrated in the graph below, the annual funding from Business Finland ranged from 20 million EUR to 40 million EUR. The year 2021 is an exception, when a substantial amount of 84 million EUR was allocated.

Smart Mobility and Batteries from Finland had 225 different funding decisions between 2018 and 2022. The size of each funding decision is shown in the figure below. Most of the funding decisions have been under 1 million EUR. The largest funding awarded to an individual company was 20 million EUR, whereas the smallest was 20,000 EUR. The two largest funding decisions (15 and 20 million EUR) account for 18 percent of total funding.

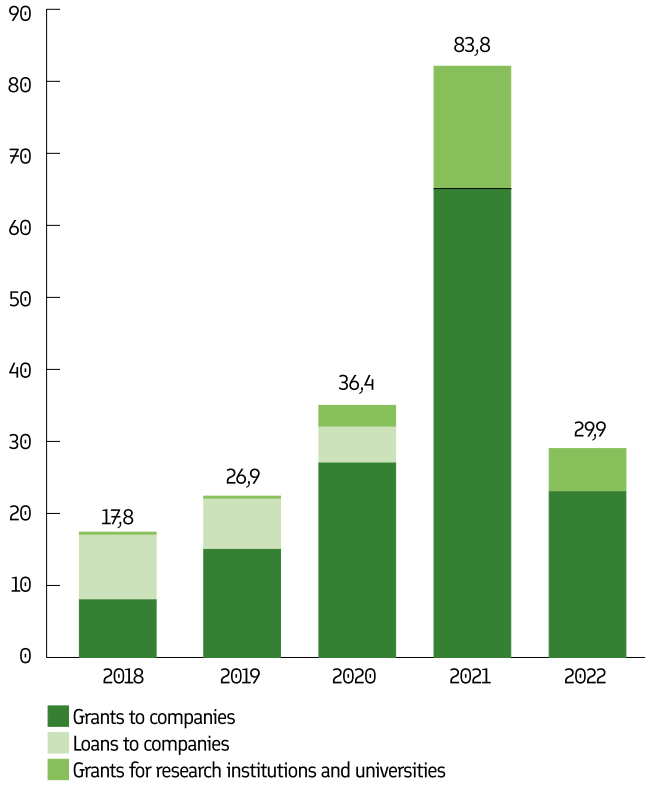


FIGURE 3-8: TOTAL FUNDING PER YEAR FROM SMART MOBILITY AND BATTERY PROGRAM IN MILLION EUR. SOURCE: BUSINESS FINLAND, PROCESSED BY MENON ECONOMICS

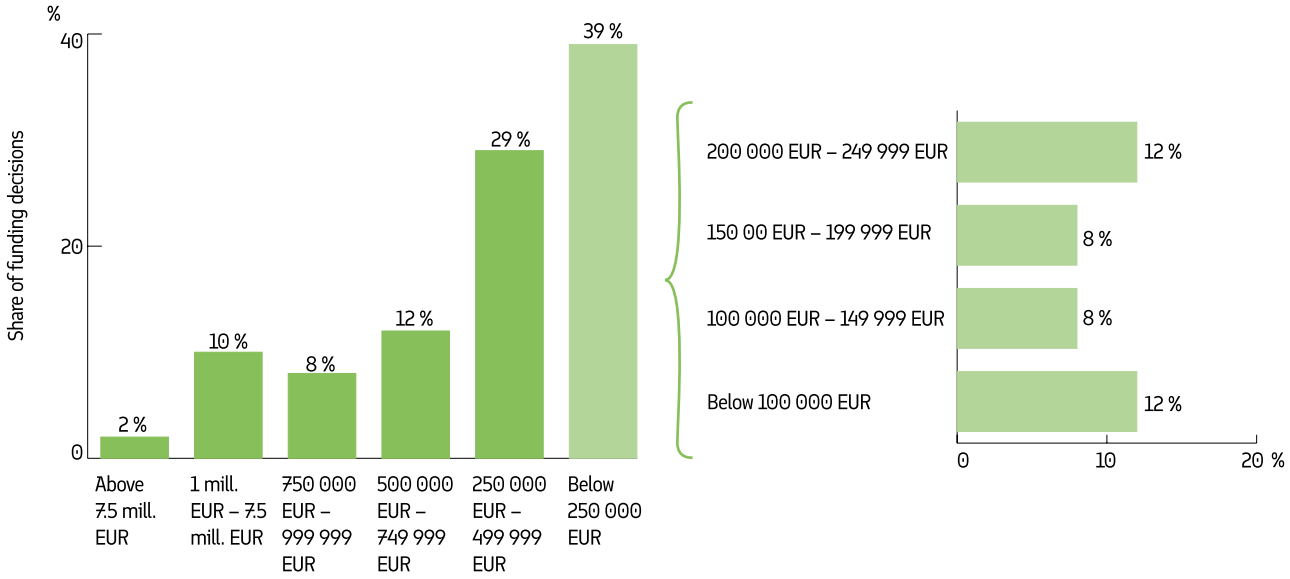


FIGURE 3-9: SIZE OF ALL 225 FUNDING DECISIONS IN EUR FROM SMART MOBILITY AND BATTERY PROGRAM DISTRIBUTED BY SIZE (LEFT), AND RIGHT IS SHOWING FUNDING BELOW 250 000 EUR. SOURCE: BUSINESS FINLAND, PROCESSED BY MENON ECONOMICS

In the table below, we present statistics for the various funding categories (loans versus grants). For grants, the average is significantly higher than the median suggests the presence of a few large projects that skew the average upward. However, the opposite is true for grants to research institutions and universities.

	GRANTS TO COMPANIES	LOANS TO COMPANIES	GRANTS FOR RESEARCH INSTITUTIONS AND UNIVERSITIES
Average	626,000 EUR	97,000 EUR	143,000 EUR
Median	290,000 EUR	900,000 EUR	346,000 EUR
Max	20,000,000 EUR	6,000,000 EUR	20,688,000 EUR
Min	31,000 EUR	105,000 EUR	20,000 EUR
Number of funding decisions	147	11	66

TABLE 3-4: STATISTICS FOR THE VARIOUS FUNDING CATEGORIES, FOR SMART MOBILITY AND BATTERIES FROM FINLAND. SOURCE: BUSINESS FINLAND, PROCESSED BY MENON ECONOMICS

A total of 225 funding decisions have been made to 149 unique recipients, indicating that some recipients have secured funding on multiple occasions. However, the majority (77 percent) of recipients received funding only once. This is depicted in the figure below.

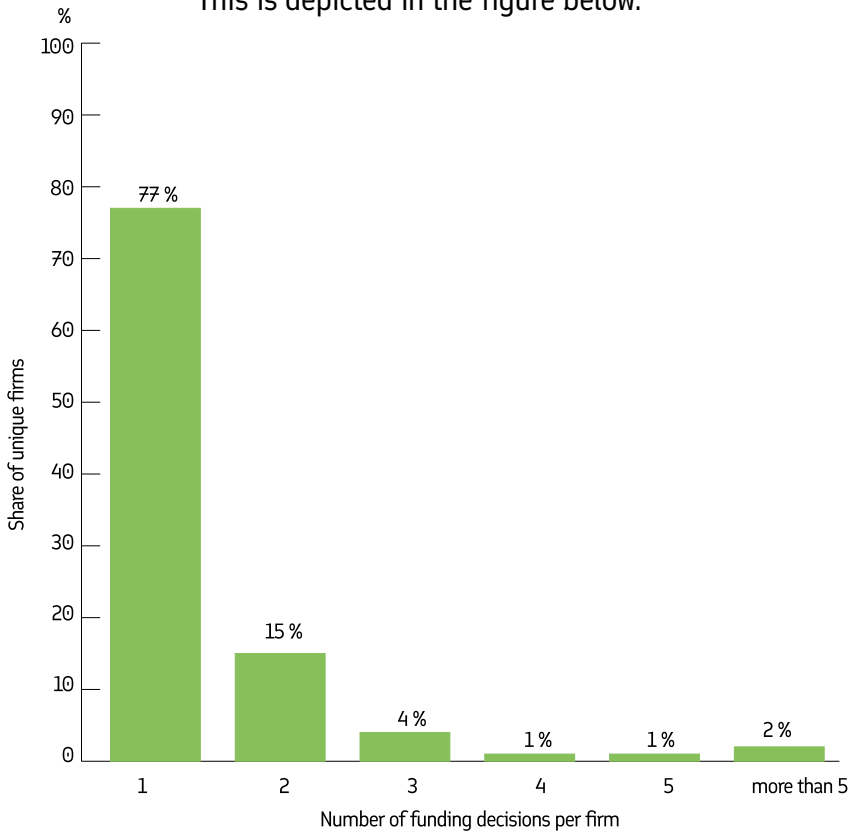


FIGURE 3-10: NUMBER OF FUNDING DECISIONS EACH UNIQUE FIRMS HAVE RECEIVED FROM SMART MOBILITY AND BATTERY PROGRAM. SOURCE: BUSINESS FINLAND, PROCESSED BY MENON ECONOMICS

3.3. POST-PROGRAM DEVELOPMENTS AND CONTINUITY

NEW SPACE ECONOMY

Upon the conclusion of the New Space Economy program, several activities and initiatives were discontinued, while some persisted. Efforts were made to encourage participants involved in the network and ecosystem activities to continue organizing such events and gathering places post-program. For instance, Business Finland at the time offered financial support to organizations and stakeholders (ecosystems) to host these meetups. However, these efforts were unsuccessful, and networking activities for companies in the space sector no longer exist in Finland to the same extent as before the program ended. According to the former program head, one reason for the lack of uptake, despite Business Finland's funding, was that most participating companies were small and focused on growth, leaving them without the time or resources to take on this responsibility.

Nevertheless, the Space Business Forum has been continued and is still organized five times a year by another program (6G Bridge) of Business Finland. Additionally, some users of the program, particularly those from the defense industry, are now participating in networking activities provided by the Digital Defence Ecosystem. Meanwhile, the work of the European Space Agency (ESA) continues

as before, and the European Space Agency's Business Incubation Centre in Finland (ESA-BIC) has maintained its operations.

SMART MOBILITY AND BATTERIES FROM FINLAND

After the program ended in 2022, efforts were initially made to maintain the sectoral initiatives. However, these gradually diminished over time. In contrast, the battery sector was identified as crucial to continue due to its considerable growth potential in Finland. Parallelly, hydrogen was recognized as another significant opportunity for expansion. Eventually, these efforts culminated in the creation of a new combined program focusing on both hydrogen and batteries. This new program is led by the same team, ensuring the ongoing development of initiatives in both fields. It retains many of the same companies and stakeholders from previous program, in addition to new companies.

The mobility part of the program has not been continued in a new program or campaign. However, some networking activities are being conducted by mobility clusters in regions like Tampere and Oulu.

4. THE PARTICIPANTS OF THE TWO PROGRAMS

The New Space Economy program targeted the Finnish space industry, focusing on sectors such as small satellites, satellite subsystems and components, satellite data-based services, and software services/products. Among the companies that received funding for innovation and R&D, 46 percent are micro-sized, while 35 percent are large, highlighting a division between larger established firms and smaller start-ups. A significant share of these companies (76 percent) is geographically concentrated in Uusimaa. In contrast, the Smart Mobility and Batteries from Finland program encompassed a diverse array of companies in smart mobility, logistics, and battery technology. Here, 60 percent of the companies that have received funding are large-sized. While the recipients of this program's funding are more geographically dispersed compared to those in the New Space Economy, they still primarily cluster in Uusimaa, with 40 percent located there.

In this chapter we will present information about the participants of the two programs. First, we provide a brief overview of who were the targeted group of the programs. Thereafter, we comment on the common traits and comple-

mentarities among the participants of the two programs. Lastly, we present a more in-depth review of the companies who have received funding for innovation and R&D projects from the two programs. In the latter we will describe the funds recipients along several key dimensions.

4.1. TARGET GROUP OF THE TWO PROGRAMS

PARTICIPANTS IN NEW SPACE ECONOMY

The New Space Economy program targeted Finnish companies and research institutes and foreign companies looking for opportunities to engage with the Finnish ecosystems. The Finnish space industry comprises several distinct segments, which the program targeted, including:

- Small satellites, satellite subsystems and components
- Satellite data-based services
- Software, secure connectivity
- Research and education

Small satellites, satellite subsystems and components: Finland has developed technology that supports the development and production of small satellites and their subsystems. Finnish companies have experience in designing, building, and launching satellites. In addition, there are multiple companies engaged in creating and supplying various subsystems and components for satellites. These include areas such as electronics, radio units, software, propulsion systems for manoeuvring small satellites, and high-resolution optical mirrors for space telescopes. Finland is also having competences and facilities for testing, particularly in the fields of radio technology and ensuring the reliability and radiation resistance of satellite equipment and electronics.

Satellite data-based services: Services based on satellite data offer businesses opportunities to leverage space infrastructure. Finland's capability, particularly in geosciences and analytics, has been instrumental in establishing several service companies. These companies operate in various fields, including forestry, agriculture, smart cities, maritime services, and satellite image analysis.

Software, secure connectivity: There are several Finnish companies in areas like software development, Human Machine Interface (HMI), communication protocols, and imaging software.. The country has a history in neural networks and pattern recognition research since the 1980s, leading to advanced research in machine learning and AI at numerous universities and research centres.

Research and education: Finnish universities and research institutes are highly involved in space research and developing instruments for space missions. Areas of focus include astronomy, astrophysics, pollution, carbon cycle, water cycle, ozone and UV-radiation research, earth science, physics of aurora borealis zone, cosmology, and space weather. Universities provide high-quality education in engineering and sciences, with Aalto University offering courses in small satellite technologies.

In addition, the space segment in Finland significantly overlaps with the defence segment. Among the users of New Space Economy programs, there are several companies that can be considered defence manufacturers or that also produce defence products. Many of these companies are active in Digital Defence Ecosystem and the recently started Defence and Digital Resilience program, after the end of New Space Economy program.

PARTICIPANTS IN SMART MOBILITY AND BATTERIES FROM FINLAND

The program covered a wide range of actors across various segments covered by Smart Mobility and Batteries from Finland. These included everything from public transportation, autonomous vehicles, car-sharing services, electric cars and mobility solutions, software for different modes of transportation, and solutions for agricultural and forestry machinery. Additionally, it included actors across the entire battery value chain in Finland, from raw material extraction to battery cell production. While the program covered a diverse group of potential participants, they can be categorized into the following three subgroups: Mobility, Logistics and Batteries.

The target group for the program included actors who were active in areas such as seamless, low-emission, and resource-efficient delivery chains for people and goods. It also focused on renewing the sector through mobility services that leverage and share data. Additionally, the program targeted solutions designed to meet or exceed tightening emission limits and reduce dependency on fossil fuels. Another key focus was building a European battery value chain, with Finland playing a significant role in this development.

4.2. COMMON TRAITS AND COMPLEMENTARITIES AMONG PARTICIPANTS

Participants in the two programs share several common traits and complementarities beyond belonging to the same type of industry or sector (e.g. mobility sector, battery sector, space sector). These similarities and complementarities are primarily observed across three dimensions:

- **Value Chain**
- **Industry segments**
- **Interaction – Penta Helix Model**

The first dimension pertains to the value chain, where the participants in each program have complementarities from a value chain perspective. This means that participants in each program represent different parts of the value chain, from service and equipment suppliers to end-users. This setup facilitates customer-supplier linkages (vertical linkages). A close connection between supplier and customer contributes to the development of products and services aimed at market needs and provides better insights into technologies and innovative solutions that can address current challenges.

The second dimension is linked to segments within either the space industry or the mobility/battery sector. This implies that the complementarity is also horizontal. Horizontal complementarity allows the development of solutions relevant across segments, enabling cross-segment experience sharing. An example for Smart Mobility and Batteries from Finland relates to the green transition. There is a common need for adaptation and innovations to align with the green transition and international competition. Innovation activities generate new knowledge for the involved companies and for society, preventing the companies from capturing all the benefits themselves, which often leads to underinvestment in innovation. Such positive externalities are market failures addressed by these collaborations: By partnering with others, participants gain access to the collective knowledge and expertise, while also sharing the risk associated with development.

Thirdly, participants have complementarities when examining the types of entities they represent. Participants can be grouped according to the Penta Helix Model, describing a five-party collaboration among startups, established companies, government (public actors), academia (research and education institutions), and investors (capital). These five sectors are considered crucial for promoting societal and economic development. Although the majority of participants in both programs are businesses (either established companies or startups), academia[11] and government are also represented among the participants.

4.3. CHARACTERISTICS AND DEMOGRAPHICS OF THE RECIPIENTS OF FUNDING

In the following, we present a more in-depth review of the companies who have received funding for innovation and R&D projects from the two programs. Specifically, we will examine:

- **Company Size**: Analyzing the distribution of users based on the size of their companies.[12]
- **Geographic Location**: Identifying the regional distribution of the companies that utilize the funding services.
- **Industry Affiliation**: Examining the sectors and industries to which these companies belong.

11 LUT University, Tempere University, University of Helsinki, University of Oulu, University of Turku, Aalto University, University of Vaasa, Finnish Centre of Excellence in Research of Sustainable Space and Satakunta University of Applied Sciences.

12 The following definition is used for the different categories: Micro: under ten in staff headcount, under two million Euro in turnover and balance sheet total. Small: from ten to 50 in staff headcount, from two to ten million Euro in turnover and balance sheet total. Medium: from 50 to 250 in staff headcount, from ten to 50 million Euro in turnover and from ten to 43 million in balance sheet total. Large: companies larger than medium.

CHARACTERISTICS OF THE RECIPIENTS OF FUNDING FROM NEW SPACE ECONOMY

As outlined in the previous chapter, approximately 37 unique companies have received project funding through New Space Economy program over its operational period. In the following we will present statistics about the recipients of funding from the program.

THE FUNDING HAS PRIMARILY BEEN ALLOCATED TO COMPANIES OF MICRO AND LARGE SIZES

As shown in the figure below, it is primarily companies categorized as micro and large that have received financial funding to innovation projects through New Space Economy program. Together, these two categories alone account for over 80 percent of all funding recipients. The demographic of companies in the industry primarily consists of a few larger established players (defined here as large) and several smaller start-up companies that have recently entered the market (defined here as micro). The likely reason for this is that the space industry is relatively new and has experienced growth in recent years.

