

# FFI Accelerate Startup Partnership

Final report for the program period 2021-2024

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## 1. 1. Executive summary

This report summarizes the FFI Accelerate Startup Partnership (ASP) program, a four-year initiative aimed at fostering collaboration between Swedish vehicle manufacturers (AB Volvo, Scania, Volvo Cars) and startups/SMEs. The program addressed the need for increased open innovation within the automotive industry, driven by rapid technological advancements and sustainability demands.

Key objectives included:

- Accelerating partnership formation: Overcoming barriers like cultural differences, misaligned processes, and IP management.
- Developing a replicable partnership model: Facilitating efficient integration of external innovation within large OEMs.
- Driving industry-wide impact: Improving competitiveness for OEMs and startups/SMEs, with potential for transfer to other sectors.

Key achievements:

- Successful Proof-of-Concept (PoC) projects: Numerous PoCs were executed, demonstrating the viability of collaborative innovation and yielding valuable learnings.
- Enhanced OEM capabilities: Participating OEMs reported improved internal processes for engaging with startups, increased internal support for open innovation, and a deeper understanding of the startup ecosystem.
- Startup growth and validation: Startups gained access to industry expertise, resources, and potential customers, validating their technologies and accelerating their development.
- Knowledge dissemination: Annual conferences, workshops, and participation in external events fostered knowledge sharing and promoted the program's methodology.

Key learnings:

- Importance of dedicated resources and streamlined processes: Agile decision-making, clear project scopes, and financial support were crucial for successful collaborations.
- Need for cultural change within OEMs: Embracing external innovation requires overcoming internal resistance and fostering a culture that values agility and learning from failures.
- Mutual benefits of collaboration: OEMs gained access to cutting-edge technologies and new ways of working, while startups benefited from industry validation, resources, and market access.

The ASP program demonstrated the significant potential of open innovation within the automotive sector. By fostering collaboration and knowledge sharing, the program has contributed to increased competitiveness for both established companies and startups,

paving the way for a more innovative and sustainable future for the Swedish vehicle industry.

## 2. 2. Background FFI Accelerate Startup Partnership

Accelerate Startup Partnership (ASP), a program within the FFI strategic initiative, was initiated by the Board of Directors in 2020, formally started in January 2021, and running until 2024.

The program aims to facilitate and accelerate ways of working with partnerships between Swedish vehicle manufacturers, startups, and SMEs in the transport industry.

Partners involved:

- OEMs: AB Volvo, Scania, and Volvo Cars
- Startup sourcing: MobilityXlab, Combient Foundry, and FKG
- Interactive Research: School of Business, Economics and Law at the University of Gothenburg

Experience shows that partnerships between large and small companies are very fruitful and can generate a win-win for both companies. The large company has the opportunity to access innovations with fast cycles, explore new technologies, and develop new business models and competencies. The small company can receive an entry to a relevant potential client and, at the same time, get access to the large company's industry knowledge and experience in industrializing and scaling solutions. The small company also may gain access to new markets.

The Swedish vehicle manufacturers have limited experience in this way of working. Historically, new products and innovations have mainly been created internally, and this is still the established way of working and an integral part of the company culture. Even if some initiatives are started, the adaptation of the new way of working often takes too long. Hence, there is an opportunity to improve and catch the values missed each year, mainly due to the low organizational capabilities within the industrial partners.

The ASP-program aims to accelerate and facilitate the establishment of partnerships in terms of increased speed, flexibility, and trust. Factors that are limiting the creation of partnerships - such as identification of suitable startups or SMEs, cultural differences, lack of contact points & network, multi-managerial interests, differences in time frame and speed of processes, and IP management - will be addressed. Methods/way of working to mitigate these challenges will also be developed.

The program runs over 4 years, with a yearly cycle of multiple short Proof-of-Concept (PoC) projects and a few longer-term integration projects between the industrial partners and the startups/SMEs. These projects will allow the actual creation of partnerships that will bring new products to the market.

Throughout the program, the impact and effectiveness of the new way of working will be evaluated and measured, so the result and methodology will be implemented in the Swedish vehicle industry and may also be transferred to other industry sectors.

The expected outcomes of the program are:

- Partnership model implemented in the Swedish vehicle industry
- Increased competitiveness over time for the Swedish vehicle manufacturers by learning to quickly integrate new technologies and solutions from startups and SMEs.
- Fast industrialization and product scaling for startups and SMEs.
- Transfer of the partnership model to other industries in the mid-to long-term scale and, therefore, increasing competitiveness for the Swedish industry.

Central to the project is a lean, agile, and fast way of working, and most of the funding goes to startup/SMEs project costs.