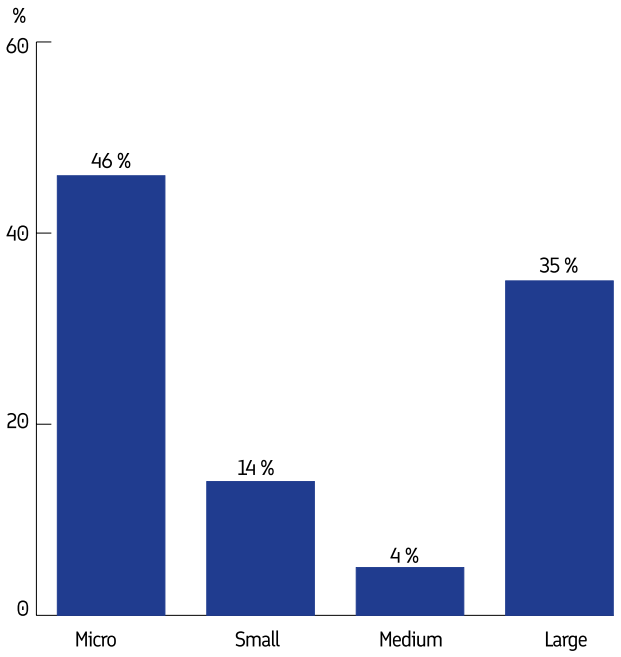


FIGURE 4-1: SHARE OF UNIQUE FUNDING RECIPIENTS FROM THE NEW SPACE ECONOMY PROGRAM BY THE SIZE OF THE ENTERPRISES. N=37.
SOURCE: BUSINESS FINLAND, PROCESSED BY MENON ECONOMICS

NEW SPACE ECONOMY FUNDING RECIPIENTS ARE MAINLY LOCATED IN UUSIMAA

The graph below illustrates the geographic distribution across regions. There is a significant concentration of program funding recipients. This is due to two main factors: firstly, nearly 3 out of 4 funding recipients are located in the same region, and secondly, many regions are not represented at all. Uusimaa, where the majority of funding

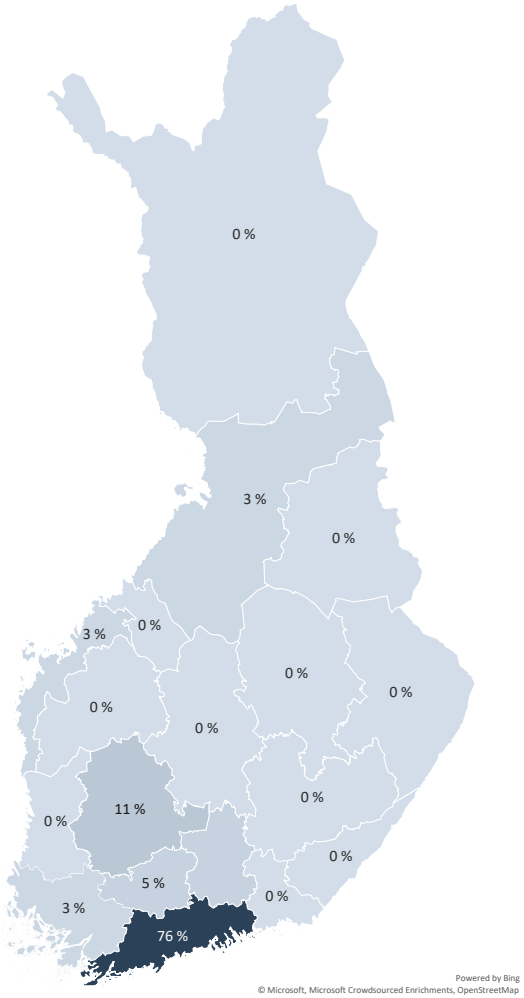
recipients are concentrated (76 percent), is a large region that includes several of Finland's biggest cities, including Helsinki.

A large share of the participants is located in or near major cities. Approximately one in three recipients are based in Helsinki. Similarly, one in three are located in Espoo. The third largest municipality in terms of participants is Tampere, located in the Pirkanmaa region. In other municipalities, there are only a small number of funding recipients. Beyond the three largest municipalities, no other municipality has users who have received more than five percent of the total funding form New Space Economy program. See appendix A for more information.

THE FUNDING RECIPIENTS OF NEW SPACE ECONOMY ARE MAINLY OPERATING WITHIN PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES

When we examine the recipients of funding by industry at level 1 of the industry classification, we find that the majority of the recipients are primarily operating to the following sectors: Professional, Scientific, and Technical Activities (41 percent), Information and Communication (27 percent), and Industry (22 percent). This is illustrated in the figure below.

FIGURE 4 2: THE USERS' GEOGRAPHIC AFFILIATION AT THE REGION LEVEL. N=37.
SOURCE: BUSINESS FINLAND, PROCESSED BY MENON ECONOMICS



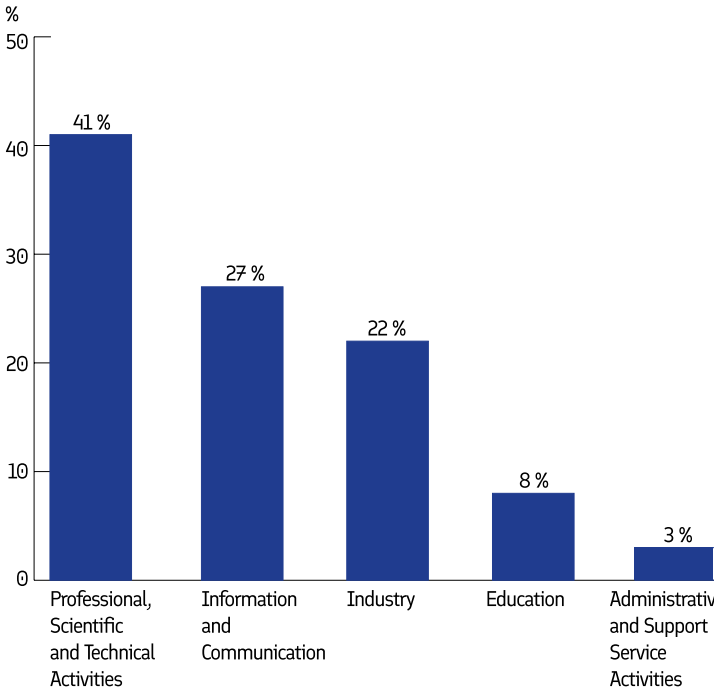


FIGURE 4-3: THE SHARE OF FUNDING RECIPIENTS ACROSS DIFFERENT INDUSTRY CLASSIFICATIONS AT LEVEL 1. N=37. SOURCE: BUSINESS FINLAND, PROCESSED BY MENON ECONOMICS

Looking more closely at the industries by subcategories at level 2, we see that users who have received funding primarily belong to: Software Publishing, Consultancy, and Related Activities (within Information and Communication) with 19 percent, Scientific Research and Development (within Professional, Scientific, and Technical Activities) with 19 percent, Manufacture of Computers, Electronic, and Optical Products (within Industry) with 14 percent and Architectural and Engineering Activities; Technical Testing and Analysis (within Professional, Scientific, and Technical Activities) with 14 percent.

CHARACTERISTICS OF THE RECIPIENTS OF FUNDING FROM SMART MOBILITY AND BATTERIES FROM FINLAND

As mentioned in the previous chapter, around 149 distinct companies have received funding through the Smart Mobility and Batteries from Finland program. In this subchapter, we will take a closer look at the recipients of the funding.

THE MAJORITY OF FUNDING RECIPIENTS FROM THE SMART MOBILITY AND BATTERIES FROM FINLAND PROGRAM ARE LARGE-SIZED COMPANIES.

Among the organizations that have received financial support from the Smart Mobility and Batteries from Finland program, it is primarily large companies that are represented, as shown in the figure below. These companies account for 60 percent of all funding recipients. The other size categories are more evenly distributed, with each representing around 12–14 percent of the total number of recipients.

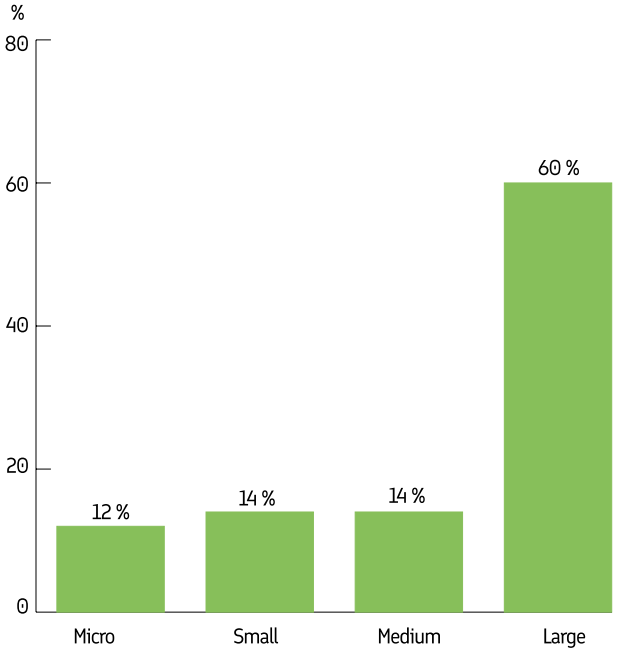


FIGURE 4-4: THE SIZE OF THE COMPANIES THAT HAVE RECEIVED SUPPORT FROM SMART MOBILITY AND BATTERIES FROM FINLAND PROGRAM. N=148. SOURCE: BUSINESS FINLAND, PROCESSED BY MENON ECONOMICS

Smart Mobility and Batteries from Finland stands out from New Space Economy by having a dominant share of funding recipients categorized as large companies. This is likely due to the nature of the mobility and battery sectors, which are capital-intensive industries requiring substantial resources and larger-scale operations. This highlights that the industry sector targeted by the program primarily consists of well-established companies actively exploring new technologies to advance their fields.

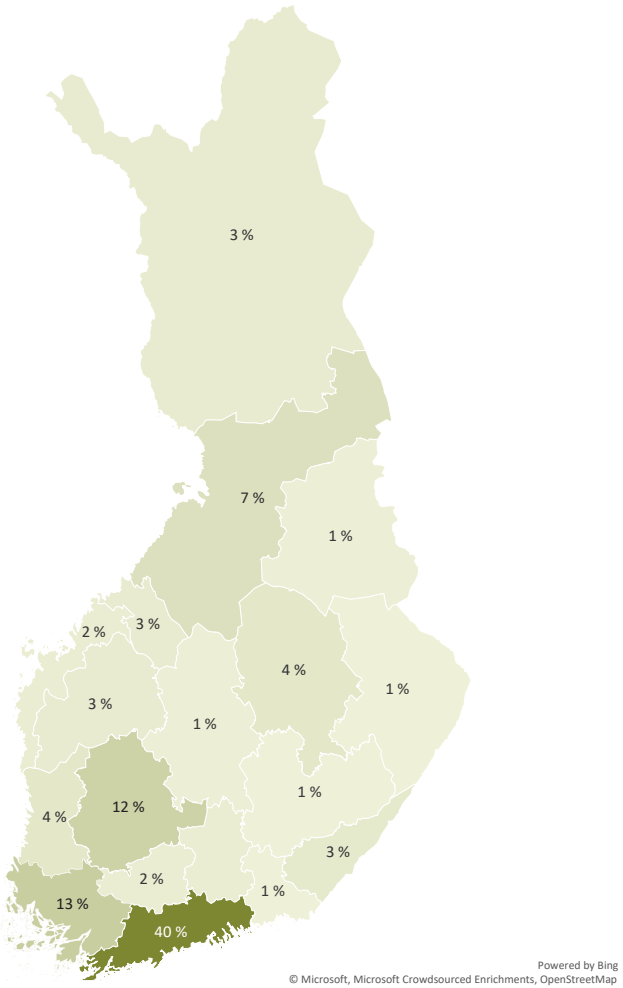
THE RECIPIENTS OF FUNDING FROM SMART MOBILITY AND BATTERIES FROM FINLAND ARE GEOGRAPHICALLY DISPERSED, WITH A NOTABLE CONCENTRATION IN THE UUSIMAA REGION.

Recipients of funding from the Smart Mobility and Batteries from Finland program are significantly spread across Finland's regions, with participation from 17 of the country's 19 regions, as illustrated in the figure below. However, there is still a geographical concentration especially around Uusimaa (40 percent), but also around Varsinais-Suomi (13 percent), and Pirkanmaa (12 percent).

The geographical distribution of funding recipients is broader compared to the New Space Economy program. This can be attributed to both the industry types addressed by the programs, where Smart Mobility and Batteries from Finland has a broader target group with greater diversity in the types of stakeholders, and the number of unique recipients in each program. Smart Mobility and Batteries from Finland has a significantly higher number of participants and has distributed funding to a considerably larger pool of recipients.

When we examine the geographic distribution of users among municipalities in Finland, we find that they are relatively spread out, as shown in the table in appendix A.

FIGURE 4 5: THE USERS' GEOGRAPHIC AFFILIATION AT THE REGIONAL LEVEL. N=149. SOURCE: BUSINESS FINLAND, PROCESSED BY MENON ECONOMICS.



However, there is a concentration of users from Helsinki, which accounts for 26 percent of the funding recipients. Followed by Tampere (11 percent), Turku (11 percent) and Espoo (9 percent).

THE FUNDING RECIPIENTS OF SMART MOBILITY AND BATTERIES FROM FINLAND ARE MAINLY OPERATING WITHIN THE INDUSTRY SECTOR

The analysis of funding recipients by industry at level 1 of the industry classification reveals that the majority of support is concentrated in a few key sectors. Specifically, 30 percent of the funding is allocated to the Industry sector, 20 percent is directed towards Information and Communication, and another 20 percent is provided to Professional, Scientific, and Technical Activities, as depicted in the figure below.

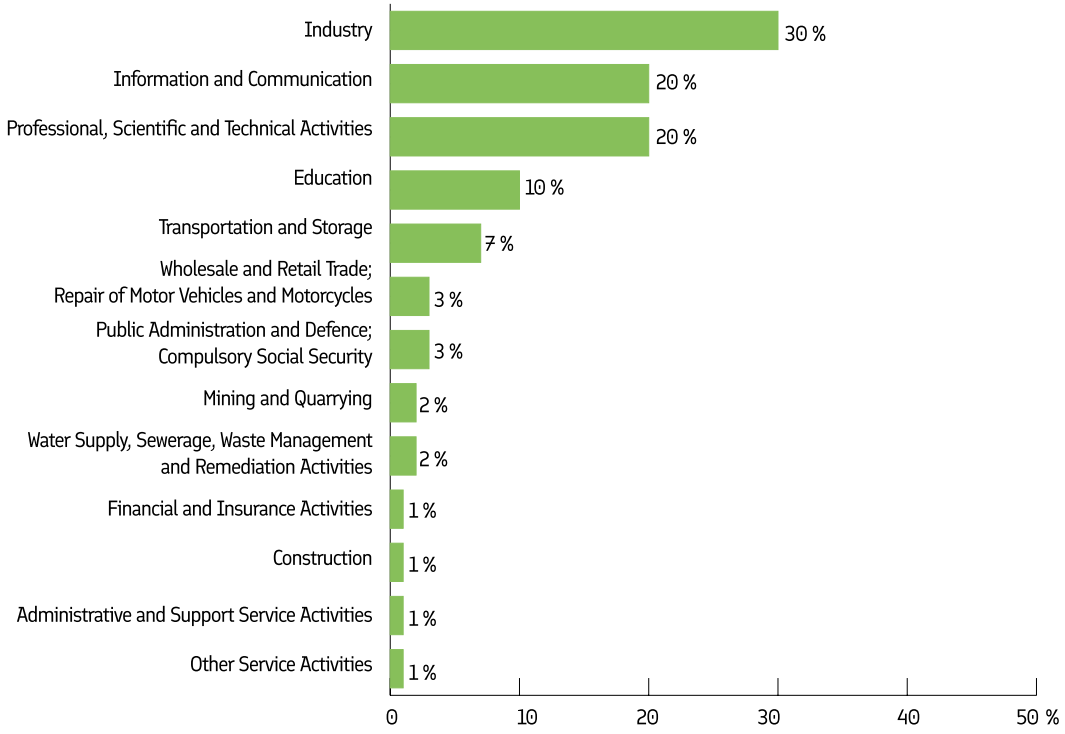


FIGURE 4-6: THE SHARE OF FUNDING RECIPIENTS ACROSS DIFFERENT INDUSTRY CLASSIFICATIONS AT LEVEL 1. N=149. SOURCE: BUSINESS FINLAND, BEARBEIDET BY MENON ECONOMICS

5. THE RELEVANCE OF THE TWO PROGRAMS

The relevance of the two programs can be evaluated by examining the demand they generate, as reflected in participants' motivations for joining and their assessment of the activities' relevance. Networking opportunities emerged as the primary motivational factor for joining both programs, with participants eager to connect with potential customers and partners within the ecosystem. When asked which activities and services they found most relevant, participants primarily cited networking and ecosystem activities, followed by innovation and R&D projects. The relevance of programs can be influenced by their breadth. Although Business Finland considers both programs in question as narrow, they differ significantly in scope. The Smart Mobility and Batteries from Finland program spans multiple transportation sectors and technologies, such as automation and electrification. In contrast, the New Space Economy program focuses on a single industry with fewer participants. While one might expect the New Space Economy program to be more relevant due to its narrower scope, our findings does not suggest this.

The aspect of relevance is according to the OECD-framework an analysis of to which extent the objectives of the services are consistent with the requirements, needs and priorities. In this study, we asses this in relations to the users/customers need and demand for such programs. To assess the relevance of the programs we first analyse and discuss the motivation for participating in the programs' activities and services, and thereafter, to what extent they viewed the activities as relevant. Finally, we will assess advantages and disadvantages with broad and narrow programs.

5.1. MOTIVATION TO PARTICIPATE IN ACTIVITIES OFFERED BY THE PROGRAMS

As presented in chapter 3 and 4, many companies have participated in the activities and services of the two programs. It is intriguing to delve deeper into the reasons behind their decision to take advantage of these offerings. In the survey distributed to the users, they were asked to assess the objectives (needs and motivations) that prompted them to participate. The reasons why a company chose to participate, and thereby what their needs were, is crucial for understanding their perceived relevance of the two programs, which in turn represents the demand. Their motivations for applying also influence their expectations and must be considered in light of the outcomes they have achieved. The connection to the latter will be further elaborated in Chapter 6.

OBJECTIVES FOR PARTICIPATING IN NEW SPACE ECONOMY

The primary reason why companies chose to participate in activities offered by New Space Economy was networking opportunities, in other words to establish contact with potential customers and partners in the ecosystem. As illustrated in the figure below, approximately 79 percent of respondents ranked networking opportunities as top three motivational factors. Other important motivational factors include public funding, market expansion and export, as well as innovation and R&D. At the other end of the spectrum, reasons such as investments and capital, expertise and knowledge and community building were less frequently cited as motivations for participating. These findings align with the program's objectives, which focus on the ecosystems in the industry and networking opportunities, also public funding of innovation and R&D projects was central in the program.

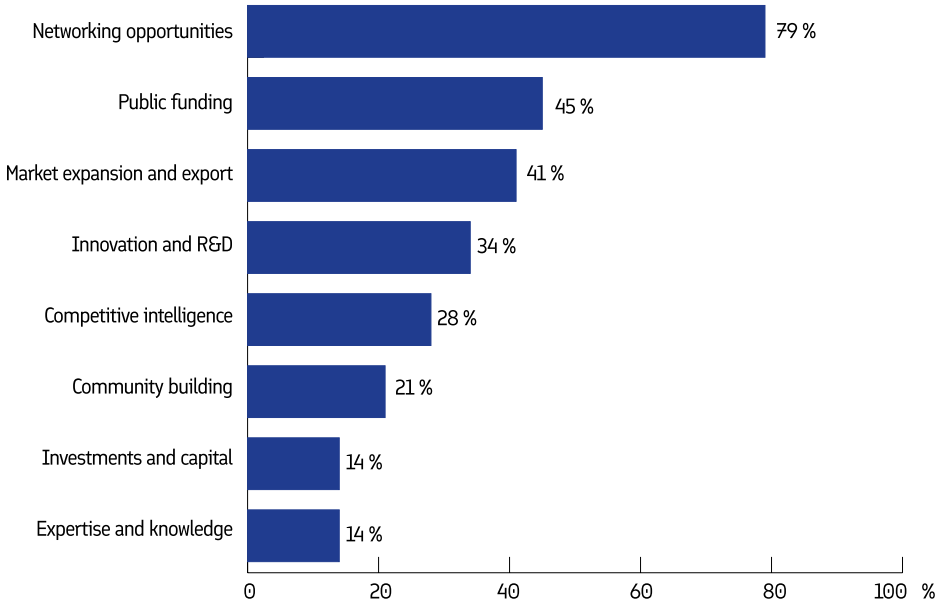


FIGURE 5-1: SHARE OF RESPONDENTS WHO RANKED THE FOLLOWING OBJECTIVES (NEEDS AND MOTIVATIONS) AS TOP 3 MOST RELEVANT FOR THEIR ORGANIZATION TO USE SERVICES FROM NEW SPACE ECONOMY PROGRAM. N=29. SOURCE: SURVEY BY MENON ECONOMICS (2024)

OBJECTIVES FOR PARTICIPATING IN SMART MOBILITY AND BATTERIES FROM FINLAND

Similar to the New Space Economy, the primary reason companies chose to engage in Smart Mobility and Batteries from Finland activities and services was the networking opportunities. As illustrated in the figure below, 67 percent of respondents listed networking opportunities

EXPLANATION OF MOTIVATIONAL FACTORS

The respondents were asked to rank the following needs and motivations based on their relevance for participating in activities and services of the two programs:

- **Networking opportunities:** To establish contact with potential customers and partners in the ecosystem
- **Competitive intelligence:** Increased knowledge of relevant actors in the ecosystem
- **Community building:** Increased sense of community within the industry
- **Expertise and knowledge:** To gain access to and develop specialized knowledge, skills, and expertise
- **Innovation and R&D:** To identify opportunities for product/solution development
- **Market expansion and export:** To identify and pursue potential sales opportunities abroad and export promotion
- **Investments and capital:** To attract investors and secure capital
- **Public funding:** Access to financial support for projects

among their top three motivational factors. However, Smart Mobility and Batteries from Finland differs slightly from the New Space Economy in that a larger proportion of participants place expertise and knowledge among their top three factors. This refers to gaining access to and developing specialized knowledge, skills, and expertise. Access to public funding also ranks highly in both programs.

At the other end of the spectrum, market expansion and export appear to be less significant motivators for companies participating in the program. By market expansion and exports, we mean identifying and pursuing potential sales opportunities abroad and promoting exports. It is somewhat surprising that export growth and internationalization are not ranked as more significant motivational factors, considering the program focuses on activities aimed at boosting exports and supporting internationalization in the sector. For instance, in the battery segment, targeting international markets and integrating Finnish companies into the European battery value chain have been key objectives. One possible explanation is that companies may not have perceived export growth as a direct motivational factor for participating in the program. Instead, networking activities and the formation of new connections seem to have been more critical drivers, with the potential to indirectly contribute to internationalization and increased exports over time. Another explanation may be due to the fact that many companies within the battery industry are in an early stage of their development, thus internationalisation is not on the companies' agenda yet. Additionally, the program's broad scope, encompassing a diverse range of companies and areas, may have made effective export promotion challenging to execute. The varied nature of industries involved likely required participation in widely different forums, trade fairs, and events.

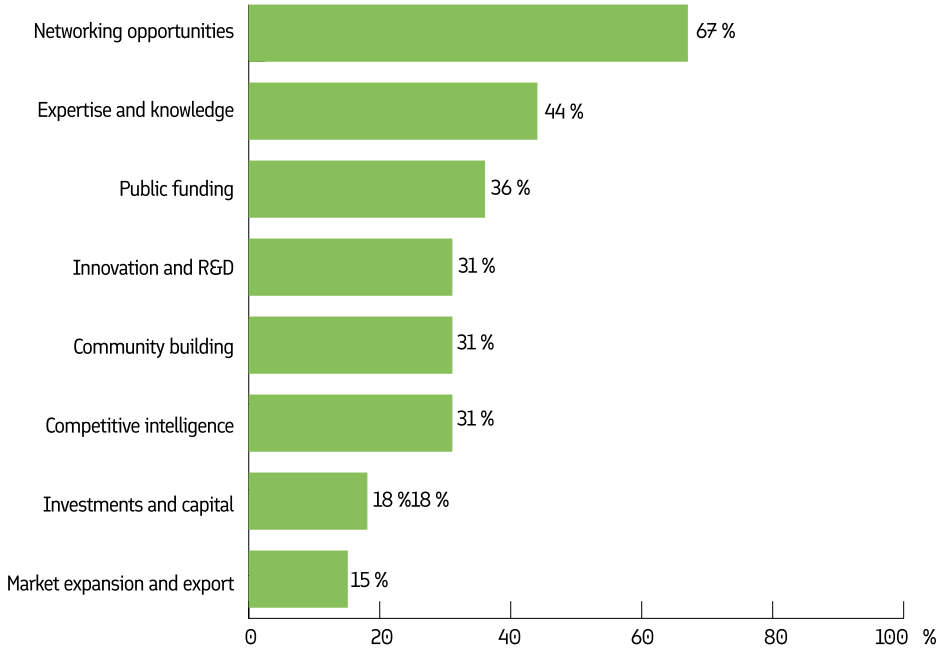


FIGURE 5-2: SHARE OF RESPONDENTS WHO RANKED THE FOLLOWING OBJECTIVES (NEEDS AND MOTIVATIONS) AS TOP 3 MOST RELEVANT FOR THEIR ORGANIZATION TO USE SERVICES FROM SMART MOBILITY AND BATTERIES FROM FINLAND PROGRAM. N=39. SOURCE: SURVEY BY MENON ECONOMICS (2024)

Nevertheless, the top motivational factors align well with the objectives of Smart Mobility and Batteries from Finland, which is designed to assist participants in developing competitive ecosystems, creating networking opportunities, and establishing funding projects within innovation and R&D.

COMPARISON WITH MOTIVATIONAL FACTORS FOR PARTICIPATION IN NORWEGIAN CLUSTERS. SOURCE: MENON ECONOMICS[13]

Menon Economics conducted final evaluations of 19 Norwegian clusters from 2020 to 2023 that participated in and received funding from Innovation Norway's cluster program. As part of these evaluations, surveys were administered to members of the clusters. One aspect that were investigated in these surveys were the motivational factors for participating in the cluster (becoming members). The findings for the 19 clusters are compiled in the graph below (only top 5 motivational factors).

Similarly to both Smart Mobility and Batteries and the New Space Economy, access to network arenas was the most important motivational factor. Other important motivational factors were wither related to this aspect – thus access to relevant collaboration partners, as well as increased knowledge about relevant players in the ecosystem. The clusters differ from the Business Finland programs evaluated here, as they did not offer funding of innovation activities, but instead promoted different research and innovation projects. As illustrated in the graph, the possibility to participate in such projects was also ranked as an important motivational factor – similar to that of Smart Mobility and Batteries, and the New Space Economy.

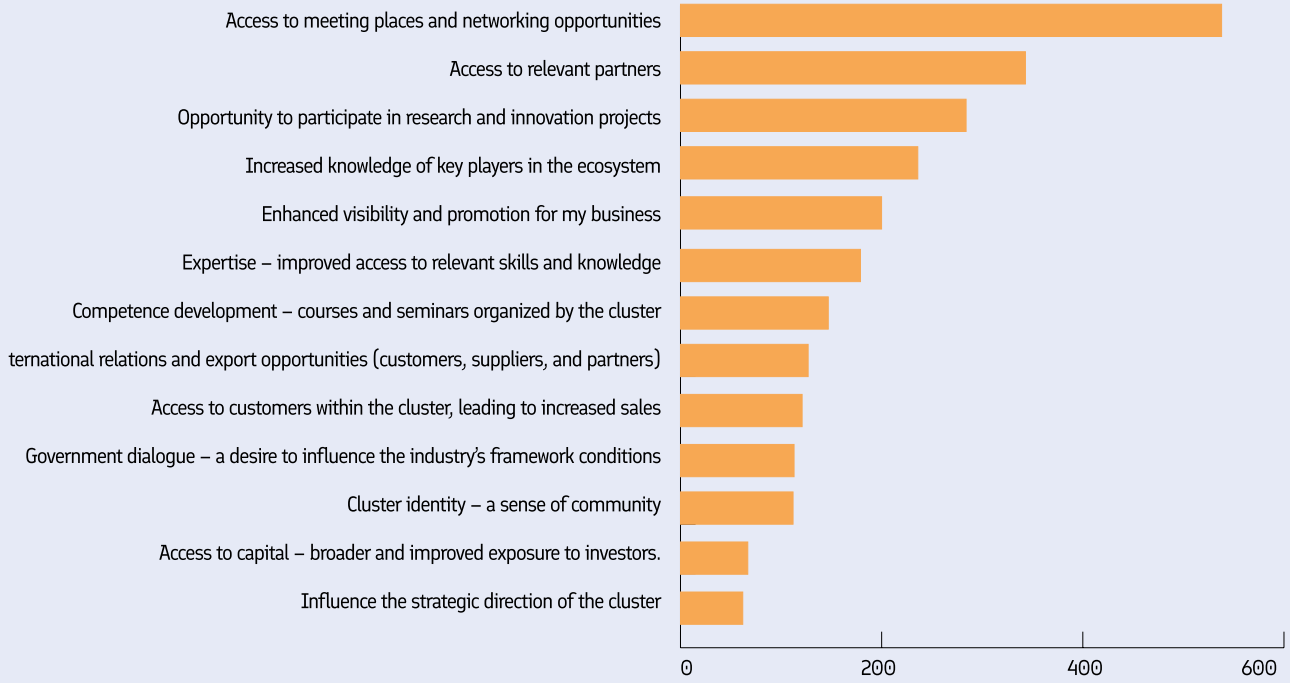


FIGURE 5-3: THE RESPONDENTS' ANSWERS TO THE QUESTION "RANK THE FOLLOWING MOTIVATION FACTORS FOR CLUSTER MEMBERSHIP FROM MOST (TOP) TO LEAST (BOTTOM) IMPORTANT?" N=701. THE TOP 3 MOST IMPORTANT MOTIVATION FACTORS FOR CLUSTER MEMBERSHIP AMONG RESPONDENTS FROM NINETEEN CLUSTERS. SOURCE: MENON ECONOMICS (2023).

13 Menon Economics (2023). The cluster program of Innovation Norway – experiences and insights from nineteen final evaluations. Report available in Norwegian **here**.

5.2. WHICH ACTIVITIES DID THE PARTICIPANTS VIEW AS RELEVANT?

Examining whether participants perceive the various activities and services as relevant is crucial, as it provides insights into the types of activities that have been important to them. This includes understanding their motivation for participation as well as the activities' role in achieving desired results and impacts. Participants' perceptions of the relevance of the activities also reflect their needs and priorities.

Before presenting the findings on what survey respondents considered relevant, we offer a brief overview of the statistics regarding their reported participation in various activities[14]. As shown in the graph below, a majority of participants in both programs reported taking part in networking activities. About half of the respondents have participated in innovation and R&D projects, whereas fewer have been involved in internationalization activities. The figure also highlights distinct differences between the two programs. Respondents from the New Space Economy program reported higher participation in networking and international activities compared to those from the Smart Mobility and Batteries from Finland program. This discrepancy in networking activity participation may be due to the availability of such events; the space sector tends to have a limited offering, while the mobility sector benefits from multiple external ecosystems providing these platforms. The increased participation in international activities by New Space Economy respondents might be attributed to the critical role that exports play in this sector, as evidenced by their top motivation factors.

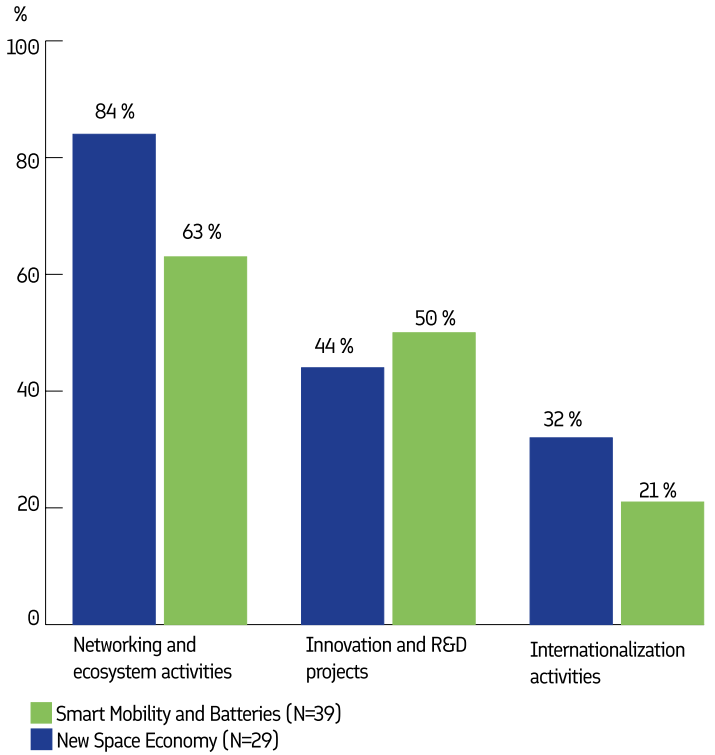


FIGURE 5-4: SHARE OF RESPONDENTS WHO HAVE PARTICIPATED IN THE FOLLOWING TYPES OF ACTIVITIES IN THE PROGRAMS. SOURCE: SURVEY BY MENON ECONOMICS (2024)

14 The question regarding participation has been addressed by respondents identified from two sources: both the contact list from project funding and the contact list from CRM data, which accounts for participation in the programs' other services. We have not identified a pattern indicating differences in responses between the two groups. However, distributing responses across these groups results in a small number of respondents, especially for certain types of questions. Additionally, we observed that many of the contacts were the same on both lists for the same company, suggesting there is no significant difference in which company representatives participated or were responsible for different activity groups.

COMPARISON WITH PARTICIPATION IN NORWEGIAN CLUSTER ACTIVITIES. SOURCE: MENON ECONOMICS[15]

Menon Economics conducted final evaluations of 19 Norwegian clusters from 2020 to 2023 that participated in and received funding from Innovation Norway's cluster program. As part of these evaluations, surveys were administered to map participation levels. The patterns identified for both Smart Mobility and Batteries and the New Space Economy largely coincide with the findings for these 19 clusters. The graph below illustrates the average participation across three types of activities.

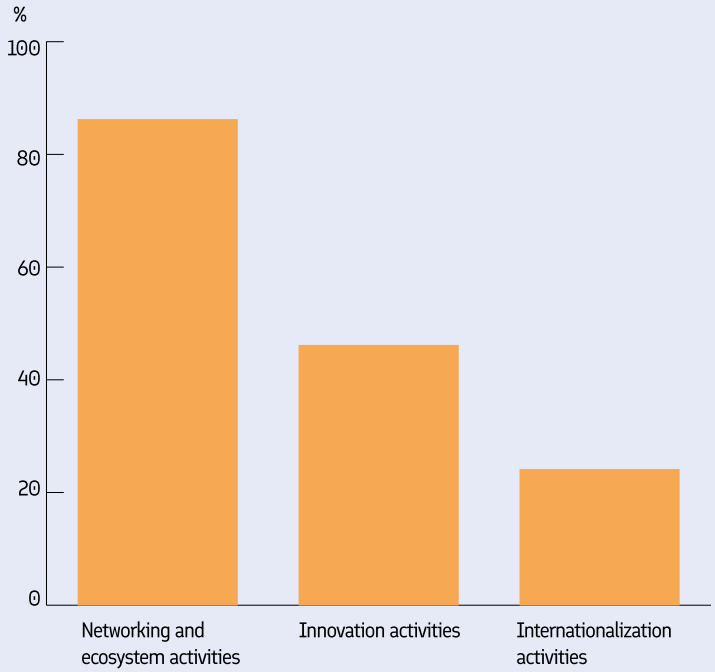


FIGURE 5-5: SHARE OF RESPONDENTS FROM THE 19 NORWEGIAN CLUSTERS WHO HAVE PARTICIPATED IN THE FOLLOWING TYPES OF ACTIVITIES. N=701. SOURCE: MENON ECONOMICS (2023)

15 Menon Economics (2023). The cluster program of Innovation Norway – experiences and insights from nineteen final evaluations. Report available in Norwegian **here**.

FUNDING FROM AND/OR PARTICIPATION IN ACTIVITIES OF EUROPEAN SPACE AGENCY (ESA) AND INCUBATION CENTRE

As mentioned in chapter 2, there is a strong connection between the New Space Economy program and the efforts of the European Space Agency (ESA) and the European Space Agency's Business Incubation Centre (ESA BIC Finland). This is also highlighted in the figure below, which illustrates the share of respondents who also have received funding from or participated in activities of these two institutions/organisations.

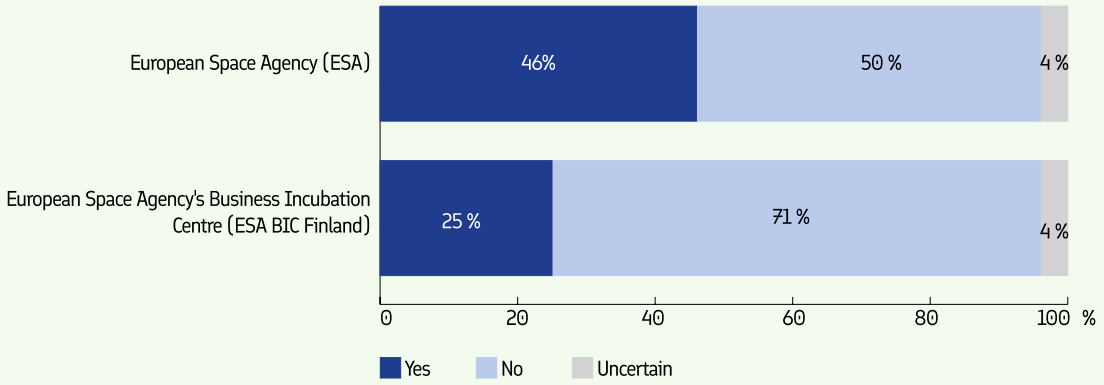


FIGURE 5-6: HAVE YOU RECEIVED FUNDING OR PARTICIPATED IN ACTIVITIES FROM THE FOLLOWING INSTITUTIONS/ORGANISATIONS? SOURCE: SURVEY BY MENON ECONOMICS (2024)

When looking at what activities are perceived as relevant, innovation and R&D projects, along with networking activities, are generally seen as somewhat more relevant than internationalization activities across both programs. However, there are some differences between the two.

- The fact that innovation and R&D projects are highlighted as more relevant by participants in the Smart Mobility and Batteries from Finland program, opposed to their counterparts in the New Space Economy program, may be because there are more funding opportunities available for the Finnish space segment, such as those provided by ESA. This could suggest that participants in the New Space Economy program consider these funding opportunities to be less critical for their development.
- Participants in the New Space Economy program find internationalization activities relatively more relevant compared to those in the Smart Mobility and Batteries from Finland program. This can be attributed to the fact that the space industry, and its customer base, is relatively small in Finland, making international ambitions essential for growth. Additionally, the New Space Economy program includes a higher proportion of smaller companies (micro-enterprises), which typically require greater support for internationalization efforts than larger corporations. At the same time, the New Space Economy program is specifically scoped toward export and internationalization, so it is somewhat surprising that internationalization activities are not highlighted by participants as being more relevant. This focus on export may also attract participants who have this as a primary motivation for engaging with the program.