The program was designed with four work packages:

- WP 1: Cross Partner collaborations
- WP 2: Partners' internal work
- WP 3: Startup projects (major part of the program)
- WP 4: Research follow-up program

The program's budget is approximately 20 MSEK per year over 4 years (2021-2024), and a significant part of it is used to enable projects between OEMs and startups.

### 3. 3. Program experiences from the OEMs

#### 10. 3.1 Volvo Group

**Why collaborate with startups** - In the rapidly evolving automotive and transportation industries, collaboration with startups has become increasingly important for established companies like Volvo Group. Partnerships with startups not only enhance access to innovative solutions but also foster agility, promote a culture of innovation, and support sustainability efforts. By engaging with startups, Volvo Group is not only investing in new technologies but also contributing to the broader innovation ecosystem that drives industry advancement. This ecosystem is characterized by a dynamic interplay of ideas, resources, and expertise that can accelerate the development and implementation of transformative solutions.

**Collaboration with startups at Volvo Group** - In 2020, Volvo Group intensified its focus on collaborating with startups, leading to the initiation of a Venture Client process within the

CampX by Volvo Group. This process was designed to facilitate partnerships with startups by establishing a streamlined framework involving legal, purchasing, and intellectual property considerations. The objective was to enable Product and Business Owners at Volvo Group to quickly engage with startups when a suitable match was identified, thereby accelerating the innovation process and reducing time-to-market for new solutions. A key aspect of this initiative was the close collaboration with Product and Business Owners to identify gaps, needs, and opportunities, thereby initiating strategically important collaboration projects.

The initial phase of this effort began on a small scale, with a limited number of projects. During this period, FFI ASP played a significant role in kickstarting the process and establishing effective working methods that would support ongoing collaboration and ensure alignment with Volvo Group's strategic goals. As several projects were successfully initiated, internal demand for collaboration increased, resulting in the launch of additional projects. Since the heightened focus on startup collaboration, approximately 100 startup projects have been undertaken since 2020, with around 20 of these projects receiving funding from FFI ASP. This substantial increase in project activity underscores the growing recognition of the value that startups bring to Volvo Group, particularly in areas such as electromobility, autonomous driving, connectivity and sustainability.

Throughout this four-year period, FFI ASP has continued to play a crucial role by facilitating an increased number of projects between Volvo Group and startups. Additionally, it has fostered knowledge exchange among OEMs, research institutions, and scouting and matchmaking partners, further enhancing the collaborative ecosystem.

This innovation ecosystem not only supports the development of new technologies but also encourages a culture of shared learning and collaboration, which is essential for driving sustainable growth and addressing the complex challenges facing the transportation sector. Moreover, the collaboration with startups allows Volvo Group to tap into diverse perspectives and expertise, which can lead to creative solutions that may not emerge within traditional corporate structures. By integrating these innovative approaches, Volvo Group can better respond to market demands and enhance its overall competitiveness. The collaboration with startups is integral to Volvo Group's strategy for innovation and competitiveness. By actively participating in and contributing to the innovation ecosystem, Volvo Group together with the other OEMs in this project, is well-positioned to lead in the future of transportation, leveraging the strengths of both established and emerging players in the industry. This commitment to collaboration not only drives technological advancement but also reinforces Volvo Group's dedication to sustainability and responsible business practices.

## 11. 3.2 Scania

**Collaboration with startups and scaleups in the automotive industry** - In a time of rapid technological development and shifting customer needs, it has become increasingly important for Scania to collaborate with startups and scaleups. These smaller players offer innovative solutions and fresh perspectives that can help us navigate the complex and dynamic market. In many cases, they also allocate more resources to specific problems than our development departments, which means they have advanced further in these areas. By

combining the creative innovations of startups with the resources and expertise Scania possesses, synergies can be created that drive both parties forward.

Historically, Scania has had a strong tradition of developing solutions internally due to the complexity of our products and modular systems. However, this strategy has its limitations, and as new technological fields gain ground, we have come to realize that staying at the forefront cannot always be achieved solely through incremental innovations. The need to seek external partnerships has therefore become increasingly apparent.

#### **Scania's objectives in collaborating with startups:**

- Access to disruptive technologies: Gain solutions that can be quickly transformed into competitive products and services.
- Solve complex, long-term challenges: Address production process issues cost-effectively.
- Explore new business models: Discover revenue streams that strengthen economic growth.
- Enhance our image as an innovative employer by demonstrating proactivity to customers and society and being a supportive partner to startups within the ecosystems we are part of.