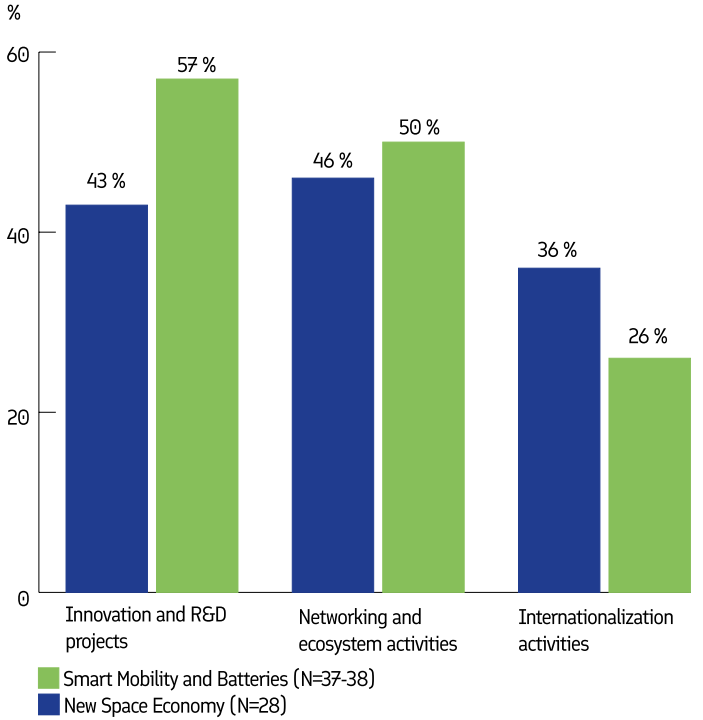


FIGURE 5-7: TO WHAT EXTENT WERE THE THREE TYPES OF ACTIVITIES AND SERVICES RELEVANT TO YOUR ORGANIZATION'S NEEDS? SHARE THAT HAVE REPLIED TO A LARGE/VERY LARGE EXTENT. SOURCE: SURVEY BY MENON ECONOMICS (2024)

5.3. CONSIDERATIONS FOR BROAD VERSUS NARROW PROGRAMS

An important aspect of relevance pertains to the distinction between broad and narrow programs. This distinction can be evaluated based on three dimensions: thematic scope, target group, and the services a program provides.

IN RELATION TO THE THEMATIC SCOPE AND TARGET GROUP

A program can be classified as broad or narrow based on its thematic scope—whether it encompasses a wide range of topics or is focused on a specific theme. Similarly, the target group can also define its breadth: a broad target group includes companies from various industries/sectors, whereas a narrow target group is primarily aimed at a single industry or sector. Often, a program's thematic scope and target group overlap, meaning that a broad thematic scope typically corresponds with a broad target group. Therefore, our assessments in this context consider both the scope and target group collectively.

There is a notable difference between the programs concerning their thematic scope and target groups. The Smart Mobility and Batteries from Finland program encompasses a wide range of participants and targets diverse technologies such as automation, robotization, and electrification across several transportation sectors, including automotive, maritime, aviation, rail, trams, and construction machinery. In contrast, the New Space Economy program is more focused, concentrating on a single industry with a relatively smaller number of participants. This suggests that a program like the New Space Economy should find it easier to appear relevant, as activities can be tailored to the needs for the specific companies. However, our findings indicate that this is not necessarily the case. There is no significant difference in perceived relevance between the activities offered by the two programs.

Beyond the potential for more tailored activities and hence increased relevance, we have explored other advantages and disadvantages of having a program targeting a narrow or broad thematic scope/target group. Below, we outline several potential benefits of narrower thematic scope/target group, which are less feasible for programs addressing a broader scope/group:

- **Increased Opportunity to Build an Industry Community**: A smaller target group often consists of more similar participants, which can foster stronger connections and collaboration within the industry due to shared interests and challenges.
- **Easier Identification and Activation of the Target Group**: The limited scope makes it simpler to identify and engage participants who would benefit from the program.

However, there are also drawbacks to narrow programs:

- **Limited Synergies and Complementarities**: If the program is too narrow, the potential target group may become too small, resulting in too few participants to achieve meaningful synergies and complementarities—the core objectives of such programs, particularly in terms of networking.
- **Administrative Overload and User Complexity**: Having too many narrow programs can result in significant administrative efforts for Business Finland, as each program requires its own management. This can also create complexity for users, making it difficult to navigate among a multitude of programs.

What are the advantages of broad programs, beyond mitigating some of the mentioned drawbacks of narrow programs?

- **Adaptability to Evolving Needs**: It is challenging to fully anticipate what will be important in the future, especially in sectors with rapid technological development. By having broader programs with the flexibility to prioritize along the way, the risk of the program losing its relevance is reduced.
- **Cross-Sectoral Collaboration:** Another advantage of broad programs is the ability to connect various segments with clear complementarities, where experiences and technologies can be relevant across different sectors. By establishing broad programs with meeting places, cross-sector collaboration is facilitated. Additionally, it might not be clear beforehand which sectors would benefit from collaboration, so a broad definition allows for experiential learning.
- **Enhanced Cross-Regional Collaboration**: Broad programs that include multiple segments of an industry, or multiple industries, can also encourage collaboration among companies from various regions—often entities lacking natural meeting places due to geographical distances. For example, the participants of New Space Economy, a relatively narrow program, are mainly geographically clustered in one region.

IN RELATION TO THE SERVICES A PROGRAM PROVIDES

The classification of a program as narrow or broad in relation to the services it offers depends on the variety within its service portfolio. A program that primarily focuses on a single type or group of services may be considered narrow, while one that provides a wider range of diverse services is classified as broad. Both programs in question offer a diverse array of services, including funding for innovation projects, seminars, delegation trips, and market research, among others. Consequently, both programs can be classified as broad in terms of their service offerings.

There are advantages and disadvantages to both narrow and broad programs concerning the services offered. A pro-

gram providing only a limited number of services (or types of services) benefits from being able to focus solely on these, thereby potentially increasing the quality and effectiveness of those services. Such a program would have specialized expertise in this area and could offer comprehensive services within this context. Moreover, programs that specialize in a specific service can possess considerable economies of scale related to expertise and efficiency. For instance, a program focused solely on lending may excel in credit assessments. In contrast, programs offering a wide range of services are less likely to develop such specialized expertise, making cross-comparisons less viable.

However, a program that focuses solely on one type of service might miss out on significant synergies. For example, a program could offer various types of services to a group of companies, allowing these services to complement each other. A company with international ambitions, for instance, may want to undertake an innovation project to adapt its product for international markets, participate in delegation trips to targeted international markets, and connect through seminars and networking events with other companies operating—or planning to operate—in those markets, thus learning from their experiences.

Another advantage of broad service offerings is the minimization of different contact points for companies interacting with Business Finland. By providing a broad spectrum of relevant services within a single program, companies in a particular industry gain a clearer overview of available opportunities and reduce the resources spent on identifying relevant services. Thus, while there are both advantages and disadvantages to a program that offers a wide array of services, the opportunity to create synergies and the ease of access to information for participating companies are significant benefits.

6. THE ACHIEVEMENT OF RESULTS AND IMPACTS FOR THE PARTICIPANTS

Both programs are characterized by significant additionality in the execution of innovation and R&D projects, as well as internationalization efforts and export initiatives. This means that several innovation and R&D projects, along with internationalization efforts and export initiatives, would not have been undertaken by the participating companies to the same extent without the programs. The programs have also generated significant results for the participating companies, particularly in areas such as knowledge about the ecosystem, access to networking arenas, technical development/innovation, and participation in research/innovation projects. The most significant impact identified is increased competitiveness. There are several factors that have led to these impacts, both how the programs are structured, the activities and services that have been offered, as well as the results being achieved. The participants of the two program highlights especially networking and ecosystem activities as important for experiencing these impacts.

In this chapter, we will examine three key aspects of the funding services. First, we will analyse the additionality of the programs, specifically the extent to which the programs have triggered activities that would not have been carried out otherwise. Next, we will take a closer look at what participants have achieved through their involvement in the activities and services, including the results the programs have generated for participants and the specific impacts they have led to. The findings primarily stem from our analysis of data collected through surveys administered to the participants of these services.[16]

6.1. ADDITIONALITY OF THE SERVICES OF THE PROGRAMS

To assess the extent to which the activities and services of the programs have directly triggered results and impacts, it is crucial to examine what participants would have done if Business Finland's offerings had not been available. If participants would have undertaken the activities regardless of the programs' existence—indicating low additionality—then the results and impacts would have occurred independently, rendering the programs less relevant. Therefore, it is desirable for the programs to demonstrate high additionality, meaning they have prompted activities that would not have been carried out in their absence.

In this section, we specifically explore the extent to which funding from the programs has triggered innovation and R&D efforts, as well as the degree to which the programs' activities and services have facilitated internationalization activities.

ADDITIONALITY OF FUNDING FROM BUSINESS FINLAND

The additionality effect of the offerings related to innovation and R&D projects is particularly significant for the Smart Mobility and Batteries from Finland program. A substantial portion (42 percent) of participants would not have pursued their innovation and R&D projects at all without this financial support. Furthermore, none of the participants in the Smart Mobility and Batteries from Finland program would have executed their innovation and R&D projects to the same extent or incurred the same costs without the program. This indicates that numerous innovation and R&D projects would not have been undertaken to the same degree by the participating companies without these programs in place. This aligns with a larger proportion of funding distributed from Business Finland as grants

16 The surveys have been addressed to respondents identified from two sources: both the contact list from project funding and the contact list from CRM data, which accounts for participation in the programs' other services. We have not identified a pattern indicating differences in responses between the two groups. However, distributing responses across these groups results in a small number of respondents, especially for certain types of questions. Additionally, we observed that many of the contacts were the same on both lists for the same company, suggesting there is no significant difference in which company representatives participated or were responsible for different activity groups.

rather than loans within the Smart Mobility and Batteries from Finland program (see chapter 3). Grants are generally preferred over loans in situations with higher uncertainty and risk associated with innovation, indicating that there is a greater distance to market for the innovations relevant to the Smart Mobility and Batteries from Finland program. This underscores the importance of grant funding for these types of innovations.

In comparison, while there is evidence of additionality related to innovation and R&D projects in the New Space Economy, it is less pronounced than in the Smart Mobility and Batteries from Finland program. Specifically, only 18 percent of New Space Economy participants reported that they would not have conducted their innovation and R&D projects at all without support. The fact that fewer respondents from the New Space Economy acknowledge the additionality of innovation funding, may be attributed to the availability of alternative funding sources for Finnish entities in the space industry, such as those offered by the European Space Agency (ESA).

Please be aware that the number of respondents for this question is low, particularly concerning the New Space Economy. [17] Therefore, the results should be interpreted with caution.

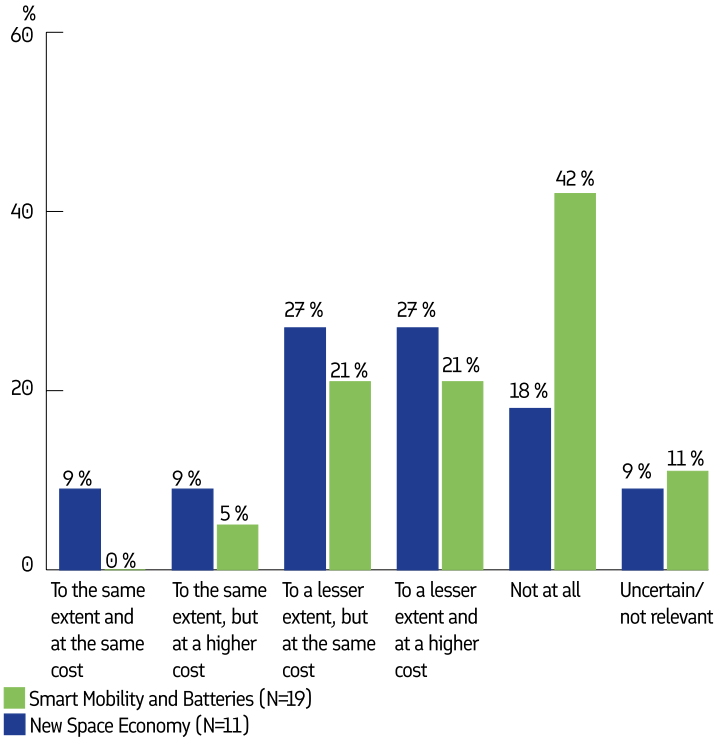


FIGURE 6-1: IF FUNDING FROM THE PROGRAM HAD NOT EXISTED, WOULD THE INNOVATION AND R&D PROJECT(S) HAVE BEEN CARRIED OUT... (THE QUESTION WAS ONLY POSED TO THOSE WHO HAD RECEIVED FUNDING FOR INNOVATION AND R&D PROJECTS). SOURCE: SURVEY BY MENON ECONOMICS (2024)

17 This is because the question was only posed to individuals who have participated in this specific type of activity.

ADDITIONALITY OF INTERNATIONALISATION ACTIVITIES OF BUSINESS FINLAND

Regarding internationalization and export initiatives, the offerings of the New Space Economy program have been particularly impactful. Our observations indicate that Finnish companies involved in these initiatives would have pursued internationalization and export efforts to a lesser extent and at a later stage in the absence of these programs. Specifically, 63 percent for the New Space Economy program reported such effects. For the Smart Mobility and Batteries from Finland program, the proportion is somewhat lower, at 50 percent. The greater additionality observed in the internationalization activities of the New Space Economy program likely stems from its more substantial focus on export promotion compared to Smart Mobility and Batteries from Finland. Nevertheless, only a few participants claimed they would not have engaged in export initiatives at all, particularly among those in the New Space Economy program. This underscores the essential role of export activities in their growth, indicating that these efforts will be pursued to some extent regardless of program participation.

Please be aware that the number of respondents for this question is low. [18] Therefore, the results should be interpreted with caution.

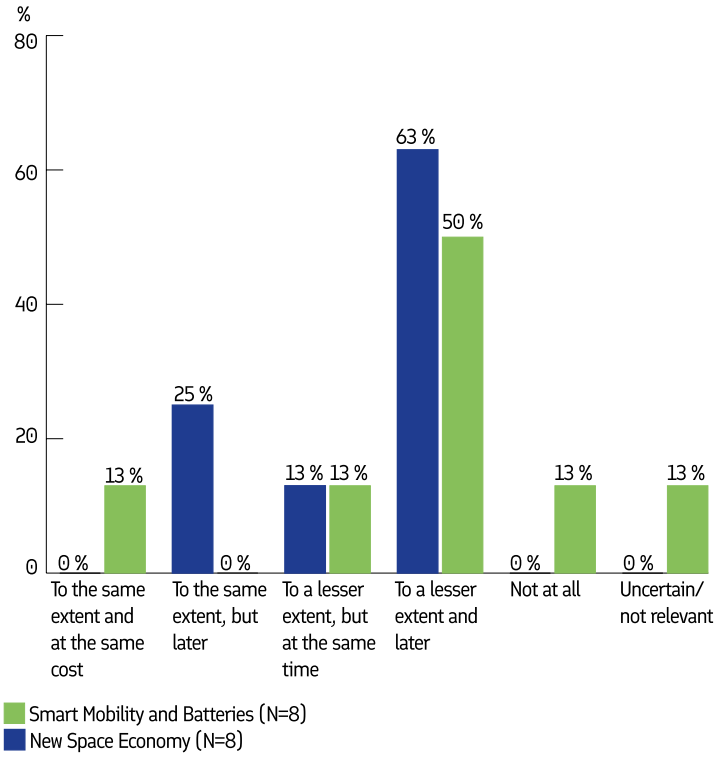


FIGURE 6-2: IF THE PROGRAM HAD NOT EXISTED, WOULD YOUR COMPANY'S INTERNATIONALIZATION EFFORTS AND EXPORT INITIATIVES HAVE BEEN CARRIED OUT... (THE QUESTION WAS ONLY POSED TO THOSE WHO HAVE PARTICIPATING IN INTERNATIONALIZATION ACTIVITIES). SOURCE: SURVEY BY MENON ECONOMICS (2024)

18 This is because the question was only posed to individuals who have participated in this specific type of activity.

6.2. THE ACHIEVEMENT OF RESULTS FOR PARTICIPATING COMPANIES

In this section, we present the results achieved by participants in the two programs, New Space Economy & Smart Mobility and Batteries from Finland. We will highlight the key outcomes that participants have experienced as a direct result of receiving funding and participating in activities. It is important to note that this section focuses on the immediate benefits and main results of the programs, rather than examining the long-term effects of their participation, which will be examined below (under impacts).

NEW SPACE ECONOMY

Participants in the New Space Economy program reported significant improvements in their knowledge of the ecosystem and access to networking opportunities. As illustrated in the figure below, 43 percent and 36 percent of participants, respectively, highlighted these outcomes to a large or very large extent. These findings align with the primary motivation for joining the program, which was to seek networking opportunities. It is also unsurprising that the most notable outcomes are related to networking and ecosystem activities, as these aspects are the most frequently utilized by program participants. This applies to knowledge about the ecosystem, access to networking arenas, as well as an increased sense of community within the industry. The latter, a sense of community within the industry, is also a significant finding, highlighted by 29 percent. This underscores how the program has facilitated the creation of a community, which in turn is likely to lead to greater collaboration, more synergies, and similar benefits.

Furthermore, significant results were observed in the areas of innovation and R&D. Specifically, 32 percent and 29 percent of participants, respectively, stated that the New Space Economy program significantly improved conditions for their organization to engage in research and innovation projects, as well as technical development and innovation. Thus, highlighting another important aspect and goal of the program.

As mentioned, international activities are considered important by participants in the New Space Economy program. However, the outcomes of these activities are more varied. As shown in the graph below, only 21 percent report that the program has improved their conditions for international relations and export opportunities to a large or very large degree, while 29 percent report this to some extent. This likely indicates that the export activities have been beneficial primarily to those who find them most critical, namely those who reported a high degree of additionality from the program's export services (see chapter 5).

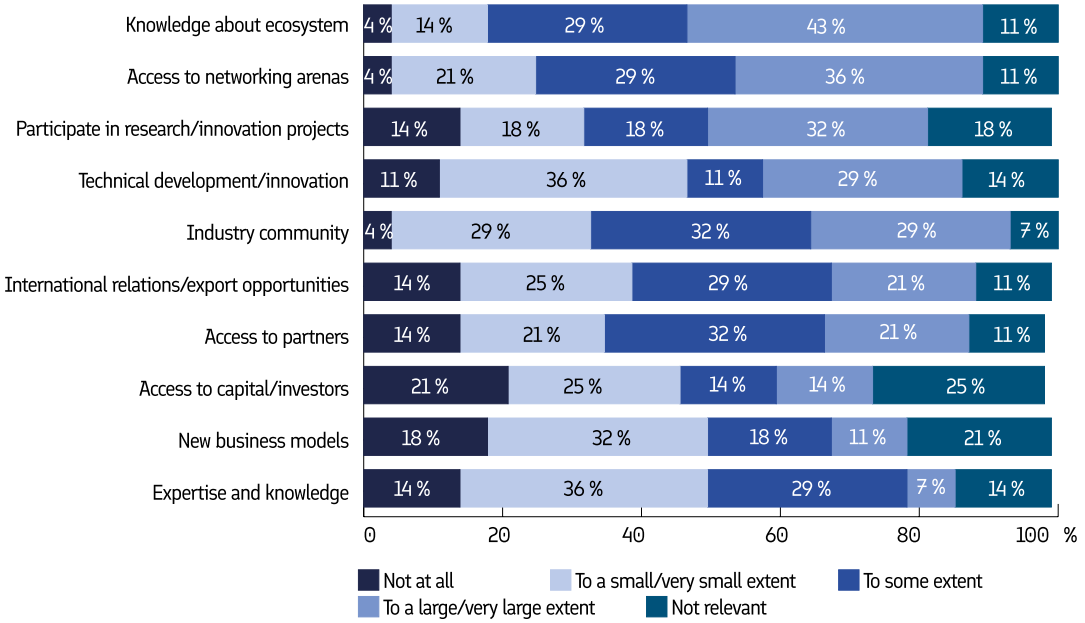


FIGURE 6-3: TO WHAT EXTENT HAS THE NEW SPACE ECONOMY PROGRAM IMPROVED CONDITIONS FOR YOUR ORGANIZATION IN THE FOLLOWING AREAS? N=28. SOURCE: SURVEY BY MENON ECONOMICS (2024)

There are other outcomes that fewer respondents report having achieved through their participation in the program. One notable outcome is the development of new business models, which only 11 percent of respondents highlighted. Considering that developing new business models was one of the program's main objectives, one might question whether this proportion should have been higher. There is, however, a counterargument to consider: the development of new business models may only be relevant to a smaller segment. New business models represent a more niche area compared to broader outcomes such as increased knowledge, expanded networks, and technological development. Hence, the 11 percent who indicated that the program contributed to this development, may represent a considerable achievement when the appropriate benchmark is considered. This suggests that, despite a lower share highlighting this outcome, the program could still be seen as having effectively met its goal in this area. This is further supported by the fact that fewer of the innovation projects that received funding have been targeted towards new business models (see appendix B).

Other outcomes that have been achieved to a lesser extent include access to capital and investors, as well as improved access to and development of expertise and knowledge. Similar to new business models, access to capital is a vital aspect of this program. This may suggest that other mechanisms, such as ESA, play a more significant role in facilitating this access. Additionally, since loans have been favored over grants in the program (see chapter 3), this might indicate lower risk and uncertainty, which in turn makes it easier to secure financing. Regarding expertise and knowledge, if we interpret this as acquiring knowledge, it is less surprising, since competency development has not been a major function of the program. However, if we interpret it as access to knowledge through partners and actors within the ecosystem, it is somewhat unexpected.

EXPLANATION OF RESULTS OF THE TWO PROGRAMS

The respondents were asked to state to what extent the program had improved conditions for their organization in the following areas:

- **Access to networking arenas:** Increased access to networking events and forums
- **Knowledge about ecosystems:** Increased knowledge about relevant actors in the ecosystem
- **Industry community:** Increased sense of community within the industry
- **Access to partners**: Increased access to relevant partners and joint operations
- **International relations/export opportunities:** Better international relations and export opportunities (customers, suppliers, and partners)
- **Expertise and knowledge:** Better access to and development expertise and knowledge
- **New business models:** Developing new business models
- **Participate in research/innovation projects:** Increased opportunity to participate in research and innovation projects
- **Technical development/Innovation:** Increased technological development and innovation
- **Access to capital/investors:** Better access to capital and investors

SMART MOBILITY AND BATTERIES FROM FINLAND

Similar to the New Space Economy, participants in the Smart Mobility and Batteries from Finland program also witnessed substantial results in terms of networking and ecosystem development. Specifically, participants reported significant improvements for their organizations in terms of increased ecosystem knowledge (58%), access to networking venues (45%), and partner accessibility (35%). This is depicted in the figure below. On average, these percentages are higher than those observed in the New Space Economy, suggesting that participants in Smart Mobility and Batteries from Finland have, to some extent, achieved greater outcomes from networking activities than their counterparts in the New Space Economy program. This is somewhat unexpected, given the higher participation rate in networking activities among New Space Economy participants (see chapter 5). Furthermore, Smart Mobility and Batteries from Finland participants did not particularly emphasize these activities as being more relevant compared to New Space Economy participants. However, participants in Smart Mobility and Batteries from Finland report fewer results related to an increased industry community. This is likely due to the program's broader and more diverse target audience compared to the more concentrated and defined space industry, which makes it more difficult to facilitate the development of strong relationships and community bonds. Moreover, it is probable that

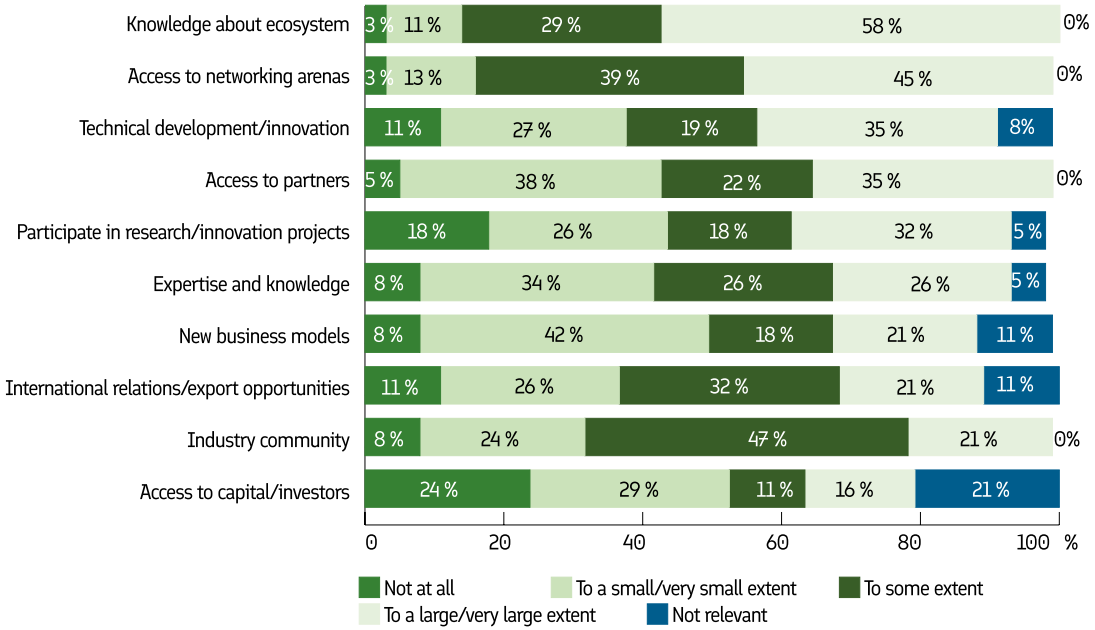


FIGURE 6-4: TO WHAT EXTENT HAS THE SMART MOBILITY AND BATTERIES FROM FINLAND PROGRAM IMPROVED CONDITIONS FOR YOUR ORGANIZATION IN THE FOLLOWING AREAS? N=37-38. SOURCE: SURVEY BY MENON ECONOMICS (2024)

a sense of community was already established within the targeted sectors before the program's initiation. This is because these sectors were more established at that time and several existing ecosystems already focused on mobility and batteries.

Participants in Smart Mobility and Batteries from Finland program also report notable results in both technical development and innovation (30%) and participation in research and innovation projects (26%). This indicates substantial outcomes from the program's funding of innovation and R&D projects. As pointed out in chapter 5, participants in this program highlighted these types of innovation activities as especially relevant.

Similarly to the New Space Economy program, we observe that fewer participants emphasize the development of new business models and access to capital and investors as significant outcomes. We have limited information regarding why these results have not been realized, despite their importance to Business Finland. It is less surprising that few participants report outcomes related to international relations and export opportunities. As discussed in Chapter 5, participants in the Smart Mobility and Batteries from Finland program placed less importance on these aspects as motivating factors for their participation, and fewer considered such activities as relevant.

COMPARISON WITH RESULTS OF THE NORWEGIAN CLUSTER PARTICIPANTS. SOURCE: MENON ECONOMICS[19]

As mentioned, Menon Economics conducted final evaluations of 19 Norwegian clusters from 2020 to 2023 that were part of Innovation Norway's cluster program. In the surveys sent out in these evaluations, results were also mapped. In the graph below, we present the average score of a few selected results from the 19 final evaluation, as well as results from this evaluation of New Space Economy and Smart Mobility and Batteries. The average score is calculated based the following, where 1 is no improvement, and 5 is large/very large improvement.

As illustrated in the graph below, the two Business Finland programs score relatively similar to the 19 Norwegian clusters. However, there are a few variations.

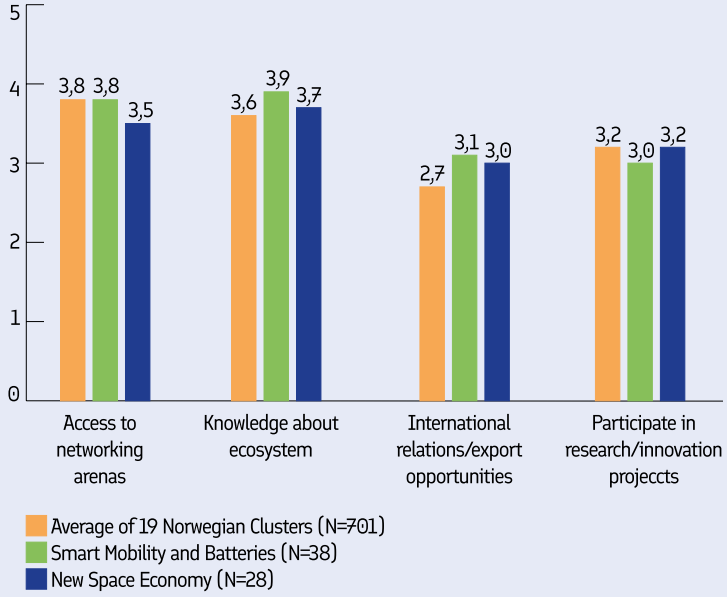


FIGURE 6-5: TO WHAT EXTENT THE PROGRAMS HAVE CONTRIBUTED TO RESULTS FOR THE USERS, AVERAGE SCORE (BETWEEN 1 AND 5). SOURCE: MENON (2023)

6.3. IMPACTS AND MECHANISMS OF IMPACTS

Activities and results from such programs can contribute to long-lasting impacts for the companies and organizations that have participated in the programs, the industries they target, and society at large. In this report, we exclusively examine the impact on participants. There are primarily two reasons for this. Firstly, due to the financial constraints of this project, we have not been able to assess

19 Menon Economics (2023). The cluster program of Innovation Norway – experiences and insights from nineteen final evaluations. Report available in Norwegian **here.**

the broader impacts. Secondly, as these programs concluded relatively recently in 2022, identifying long-term effects is currently challenging.

Thus, in this report "impacts" refers to the materialized effects of program engagement on the key performance indicators of participating organizations, such as increased revenue growth or exports. Our findings are mainly derived from an analysis of data obtained through surveys conducted with participants involved in the program's activities and services.

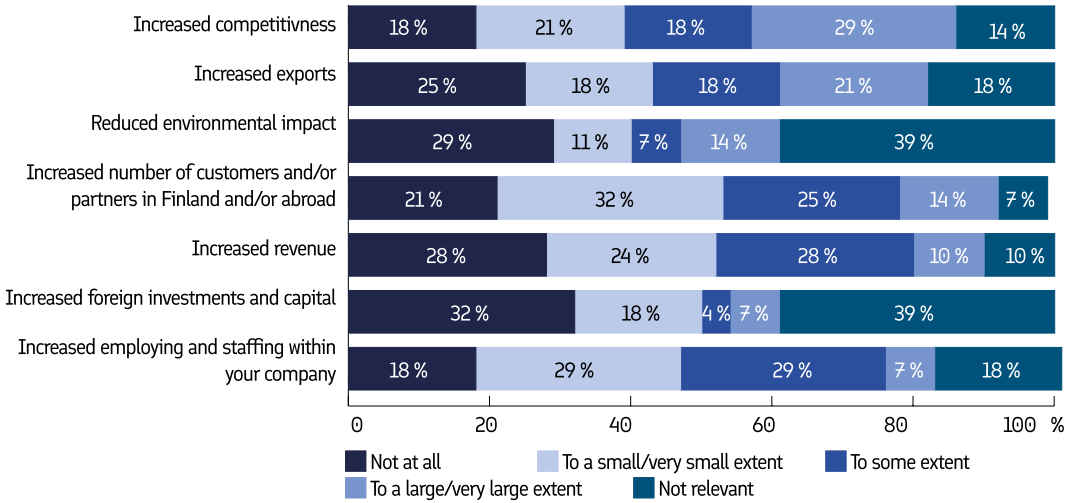


FIGURE 6-6: TO WHAT EXTENT HAS THE NEW SPACE ECONOMY PROGRAM CONTRIBUTED TO TRIGGER THE FOLLOWING IMPACTS FOR YOUR COMPANY? N=28-29.
SOURCE: SURVEY BY MENON ECONOMICS (2024)

IMPACTS EXPERIENCED BY PARTICIPATING COMPANIES

NEW SPACE ECONOMY

Participants in the New Space Economy program primarily benefited from enhanced competitiveness and increased exports. As depicted in the figure below, 29 percent of participants indicated that the program improved their competitiveness, while 21 percent emphasized the program's role in boosting exports. Other impacts include a reduction in environmental impact (14 percent), an increase in the number of customers and/or partners both domestically and internationally (14 percent), and increased revenue (10 percent). Overall, these findings suggest that participants in the New Space Economy program have experienced a range of impacts from their involvement, though these effects have been somewhat limited. Additionally, few participants reported gains related to increased foreign investment and capital, which was a key objective of the program. A more in-depth analysis of the mechanisms behind these impacts is provided below.

SMART MOBILITY AND BATTERIES FROM FINLAND

Similar to the New Space Economy program, participants in the Smart Mobility and Batteries from Finland program also primarily experienced impacts related to increased competitiveness and exports. As illustrated in the figure below, 22 percent of participants highlighted increased competitiveness, and 14 percent reported enhanced export

activities. These percentages are somewhat lower compared to the New Space Economy program, where the figures were 29 and 21 percent, respectively. Given that more participants in the Smart Mobility and Batteries from Finland program reported achieving results from their involvement compared to the New Space Economy program (see chapter 6.2), this finding is particularly interesting.

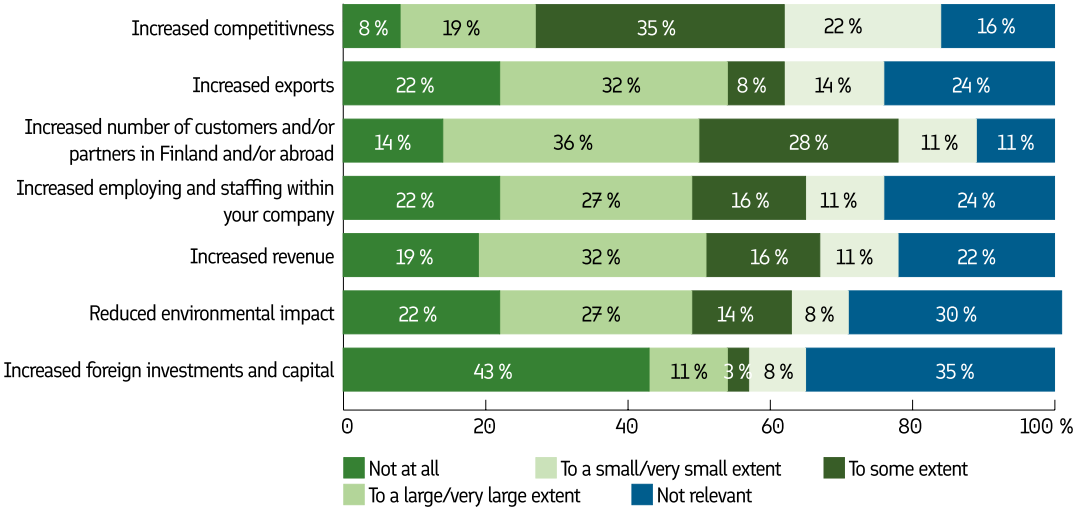


FIGURE 6-7: TO WHAT EXTENT HAS THE SMART MOBILITY AND BATTERIES FROM FINLAND PROGRAM CONTRIBUTED TO TRIGGER THE FOLLOWING IMPACTS FOR YOUR COMPANY? N=36-37. SOURCE: SURVEY BY MENON ECONOMICS (2024)

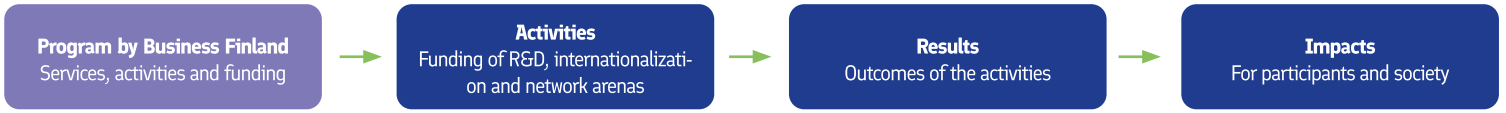
Other impacts for participants in the Smart Mobility and Batteries from Finland program include an increased number of customers and/or partners in Finland and abroad (11 percent), a rise in staffing within their company (11 percent), and increased revenue (11 percent). Similar to the New Space Economy program, very few participants reported an increase in foreign investments and capital.

MECHANISMS OF IMPACTS

The impacts experienced by companies are linked to a variety of factors, including the outcomes they have achieved and the activities they have participated in. The figure below illustrates the result chain, showing how the program organisation and activities offered lead to results and impacts for participants. This result chain is important when investigating the mechanisms behind the impacts that we see. In the following sections, we will examine each of these elements and their potential influence on impacts. [20]

20 We refer to Appendix C for a table that illustrates the connection between each result and its corresponding impact.

FIGURE 6.8: ILLUSTRATION OF THE RESULT CHAIN



WHICH *RESULTS* HAVE CONTRIBUTED TO IMPACTS?

In Chapter 6.2, we outlined several outcomes reported by participants after engaging in the programs. But can we discern any patterns regarding which results contributed to the impacts experienced by participants? Our analyses suggest a connection between the following results and impacts: For participants in both programs, **increased competitiveness** has been an important impact. Several outcomes have been important here, with the most apparent pattern linked to technological development. This connection likely stems from both programs targeting industries (space, mobility, batteries, etc.) that have experienced substantial technological progression in recent years. Thus, companies from these sectors, that have successfully developed and/or implemented new technology, have consequently enhanced their competitiveness.

- Participants who reported experiencing **reduced environmental impact** also show results associated with increased innovation/research, technical development, and new business models. We consider these outcomes essential for facilitating green transition. Innovation/research and technical development play a crucial role in creating new green technologies, while new business models are central to a transition that may require changes in production methods or the alteration of products and target markets.
- Participants reporting an **increased number of customers** also frequently demonstrate results related to enhanced knowledge of the ecosystem and access to networks. These factors collectively lay the groundwork for increased collaboration with potential customers.
- As highlighted above, some participants have noted **increased exports** as an impact. For these individuals, particularly within the New Space Economy, strengthened international relations have been crucial.

WHICH *ACTIVITIES* DO PARTICIPANTS BELIEVE HAVE CONTRIBUTED TO THEIR PERCEIVED IMPACTS?

As previously presented, activities have led to results, which in turn have led to impacts. But which types of activities do participants themselves consider crucial for achieving these impacts? Among participants in Smart Mobility and Batteries from Finland, networking and ecosystem

activities are highlighted as particularly important. Nearly 45 percent report that these activities have triggered these effects, as presented in the graph below. This finding underscores the importance of such activities, which facilitate experience exchange and collaboration. These activities are crucial for generating synergies and enabling interactions among actors with complementary capabilities, whether vertically or horizontally, as discussed in Chapter 4. Networking and ecosystem activities have also been important for some participants in the New Space Economy. However, as the graph indicates, the proportion is not as high compared to Smart Mobility and Batteries from Finland. This is somewhat surprising, as previously noted, given that the New Space Economy program was perceived as filling a gap for this industry, where there were few other meeting places, particularly for startups.

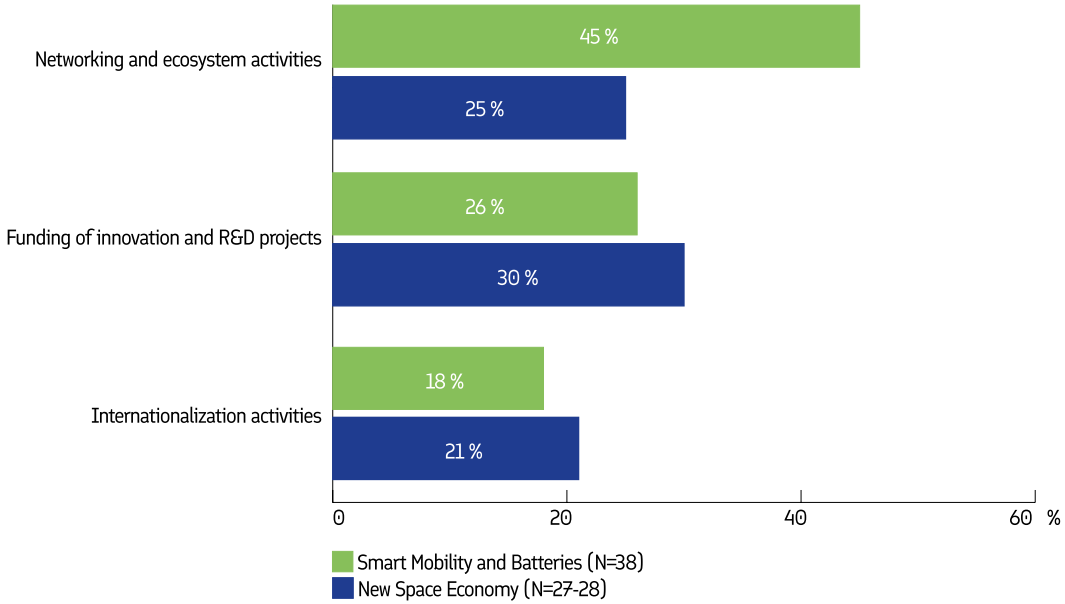


FIGURE 6-9: "TO WHAT EXTENT HAVE THE FOLLOWING ACTIVITIES OF THE PROGRAM TRIGGERED THE AFOREMENTIONED EFFECTS AND IMPACTS?" (TO A LARGE/VERY LARGE EXTENT). SOURCE: SURVEY BY MENON ECONOMICS (2024)

Additionally, the figure illustrates that other types of activities, such as innovation and R&D projects, as well as internationalization activities, have also been somewhat important for the impacts achieved. This supports our earlier findings related to additionality (see Chapter 6.1), where we found that these types of activities have been moderately significant for the companies' efforts in innovation and their global expansion initiatives.

Do we find any insights when connecting these activities to the specific impacts participants have experienced? The most evident pattern emerges in relation to increasing the number of customers, where networking and ecosystem activities have been crucial in triggering this impact. Similarly, in terms of exports, both internationalization activities and networking/ecosystem initiatives have played significant roles. None of these findings are particularly surprising, as the connections are relatively clear.

7. ADMINISTRATION, STAKEHOLDER PARTICIPATION AND BOTTLENECKS

Stakeholders are viewed as central players in the programs as they make significant contributions to the program, its activities and services. Our findings indicate that the participants of both programs are generally satisfied with the level of stakeholder involvement and collaboration. This raises the question of whether the programs could benefit from utilizing external stakeholders for managing or organizing activities such as networking. This is especially relevant considering the administrative resource limitations faced by Business Finland. According to the participants, the program has generally been administrated well by Business Finland. However, fewer participants from the New Space Economy program see the necessity that it is Business Finland that should administer such networking activities. The fact that a significant number of participants in the New Space Economy program believe that networking activities could have been conducted by external stakeholders raises questions about whether it is necessary for Business Finland to organize these activities. Stakeholder

collaboration and partnerships in network activities can significantly enhance resource efficiency, thereby expanding Business Finland's impact. However, important implications and practical recommendations must be considered regarding the extent and modes of stakeholder collaboration

Stakeholders are viewed as central players in the programs as they make significant contributions to the program, its activities and services. In this chapter, we investigate their participation and contributions. We also explore the extent to which they could have carried out some of the activities and services provided by the programs. The latter is crucial as it indicates the relevance of the programs and whether someone else could have taken on their roles in the absence of public intervention.

OVERVIEW OF STAKEHOLDERS IN THE TWO PROGRAMS

The Smart Mobility and Batteries program has identified its stakeholders in its Final Report as follows:

- **Research institutions and universities:** LUT University, Satakunta University of Applied Sciences, University of Turku and Aalto University
- **Government:** Ministry of Economic Affairs and Employment, Ministry of Transport and Communications
- **Other:** ITS Finland ry, European Battery Alliance, Nordic Battery Collaboration, Sustainable Growth Program and Confederation Finnish Industries (EK)

In the case of the New Space Economy program, the identification of stakeholders is less straightforward. Based on publicly available information, we understand that the following actors can be identified as stakeholders, although this list is likely not exhaustive:

- **Research institutions and universities:** LUT University, Tempere University, University of Helsinki, University of Oulu, University of Turku, Aalto University, University of Vaasa and Finnish Centre of Excellence in Research of Sustainable Space
- **Government:** Ministry of Economic Affairs and Employment, Ministry of Transport and Communications, Ministry of Defence, Ministry for Foreign Affairs of Finland
- **Other:** Europan Space Agency (ESA), Digital Trust Finland program, Finnish Defense and Aerospace Industries (PIA)

7.1. THE POTENTIAL ROLE OF STAKEHOLDERS IN SUCH PROGRAMS

Stakeholder collaboration and partnerships offer numerous advantages in a program managed by Business Finland. Such collaborations bring together diverse expertise, resources, and perspectives, fostering an environment of innovation and creativity. Moreover, collaborative efforts can streamline processes and improve efficiencies, leading to more effective and impactful project outcomes. Overall, stakeholder collaboration and partnerships drive synergy and sustainability, maximizing the program's potential to achieve its goals and benefit all parties involved. These aspects are emphasized in the bullet points below:

- Diverse Expertise and Resources: Collaboration among stakeholders brings together a wide range of skills and knowledge, sparking new ideas and innovative solutions. By leveraging collective expertise and resources, projects can be developed more effectively and creatively.
- Access to New Markets and Networks: Through collaboration, companies can gain access to a broader spectrum of networking opportunities and new markets, enhancing their international growth and competitiveness. Partnerships can open doors to new customers and collaborators both locally and internationally.
- Increased Efficiency and Process Streamlining: By working together, stakeholders can optimize processes and leverage best practices, leading to more efficient project execution. This helps to reduce time and costs while improving the quality of project outcomes.
- Synergy and Sustainability: Collaborative partnerships foster synergy, contributing to more sustainable solutions that benefit all parties involved. Such cooperation can lead to lasting partnership relationships and strengthen collective efforts to achieve the program's goals.

A relevant question in this context is the extent to which stakeholders have genuinely contributed to achieving the programs' goals and the impacts experienced by participating companies. Unfortunately, we have limited information on these aspects. However, we have explored how program participants themselves evaluate the collaboration and involvement of stakeholders. These insights may provide some indication of the stakeholders' contributions to these programs.

7.2. STAKEHOLDERS' INVOLVEMENT AND COLLABORATION

In the survey conducted for this report, we assessed participants' perceptions regarding stakeholder collaboration

within the program, as well as the extent of stakeholder and ecosystem involvement. Our findings suggest that participants are generally satisfied with the degree of stakeholder involvement and collaboration.

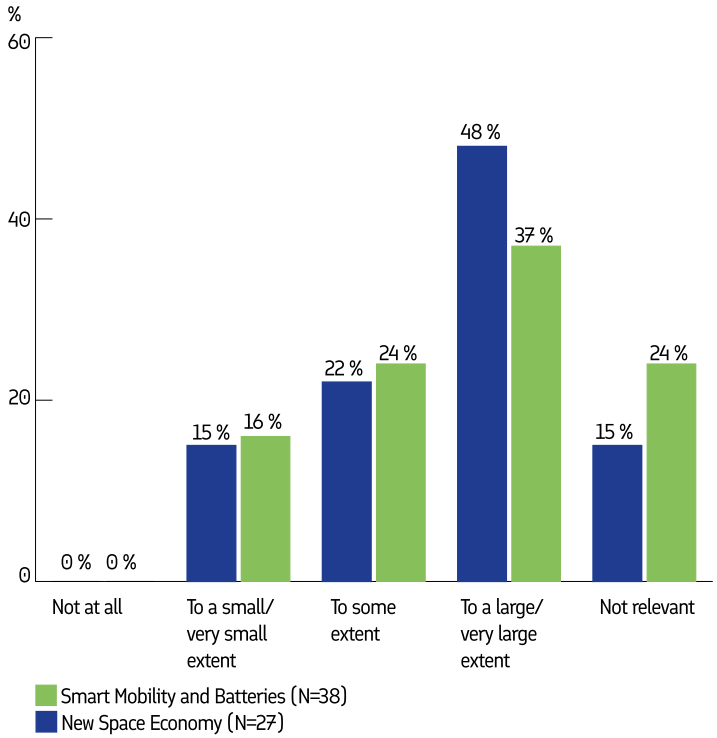


FIGURE 7-1: TO WHAT EXTENT DO YOU BELIEVE THE FOLLOWING STATEMENT IS TRUE: "THE PROGRAM COLLABORATED WELL WITH EXTERNAL STAKEHOLDERS (SUCH AS ACADEMIA, AUTHORITIES, ETC)". SOURCE: SURVEY BY MENON ECONOMICS (2024)

A majority from both programs reported that the program collaborated well with external stakeholders, such as academia, authorities, and similar entities. This is illustrated in the graph below. However, our findings reveal that the New Space Economy program has been somewhat more successful in collaborating with external stakeholders. This is evidenced by 48 percent of participants indicating this, compared to 37 percent of participants in the Smart Mobility and Batteries from Finland program. Nevertheless, the differences between the two programs are somewhat small.

Regarding stakeholder involvement in the programs, we find a similar pattern. A larger share of participants in New Space Economy (48 percent) than in Smart Mobility and Batteries from Finland (32 prosent) indicate that external stakeholders and other ecosystems were sufficiently involved in the program.

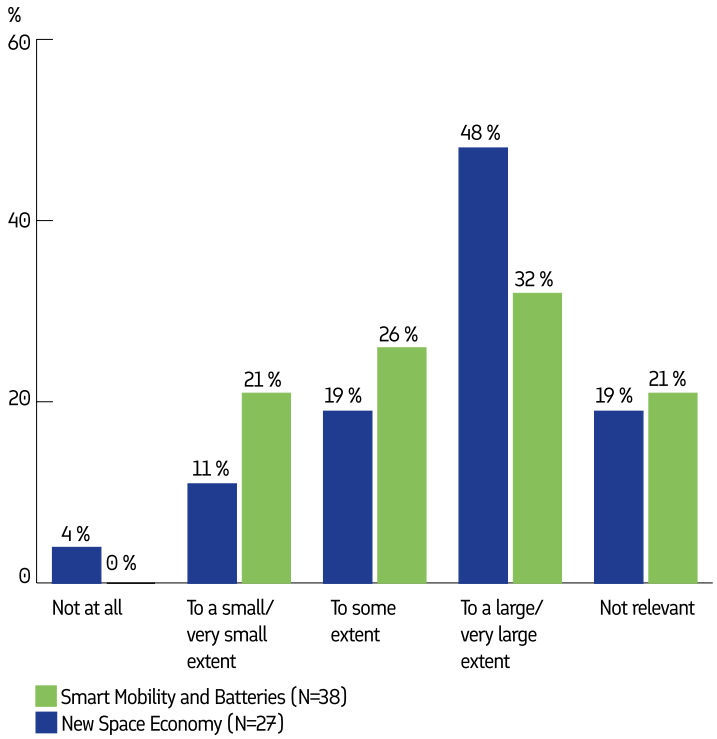


FIGURE 7-2: TO WHAT EXTENT DO YOU BELIEVE THE FOLLOWING STATEMENT IS TRUE: "EXTERNAL STAKEHOLDERS AND OTHER ECOSYSTEMS WERE SUFFICIENTLY INVOLVED IN THE PROGRAM". SOURCE: SURVEY BY MENON ECONOMICS (2024)

Assessing why participants in the New Space Economy program appear more satisfied with stakeholder involvement and collaboration than those in the Smart Mobility and Batteries from Finland program is somewhat challenging. However, several possible explanations exist. One reason is likely linked to the New Space Economy's close connection with ESA and the incubator as key stakeholders, which has been visible to participants. Another reason could stem from the scope of the two programs. Smart Mobility and Batteries from Finland was a larger and more expansive program with significantly more participants. This results in more potential ecosystems to collaborate with, and participants might feel that the project does not necessarily engage with the stakeholders most relevant to their specific segment of the mobility and batteries sectors. This could make effective collaboration and involvement more difficult to achieve. Nevertheless, this finding is somewhat surprising, given the significant focus Smart Mobility and Batteries from Finland has placed on identifying and engaging with ecosystems.

7.3. ADMINISTRATIONAL CONSTRAINT AS A BOTTLENECK

During this evaluation we have assessed whether there have been any critical bottleneck or obstacles. There is little evidence of other critical bottlenecks aside from administrative constraints. Only a few resources were dedicated full-time to the project, while others were shared across different programs, campaigns, or responsibilities. Feedback from those in the program's administration indicated that this was an issue, as there were not enough resources to

carry out all the desired activities. We assess that the perceived bottlenecks are linked to the time-intensive nature of many program activities. This includes not only the administrative tasks of planning and executing activities but also the efforts involved in mobilizing and following up with participants, including gathering feedback on their needs. Furthermore, resources are needed to prioritize and oversee the allocation of funding. Overall, this points to a significant administrative burden. This is further emphasized as the programs are considered as broad related to their service offerings (see chapter 5), where many types of activities and services are being conducted. In addition, it has been pointed out that there is a resource constraint also among the expert resources used by the programs. Although this constraint is less visible than within the administration.

One approach to resolving such bottlenecks is to delegate certain responsibilities to other parties, particularly network activities. We highlight network activities because these types of initiatives are already partially conducted by other stakeholders like ecosystem partners. Moreover, there are existing examples of government financial support to the administration of such activities, such as Norway's cluster program by Innovation Norway. In the following subchapter, we further evaluate this possibility, specifically the extent to which Business Finland can benefit from delegating network responsibilities, considering participants' own perspectives.

The text box below provides insights into the administrative setup of the two programs managed by Business Finland.

THE ADMINISTRATION OF THE TWO PROGRAMS (INFORMATION FROM THE PROGRAMS' FINAL REPORT)

New Space Economy: The administration of the New Space Economy program consisted of a total of maximum 2,5 full-time equivalents over the years, although the number of full-time equivalents has been somewhat lower during certain periods. During the period, half of a full-time equivalent from realized resources was not designated for the program, while the rest worked directly on the program. The administration has included a full-time Head of Program, two 50 precent positions as Program Coordinators (Trainees), a 50 precent position focusing on Export Promotion and one 50 precent position focusing on Invest In.

Smart Mobility and Batteries from Finland: The program was led by a full-time Head of Program, while the other team members were part-time employees, allowing them to engage in multiple programs. Overall, a total of 15 people worked on the program, with most holding 30 percent or 50 percent positions. The program administration included a Program Coordinator at 50 percent of a full-time equivalent (FTE), ~~7~~0percent FTE dedicated to Business Ecosystems, and 1.9 FTEs working on Innovation Ecosystems. Approximately one FTE focused on exports, and about one FTE concentrated on investments. Additionally, a 30 percent position worked on EU Collaborations, a 50 percent FTE handled MarCom, and roughly a 30 percent position supported focus markets. The focused market support group included twelve different people from the Global Growth unit.

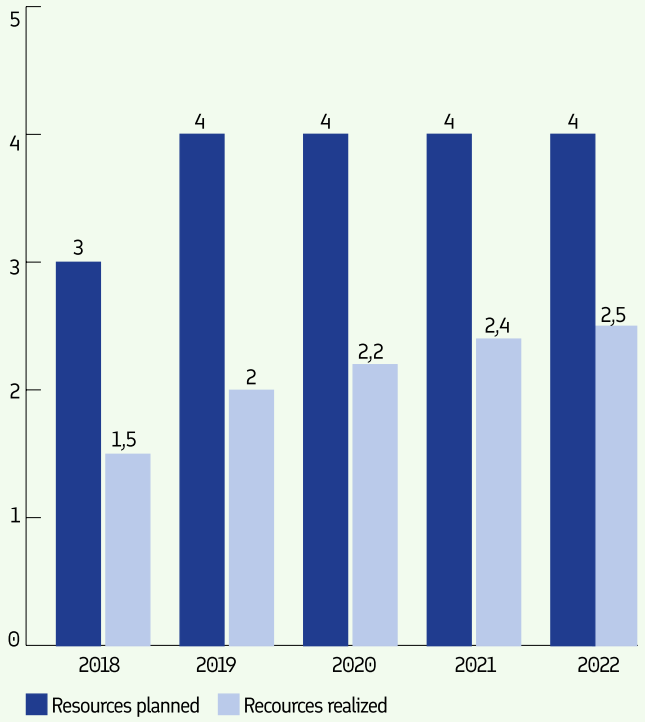


FIGURE ~~7~~-3: HUMEN RESOURCES (FULL TIME EMPLOYEES) IN NEW SPACE PROGRAMS DURING ITS OPERATIONS. SOURCE: BUSINESS FINLAND, PROCESED BY MENON ECONOMICS

7.4. COULD BUSINESS FINLAND BENEFIT FROM DELEGATING NETWORK RESPONSIBILITIES?

As highlighted above, stakeholders are viewed as central players in the programs as they make significant contributions to the program, its activities, and services. This raises the question of whether the programs could benefit from utilizing external stakeholders, and especially ecosystems, for managing or organizing activities such as networking. Such a question is relevant from a resource allocation perspective, as organizing these activities requires significant resources. In other words, is it necessary for Business Finland to organize these activities, or could this responsibility be delegated to others?

In this section, we take a closer look at the extent to which participants feel that the program was well-managed by Business Finland and whether it is necessary for Business Finland to manage network activities, rather than external stakeholders and ecosystems. The former is important for assessing how well the program has been administered. The latter is crucial because it is harder to justify public administration in a situation where the users prefer external stakeholders and ecosystems to do the job. Our findings reveal that a large share of the participants find that the programs was administrated well from Business Finland. This is illustrated in the graph below, where around 2 out of 3 participants report that the programs were to a large/very large extent administrated well from Business Finland.

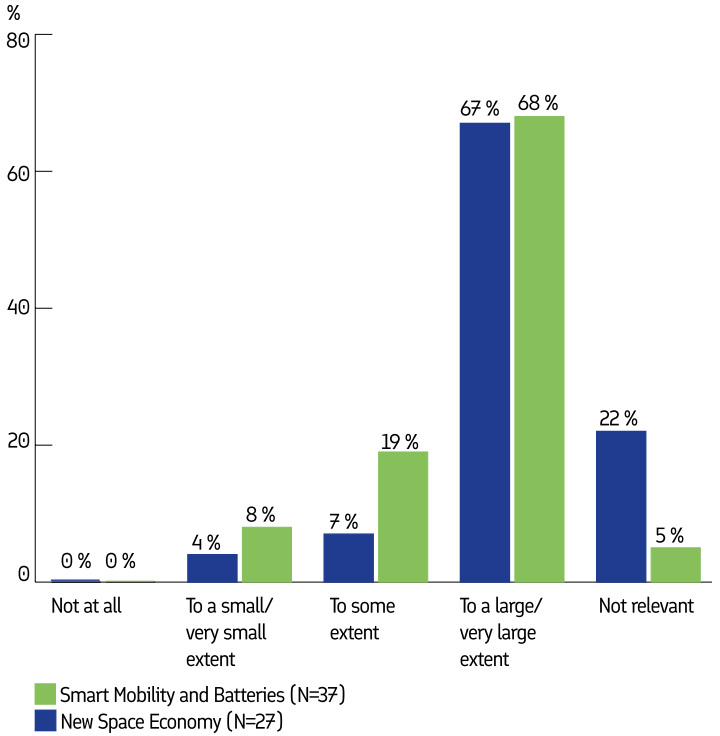


FIGURE 7-4: TO WHAT EXTENT DO YOU BELIEVE THE FOLLOWING STATEMENT IS TRUE: "THE PROGRAM WAS ADMINISTRATED WELL FROM BUSINESS FINLAND". SOURCE: SURVEY BY MENON ECONOMICS (2024)

However, participants of the two programs hold differing opinions on whether Business Finland should be responsible for administering networking activities, as opposed to external stakeholders or ecosystems. As illustrated in the figure below, fewer participants in the New Space Economy program feel that Business Finland needs to manage these networking activities. In contrast, a larger proportion of

participants in the Smart Mobility and Batteries from Finland program perceive a need for Business Finland to take the lead in managing these activities.

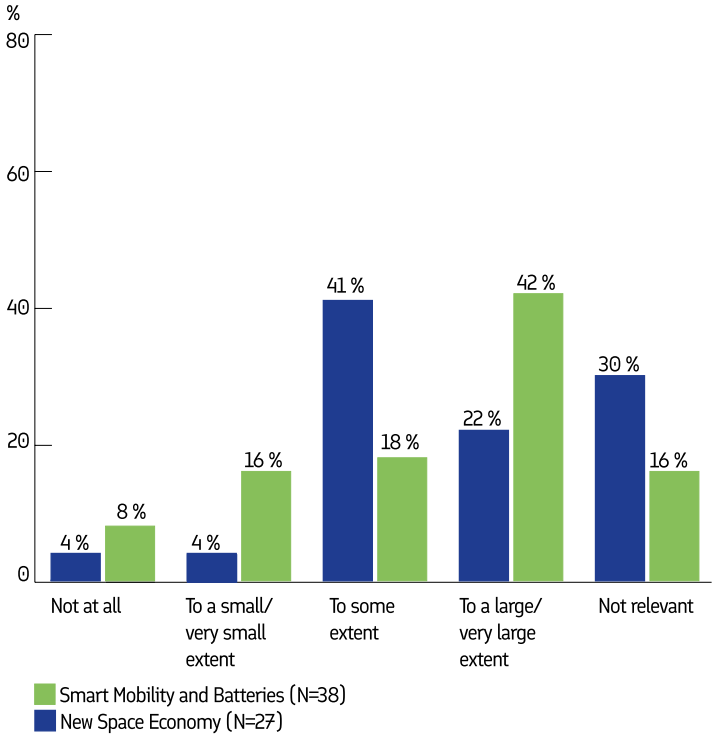


FIGURE 7-5: TO WHAT EXTENT DO YOU BELIEVE THE FOLLOWING STATEMENT IS TRUE: "THE NETWORKING ACTIVITIES NEED TO BE ADMINISTRATED FROM BUSINESS FINLAND, AND NOT EXTERNAL STAKEHOLDERS". SOURCE: SURVEY BY MENON ECONOMICS (2024)

Several factors may contribute to this distinction between the two programs. One reason why a significant proportion of participants in the New Space Economy program believe networking activities could have been facilitated by external stakeholders or ecosystems is likely due to the extensive collaboration and involvement with other ecosystems, as highlighted earlier in this chapter. These ecosystems already provide a solid foundation for conducting such activities. In contrast, for the Smart Mobility and Batteries from Finland program, the broader scope of the sector it targeted may explain why there is a stronger belief that Business Finland should lead these activities. As discussed in Chapter 3, after the program concluded, networking activities were increasingly managed by other ecosystems, often with a narrower focus—whether geographically or on specific segments. This shift means that comprehensive networking events, where a diverse range of companies might engage, occurred less frequently. In the context of relational prerequisites and complementarities discussed in Chapter 4, this reduction limits opportunities for cross-segment collaboration. By managing these activities within a broad program, Business Finland enabled valuable exchange of experiences across different segments and technologies.

7.5. IMPLICATIONS AND PRACTICAL RECOMMENDATIONS REGARDING STAKEHOLDER COLLABORATION

As discussed earlier, stakeholder collaboration and partnerships in network activities can significantly enhance resource efficiency, thereby expanding Business Finland's impact. However, important implications and practical recommendations must be considered regarding the extent and modes of stakeholder collaboration.

Firstly, networks are essential for engaging and mobilizing the right actors and ensuring the participation of appropriate companies. Regional ecosystems or stakeholders with direct ties to specific segments are often better suited than Business Finland to accomplish this. Their in-depth understanding of local dynamics and industry-specific needs allow them to engage and attract relevant participants more effectively. Likewise, these stakeholders are often closer to the industry itself, enabling them to better understand its needs. Furthermore, involving stakeholders with established connections in academia or research can facilitate partnerships that foster innovation and lead to collaborative research projects, thereby enhancing the overall impact of Business Finland's initiatives.

Additionally, there are significant synergies to be gained from aligning network activities with other sector-specific work that stakeholders are involved in. By tapping into ongoing projects, research efforts, and industry initiatives, stakeholders can create complementary strategies that not only support Business Finland's goals but also enhance the broader ecosystem.

On the downside, there can be negative implications if the collaboration is limited to organizations with a strong regional or narrow segment focus. This approach might result in certain companies feeling excluded or not targeted, especially if they do not align with those specific regional or segment priorities. To successfully mobilize a broad range of participants, it is beneficial to involve multiple stakeholders or ensure that the engaged stakeholders have a national scope and appeal.

Thus, our practical recommendations regarding stakeholder collaboration are as follows:

- **Leverage regional and sector-specific Expertise**: Collaborate with regional ecosystems and sector-specific stakeholders who possess a deep understanding of local dynamics and industry needs. This approach will ensure the engagement of relevant participants and foster effective mobilization across diverse sectors.
- **Include a diverse range of stakeholders**: To avoid exclusion and ensure broad participation, involve a diverse range of stakeholders, including those with national reach. This strategy will mitigate the risk of limiting collaboration to narrowly focused organizations and ensure inclusivity across various companies and segments.
- **Align with other sector-specific efforts**: Coordinate network activities with ongoing sector-specific projects and initiatives that stakeholders are engaged in.

8. ASPECTS OF SUSTAINABILITY

Sustainability is central to Business Finland's strategy for 2025 and is integrated into various offerings like the Smart Mobility and Batteries from Finland program, which targets industries with significant environmental impacts and fosters green technology development. On the other hand, the New Space Economy program focuses on the space industry, where sustainability aspects are less prevalent. The programs have had limited success in reducing participants' environmental impact. Only 8 percent of Smart Mobility and Batteries from Finland participants, and 14 percent of New Space Economy participants reported substantial environmental benefits due to participation. This is somewhat unexpected given the former's stronger emphasis on green transition initiatives.

Sustainability is a broad concept that can encompass various aspects of sustainable development. For instance, it can include the extent to which the results and impacts achieved by participants from their involvement in the program are lasting (see chapter 6). It can also cover social

sustainability and the degree to which the program considers social interests. However, we will focus on sustainability related to climate and the green transition, specifically examining how well the programs support activities and business growth that align with the green transition and the Finnish government's climate goals.

8.1. THE PROGRAMS' ALIGNMENT WITH ENVIRONMENTAL CONSIDERATIONS AND THE GREEN TRANSITION

In this section, we will examine the extent to which the programs' objectives have been aligned with sustainable aspects, including environmental considerations. But first, we present a brief overview of Business Finland's focus in this area.

Sustainability is central to Business Finland's strategy for 2025, outlined in "Finland Defining the Future."[21] The primary purpose of Business Finland is to generate prosperity for Finland by accelerating the sustainable growth of its clients globally. Alongside economic growth and competitiveness, sustainability is one of the three equally important core areas of the strategy. As emphasized by Business Finland, sustainability is a prerequisite for long-term economic growth. This involves enhancing companies' ecological, social, and economic sustainability and supporting clients in developing solutions that contribute positively to the UN's Sustainable Development Goals. Furthermore, sustainability and the green transition are consistent themes in Business Finland's missions, such as "circular transition for zero waste" and a "zero carbon future."[22]

Business Finland operationalizes this strategy through its offerings, such as programs, services, and campaigns. Some of Business Finland's programs specifically target new green technologies, while others are more indirectly related. Therefore, to what extent do the two programs we evaluate focus on the environment and the green transition?

- The **Smart Mobility and Batteries from Finland program** targets several sectors and industries directly connected to significant environmental impacts, where new green technologies are being developed. These include the battery industry, electrification, electric vehicles, smart mobility solutions, and logistics. The program focuses on Finnish companies investing in low-emission and resource-efficient mobility chains for people and goods, as well as solutions that can contribute to reduced emissions and minimize resource usage, and those that reduce

21 https://www.businessfinland.fi/en/for-finnish-customers/strategy
22 https://www.businessfinland.fi/en/for-finnish-customers/about-us/business-finlands-missions

dependence on fossil fuels. It also seeks to engage participants across all parts of the battery value chain. Therefore, we assess that the program largely focuses on sectors and solutions that contribute to the green transition and are aligned with environmental considerations.

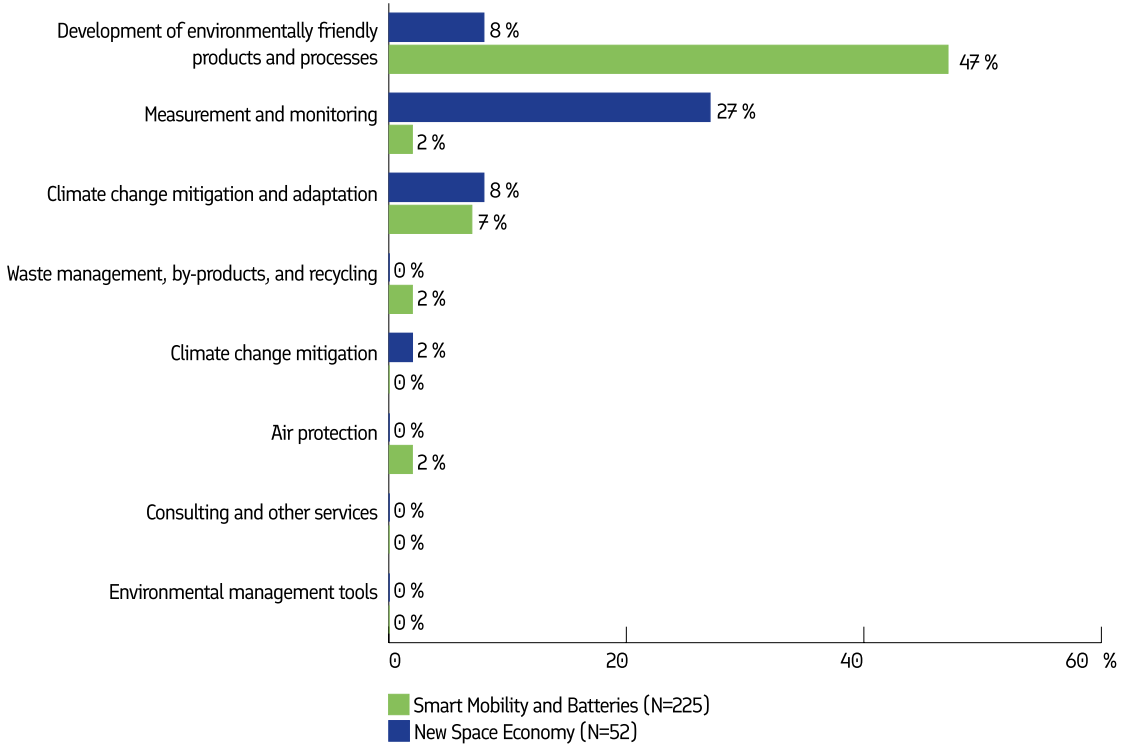


FIGURE 8-1: SHARE OF FUNDING DECISIONS CLASSIFIED UNDER DIFFERENT ENVIRONMENTAL CATEGORIES. SOURCE: DATA FROM BUSINESS FINLAND (2024), PROCESSED BY MENON ECONOMICS

- The **New Space Economy program** differs from the Smart Mobility and Batteries from Finland program in this respect. The New Space Economy program targets the space industry, where the green transition is less of a focal point and the development of green technologies is less dominant. However, like all other industries, the space industry will be affected by upcoming emissions regulations. Consequently, it will both indirectly contribute to and be influenced by the green transition.

8.2. ENVIRONMENTAL FOCUS AND IMPACT

In this subsection, we will examine the extent to which the projects receiving funding decisions from the programs has been classified as environmental, specifically, to what extent the funded projects have had an environmental focus. Furthermore, we will assess to what degree participants in the programs believe that the program has contributed to triggering environmental impacts.

According to project funding data from Business Finland, 60 percent of the funding decisions from Smart Mobility and Batteries from Finland and 44 percent from New Space Economy are classified as environmental.[23] Funding decisions categorized as environmental, are divided into various subcategories. This is illustrated in the figure below.

23 *This accounts for all categories except for "no environmental effect", "more specific environmental effect not provided", "other", and those without information.*

As shown in the figure, 47 percent of the funding decisions from Smart Mobility and Batteries from Finland are allocated to projects focused on the development of environmentally friendly products and processes. For New Space Economy, measurement and monitoring (27 percent) is the most common environmental category. In addition, 60 percent of the funding decisions from Smart Mobility and Batteries from Finland have been allocated to projects with natural resources and resource efficiency – cleantech as their thematic focus area, see Appendix B.

In Chapter 6, we analyzed a range of outcomes and impacts that participants in the two programs might have experienced after engaging in program activities. One of the areas of impact examined was whether the program contributed to reducing environmental impact. As illustrated in the figure below, the majority of participants in both programs reported that this impact was not relevant to them. This suggests either that environmental considerations are not pertinent to the operations of their businesses, or that the company did not engage in activities with this agenda. What about the rest of the sample? We found that participation in the programs has contributed only minimally to reducing environmental impact among participants. For instance, only 8 percent of participants in the Smart Mobility and Batteries from Finland program reported experiencing this impact to a large or very large extent. This percentage is lower than that of the New Space Economy program, where 14 percent reported significant impact. This is somewhat surprising, given that, as noted above, Smart Mobility and Batteries from Finland is more closely aligned with the green transition and environmental impact than New Space Economy.

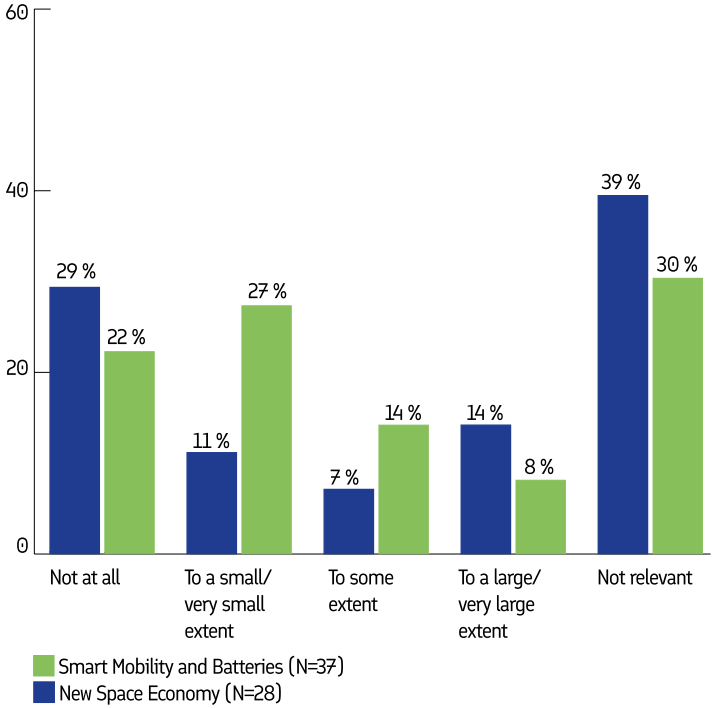


FIGURE 8-2: TO WHAT EXTENT HAS THE PROGRAM CONTRIBUTED TO TRIGGER THE ENVIRONMENTAL IMPACT FOR YOUR COMPANY? SOURCE: SURVEY BY MENON ECONOMICS (2024)

9. CONCLUSION

In the following we will present our conclusion to the report. First, we will present the overall findings of our work, before we investigate whether or not participants were satisfied with the program. Lastly, we look into the programs goals and highlight whether or not they have been met.

9.1. BRIEF OVERVIEW OF THE OVERALL FINDINGS OF THE REPORT

We have evaluated two programs, each with its distinct focus yet sharing similar overarching goals. Both the New Space Economy program and the Smart Mobility and Batteries from Finland program aim to enhance competitiveness, exports, innovation/R&D, and strengthen ecosystems and business model development. Despite these shared objectives, notable differences exist between the programs. The New Space Economy program focused specifically on the Finnish space industry, whereas the Smart Mobility and Batteries from Finland program encompassed a broader range of companies in smart mobility, logistics, and battery technology. This difference is also evi-

dent in participation and funding levels: Smart Mobility and Batteries from Finland had significantly more participants and provided substantially more funding for innovation and research projects.
In pursuit of their goal, both programs have conducted similar activities such as funding innovation and R&D projects, internationalization efforts, and network and ecosystem activities. The latter, ecosystem activities, attracted the most participation, likely explaining the common outcome reported by participants: improved understanding of the industry ecosystem and access to networking opportunities. These results align with participants' initial motivations for participation, which heavily emphasized networking.

Furthermore, participants in both programs cited increased competitiveness as the most significant impact, with improved technical development and access to R&D/innovation projects being key mechanisms contributing to this. However, there are differences beyond the scope of the programs' focus. For instance, the export perspective was particularly crucial for the New Space Economy, which is evident in some of our findings. Additionally, while participants in the Smart Mobility and Batteries from Finland program generally reported more tangible results from their participation, it was those in the New Space Economy who experienced the most significant impact.

Stakeholder participation is a central aspect, as stakeholders make substantial contributions to the program, its activities, and services. Our findings indicate that participants of both programs are generally satisfied with the level of stakeholder involvement and collaboration. Given a critical bottleneck we identified—resource constraints in the program—it is reasonable to consider whether external stakeholders, such as ecosystems, could assume some of the programs' tasks. This is further emphasized as the programs are considered as broad related to their service offerings, where many types of activities and services are being conducted. We particularly see potential for this in network activities, supported by feedback from program participants who noted that it is not necessarily essential for Business Finland to organize these. However, before delegating such tasks, it is important to consider the implications and precautions necessary, such as avoiding the exclusion of individual actors.

9.2. GENERAL SATISFACTION WITH THE PROGRAMS

In the following section, we will examine the overall satisfaction with the program. High satisfaction among participants indicates that they perceive the activities and services as relevant, well-executed, and capable of delivering the desired outcomes in terms of results and impacts for the participants. Overall, we find that the participants have largely been satisfied with the programs.

In the New Space Economy program, 43 percent of participants express a high or very high level of satisfaction, as depicted in the figure below. This indicates that a some-

what high level of satisfaction with the program, despite 4 percent expressing total dissatisfaction and 14 percent reporting minimal satisfaction. Similarly, in the Smart Mobility and Batteries from Finland program, 50 percent of participants report being highly or very highly satisfied.

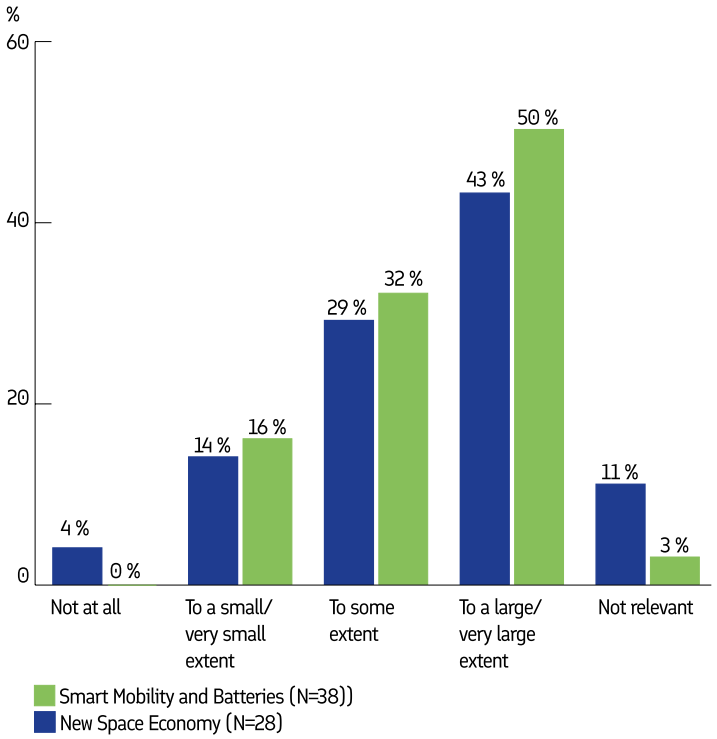


FIGURE 9-1: LOOKING BACK, TO WHAT EXTENT WERE YOU SATISFIED WITH THE PROGRAM AND IT'S ACTIVITIES/SERVICES? SOURCE: SURVEY BY MENON ECONOMICS (2024)

While most participants are content with this program as well, 16 percent indicate only a small or very small degree of satisfaction.

9.3. HAVE THE GOALS OF THE PROGRAM BEEN MET?

To assess the extent to which the goals and objectives of the programs have been fulfilled, we have compiled information on the execution of various sub-targets, see the table below. This provides an overview of the targets, the corresponding activities and services undertaken to achieve these goals, and the results and impacts that highlight the level of goal attainment.

In general, we find that the programs have dedicatedly addressed all aspects of their objectives. However, there are variations across different aspects, and as described in the table below, some objectives have seen fewer results than others. One example of this is the development of new business models. This area, however, is more challenging to measure and has fewer explicit activities associated with it. In other words, this is an area that is less likely to be bolstered by arranging delegation trips, as is done for international activities aimed at increasing exports. Developing new business models requires a more internal effort by the companies participating in the program.

OBJECTIVE: TO MAKE FINLAND THE WORLD'S MOST ATTRACTIVE AND AGILE SPACE BUSINESS ENVIRONMENT THAT BENEFITS ALL COMPANIES OPERATING HERE, BY 2025	
Sub-targets	**Execution**
Increased exports and presence at international markets	The program has organized international delegations to export markets to promote Finnish companies in the sector. Market research has been conducted for foreign markets, and ecosystems have been developed to strengthen collaboration for increased export initiatives. The program has carried out a variety of internationalization activities to attract attention, customers, and foreign capital to Finnish companies in the space sector. Our research indicates that there is significant additionality from the program's internationalization activities, and these activities would have been carried out to a lesser extent, later, or not at all without the activities and services of the New Space Economy program. In the survey distributed to participants, 22 percent reported that the program has led to an impact in increased export.
Accelerate innovation and R&D	The New Space Economy has overall triggered 59.3 million EUR in funding of innovation and R&D projects, with 38.2 million EUR contributed by Business Finland, while 21.1 million EUR represents self-financing from the participating companies. Finnish universities and research institutes are stakeholders in the New Space Economy program and are highly involved in space research and the development of instruments for space missions. The survey distributed to the recipients of the funding shows that the funding of research and innovation projects is characterized by significant additionality. Specifically, 18 percent of respondents indicated that they would not have undertaken the project without the funding, and 27 percent reported that they would have carried out the project to a lesser extent and at a higher cost. Moreover, notable results were observed in innovation and R&D, with 33 and 30 percent of participants, respectively, stating that the New Space Economy program significantly improved conditions for their organization's participation in research/innovation projects and technical development/innovation to a large/very large extent.
Build competitive ecosystems	The program has mapped and strengthened several relevant ecosystems for its participants. Numerous networking and ecosystem activities have been conducted to bring the industry together and facilitate networking among actors within the space industry. Notably, the program has facilitated the Space Business Forum, which has served as an especially important meeting place for participants and stakeholders across business, academia, and government. Participants in the New Space Economy program reported significant results in terms of knowledge about the ecosystem and access to networking arenas, with 44 and 37 percent of participants reporting results in these areas to a large/very large extent.
Development of new business models	The program has maintained a strong focus on developing new business models through several of its activities and services. Primarily, the program has facilitated the development of new products and services by funding innovation and R&D. It has also provided opportunities for stakeholders and participants to come together for idea exchange and collaboration through networking and ecosystem activities. The program's significant emphasis on start-up companies and its connection to ESA's incubator center in Finland has likely contributed to the realization of new business models and the establishment of new companies. However, we observe that a small percentage of participants in the survey report that their involvement in the program has led to the development of new business models.

FIGURE 9-2: OVERVIEW OF MAIN OBJECTIVE, SUB-TARGETS, AND EXECUTION FOR NEW SPACE ECONOMY PROGRAM

OBJECTIVE: BUILD FINLAND'S POSITION AS A LEADING COUNTRY OF SUSTAINABLE SOLUTIONS IN LOGISTICS, MOBILITY AND BATTERY SYSTEMS	
Sub-targets	**Execution**
Increased exports and presence at international markets	The program has facilitated the organization of international delegations to export markets to promote Finnish companies within the sector. Market research has been conducted for foreign markets, and ecosystems have been mapped developed to enhance collaboration and support increased export initiatives. A variety of internationalization activities have been undertaken by the program to draw attention, secure customers, and attract foreign investment to Finnish companies in the smart mobility and batteries sector. Our research indicates that there is notable additionality from the program's internationalization efforts and that these activities would have been carried out to a lesser extent, later, or perhaps not at all without the support of the Smart Mobility and Batteries from Finland program. In a survey distributed to participants, 12 percent reported that the program has led to an impact in increased export. This may suggest that the program has been less effective in achieving increased export as a goal, although it has likely contributed significantly to the internationalization of the industry.
Accelerate innovation and R&D	The Smart Mobility and Batteries from Finland program has overall triggered 598.2 million EUR in funding for innovation and R&D projects, of which 195 million EUR was provided by the Business Finland, and 403.4 million EUR was matching funding from participating companies. Finnish universities and research institutes are stakeholders in the Smart Mobility and Batteries from Finland program and are highly involved in research and the development within the segment. The survey distributed to the recipients of the funding shows that the funding of research and innovation projects is characterized by significant additionality. Specifically, 13 percent of respondents indicated that they would not have undertaken the project without the funding, and 44 percent reported that they would have carried out the project to a lesser extent and at a higher cost. Moreover, notable results were observed in innovation and R&D, with 30 stating that the Smart Mobility and Batteries from Finland program significantly improved conditions for their organization's participation in research/innovation projects to a large/very large extent. Additionally, 26 percent of participants are stating that participation have increased technical development/innovation to a large/very large extent.
Build competitive ecosystems	The program has mapped and strengthened several relevant ecosystems for its participants. Numerous networking and ecosystem activities have been conducted to bring the industry together and facilitate networking among actors within the space industry. Smart Mobility and Batteries from Finland has been one of largest BF programs in terms of project and ecosystem portfolio, according to Business Finland. Several networking events have been arranged where participants and stakeholders across business, academia, and government can exchange ideas and insight. The program has had a particularly strong connection to relevant ecosystems and has actively utilized these to assist its participants. Participants in the Smart Mobility and Batteries from Finland program reported significant results in terms of knowledge about the ecosystem and access to networking arenas, with 56 and 47 percent respectively, of participants reporting results in these areas to a large/very large extent.

Development of new business models	The program has maintained focus on developing new business models through several of its activities and services. Primarily, the program has facilitated the development of new products and services by funding innovation and R&D. It has also provided opportunities for stakeholders and participants to come together for idea exchange and collaboration through networking and ecosystem activities. We observe that a small percentage of participants in the survey reports that their involvement in the program has led to the development of new business models. One potential reason for the low percentage is that new business models was only an ambition for a limited share of the participants.
Integrate the Finnish battery industry into the European battery value chain	The extent to which the program has contributed to integrating Finnish companies into the European battery value chain is challenging to measure. However, the program has carried out several activities to assist Finnish companies in becoming part of the European battery supply chain. This includes significant funding for innovation and R&D to enhance the technology and innovation capabilities of Finnish manufacturers. One example is BATCircle. Managed by Aalto University, the Finland-based circular ecosystem of battery metals consortium (BATCircle) aims to improve the manufacturing processes in the mining industry, metals industry, and battery chemicals, while also increasing the recycling of lithium-ion batteries. Its goal is to strengthen cooperation between companies and research organizations in Finland. The program has also carried out a number of internationalization activities and worked thoroughly to promote Finnish manufacturers internationally and increase their exports. Among other things, the program has conducted over 35 virtual media events in Asia and Europe about the Finnish battery industry, resulting in over 70 articles in various media outlets. Additionally, the program organized four Nordic Battery Thursday events in 2021, attracting over 700 registrations from 45 different countries. The program has also collaborated with Nordic stakeholders and the EU to promote Finnish manufacturers.

FIGURE 9-3: OVERVIEW OF MAIN OBJECTIVE, SUB-TARGETS, AND EXECUTION FOR SMART MOBILITY AND BATTERIES FROM FINLAND PROGRAM

APPENDIX

APPENDIX A - DISTRIBUTION OF FUNDING RECIPIENTS BY MUNICIPALITY

Below, we present the distribution of funding recipients from the New Space Economy and Smart Mobility and Batteries from Finland programs based on the municipality of the recipients.

MUNICIPALITY	REGION	SHARE OF FUNDING RECIPIENTS
Helsinki	Uusimaa	35 %
Espoo	Uusimaa	32 %
Tampere	Pirkanmaa	11 %

TABLE A.1: MUNICIPALITIES WITH THE HIGHEST SHARE OF FUNDING RECIPIENTS FROM NEW SPACE ECONOMY PROGRAM. SOURCE: BUSINESS FINLAND, PROCESSED BY MENON ECONOMICS

MUNICIPALITY	REGION	SHARE OF FUNDING RECIPIENTS (N=149)
Helsinki	Uusimaa	26 %
Tampere	Pirkanmaa	11 %
Turku	Varsinais-Suomi	11 %
Espoo	Uusimaa	9 %
Oulu	Pohjois-Pohjanmaa	6 %
Kuopio	Pohjois-Savo	3 %
Lappeenranta	Etelä-Karjala	3 %
Kokkola	Keski-Pohjanmaa	3 %
Vantaa	Uusimaa	3 %
Vaasa	Pohjanmaa	2 %

TABLE A.2: MUNICIPALITIES WITH THE HIGHEST SHARE OF FUNDING RECIPIENTS FROM SMART MOBILITY AND BATTERIES FROM FINLAND PROGRAM. SOURCE: BUSINESS FINLAND, PROCESSED BY MENON ECONOMICS

APPENDIX B - PROJECT CATEGORIES AND DESCRIPTIONS

PROJECT CATEGORY

The figure below shows the thematic focus areas in which the various funding decisions from the programs are classified. Note that a funding decision can be categorized into multiple categories.

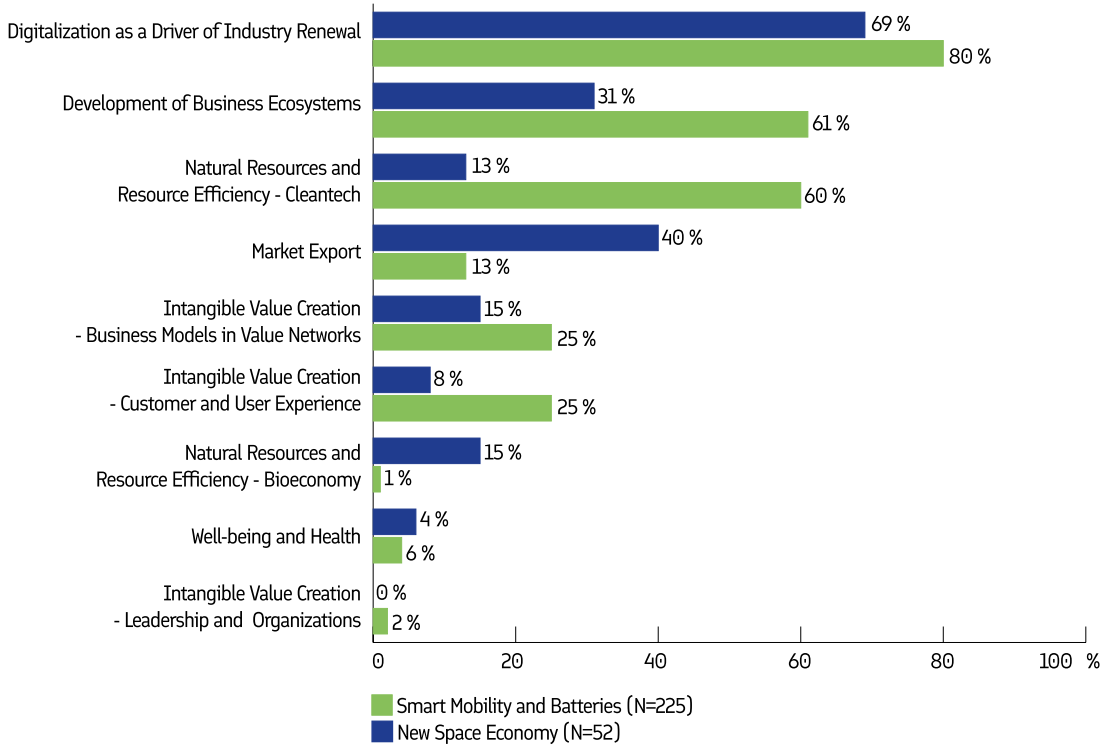


FIGURE B.1: OVERVIEW OF THE PROPORTION OF FUNDING DECISIONS CATEGORIZED WITHIN VARIOUS THEMATIC FOCUS AREAS. SOURCE: DATA FROM BUSINESS FINLAND (2024), PROCESSED BY MENON ECONOMICS

WORD CLOUD - NEW SPACE ECONOMY

The word cloud highlights the most frequently used terms from the project descriptions. While most projects that have been funded by New Space Economy program have been carried out by individual companies, a few have involved collaboration between multiple companies, and some large projects, such as Multico, are recurring. It is also worth noting that the program has connections to the European Space Agency (ESA) and that several larger projects have been undertaken in collaboration with them.

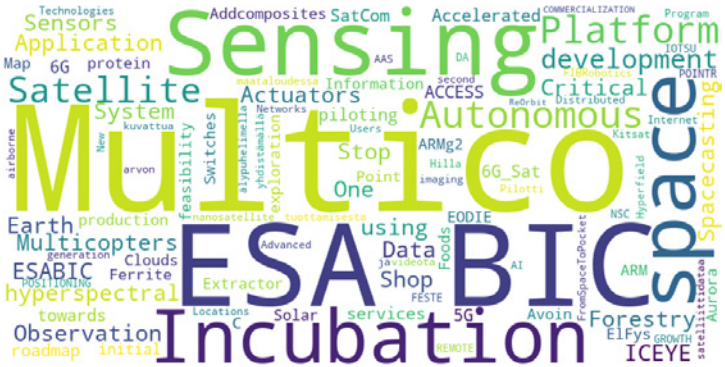


FIGURE B.2: WORD CLOUD FOR DESCRIPTIONS OF PROJECTS THAT HAVE RECEIVED FUNDING FOR R&D FROM NEW SPAVE ECONOMY PROGRAM. SOURCE: DATA FROM BUSINESS FINLAND (2024), PROCESSED BY MENON ECONOMICS.

WORD CLOUD - SMART MOBILITY AND BATTERIES FROM FINLAND

The word cloud below illustrates the most frequently used terms from the project descriptions for projects that received funding for innovation and R&D under the Smart Mobility and Batteries from Finland program. The majority of projects have focused on batteries, with autonomy emerging as another key area of emphasis.

FIGURE B.3: WORD CLOUD FOR DESCRIPTIONS OF PROJECTS THAT HAVE RECEIVED FUNDING FOR R&D FROM SMART MOBILITY AND BATTERIES FROM FINLAND PROGRAM. SOURCE: DATA FROM BUSINESS FINLAND (2024), PROCESSED BY MENON ECONOMICS.

APPENDIX C - MECHANISMS OF IMPACT

CONNECTION BETWEEN ACTIVITIES AND IMPACTS

IMPACT/ACTIVITIES	FUNDING OF INNOVATION AND R&D PROJECTS	INTERNATIONALIZATION ACTIVITIES	NETWORKING AND ECOSYSTEM ACTIVITIES
Increased revenue	57%	57%	71%
Increased employing and staffing within your company	83%	50%	50%
Increased exports	55%	64%	64%
Increased competitivness	75%	50%	69%
Increased number of customers and/or partners in Finland and/or abroad	50%	63%	75%
Increased foreign investments and capital	60%	80%	60%
Reduced environmental impact	43%	29%	43%

TABLE C.1: AN OVERVIEW OF THE PERCENTAGE OF RESPONDENTS WHO RESPONDED TO A LARGE/VERY LARGE EXTENT FOR THE FOLLOWING IMPACTS, AND ALSO RESPONDED TO A LARGE/VERY LARGE EXTENT TO QUESTION ABOUT TO WHAT EXTENT THE FOLLOWING ACTIVITIES OF THE PROGRAM HAVE TRIGGERED THE AFOREMENTIONED EFFECTS AND IMPACTS. FOR BOTH NEW SPACE ECONOMY AND SMART MOBILITY AND BATTERIES FROM FINLAND PROGRAM. SOURCE: SURVEY BY MENON ECONOMICS (2024)

CONNECTION BETWEEN RESULTS AND IMPACTS

IMPACT/RESULTS	ACCESS TO NETWORKING ARENAS	KNOWLEDGE ABOUT ECOSYSTEM	INDUSTRY COMMUNITY	ACCESS TO PARTNERS	INTERNATIONAL RELATIONS/ EXPORT OPPORTUNITIES	EXPERTISE AND KNOWLEDGE	NEW BUSINESS MODELS	PARTICIPATE IN RESEARCH/ INNOVATION PROJECTS	TECHNICAL DEVELOPMENT/ INNOVATION	ACCESS TO CAPITAL/ INVESTORS
Increased revenue (N=7)	71%	71%	57%	43%	57%	29%	43%	43%	43%	57%
Increased employing and staffing within your company (N=6)	33%	67%	17%	50%	67%	50%	33%	50%	100%	33%
Increased exports (N=11)	64%	73%	55%	45%	64%	27%	36%	55%	64%	64%
Increased competitivness (N=16)	63%	75%	44%	56%	56%	50%	31%	75%	88%	38%
Increased number of customers and/or partners in Finland and/or abroad (N=8)	75%	88%	63%	25%	50%	25%	50%	50%	50%	63%
Increased foreign investments and capital (N=5)	60%	60%	40%	40%	60%	20%	40%	40%	80%	80%
Reduced environmental impact (N=7)	43%	86%	43%	29%	29%	29%	71%	71%	86%	43%

TABLE C.2: AN OVERVIEW OF THE PERCENTAGE OF RESPONDENTS WHO RESPONDED TO A LARGE/VERY LARGE EXTENT FOR THE FOLLOWING IMPACTS, AND ALSO RESPONDED TO A LARGE/VERY LARGE EXTENT FOR THE FOLLOWING RESULTS. FOR BOTH NEW SPACE ECONOMY AND SMART MOBILITY AND BATTERIES FROM FINLAND PROGRAM. SOURCE: SURVEY BY MENON ECONOMICS (2024)

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