Despite the obvious benefits, significant internal challenges must be overcome for startup collaborations to succeed. Cultural change is one of the key aspects. Coming from a strong, proven, capable engineering and invention culture, we somewhat struggle with a "Not Invented Here" mentality that hinders the adoption of external solutions. Organizational obstacles, such as rigorous decision-making processes, resource shortages, and difficulties in allocating the right expertise, further complicate efforts.

It is crucial to work quickly and effectively to maximize the benefits of collaborating with startups. Projects must be "real," with relationships based on a commercial foundation that economically benefits both parties. While exploratory projects are not discouraged, all parties must have a clear understanding of the project's purpose and scope from the outset.

**Recommended approach** - One effective approach how to start we have found is by working with your own company as the end-customer in the first projects. By testing the way of working, pilot project setup, and solution internally, we can identify and address potential pitfalls in the workflow before directing the project scope toward external customers. Once internal processes are optimized, the project scope can be expanded to include our customers or create joint solutions for joint Scania and startup customers.

Advice for companies looking to collaborate with startups:

1. Start with a clear strategy: Identify areas in the organization where innovation is most needed and where collaborations can create the greatest value.
2. Decentralize decision-making: Empower employees with technical expertise to make decisions about pilot projects, improving response times. Keep the scope clear and small (e.g. max €100k, 6 months), but make sure it validates scalability.

3. Adapt processes for flexibility: Develop separate procedures for handling startup POC/pilot projects, distinct from traditional supply chains. Work with standard contracts and documentation and dedicated purchasing resources for all types of project content.
4. Focus on cultural change: Communicate the importance of external collaborations internally and reward innovation, regardless of whether it is for internal or external customers.
5. Allocate resources and expertise: Invest in training employees in key technologies to meet the needs of collaborative projects and make room for participation in innovation projects for personnel with often-needed key competencies.
6. Prepare for a lower success rate: Accept that not all startup projects will succeed, and use failures as learning opportunities for the future. Failure is the first step in learning.
7. Prioritize speed and clarity: Ensure that projects are of sufficient strategic importance, where success would be commercially viable and near-term scalable. Projects should be clearly defined, whether exploratory or market-oriented.
8. Work with internal customers first: Use internal customers as a testing ground to understand and address potential challenges in your startup pilot project process before initiating external projects.

By implementing these recommendations, we believe that larger companies can increase the value of their collaborations with startups, ensuring future innovation capacity and competitive strength.

## 12. 3.3 Volvo Cars

### Experiences

Volvo Cars has been engaged in startup scouting since 2017, exploring both the opportunities presented by innovative startups and the challenges of integrating small-scale businesses with large-scale OEM operations. As a result, Volvo Cars saw value in joining and supporting the establishment of the program in 2020/21.

However, during the first two years, Volvo Cars faced difficulties in leveraging the program due to company restructuring driven by technological transformation, followed by pandemic-related company restrictions. In 2023–2024, Volvo Cars ran several programs focused on AI-based vehicle safety, sustainable materials and processes, and software technology.

### Program Contributions

**Fast execution** - A key strength of the program is its continuous decision-making process and rapid response time, supported by Vinnova. This has enabled the swift initiation of projects when mutual interest arises, which is crucial for small startups, where delays of several months can be critical to their business survival. Fast response times are also essential within OEMs to maintain engagement and avoid administrative distrust.

**Project scope design** - Combining Vinnova's project standards with program guidelines has helped define project scopes at Volvo Cars. By emphasizing innovation value, the purpose of the POC, and time constraints, these frameworks have been valuable in achieving alignment between startups and large-scale OEMs. Volvo Cars has encountered collaboration pitfalls due to misaligned ambitions, but by adhering to these standards and guidelines, we have established a high-quality program that delivers value for both parties.

**Funding** - Access to funding from Vinnova has been critical in executing projects and POCs with startups. Within large organizations, financial flexibility at the engineering level is often limited, and risk-taking can be difficult to justify when initiating a POC with a startup. The ability to provide funding is, therefore, essential to encourage engineers to explore innovative opportunities.

## **Learnings**

**Value of operational coaching** - Setting up projects within the Accelerate Swedish Startup initiative involves active coaching and guidance to ensure projects are valuable for both parties. We support startups in navigating complex organizational processes and, in some cases, protect them by designing fair collaboration conditions. Additionally, we guide Volvo Cars teams in considering critical startup criteria such as limited resources, time sensitivity, mutual interest in results, and growth ambitions.

Collaboration with startups differs from traditional supplier relationships. Mutual value creation, startup growth, and the risks associated with exploring new technologies demand a more relationship-driven approach—one that prioritizes transparency, speed, and well-defined decision gateways.

**Cross-OEM experiences** - Sharing experiences on working with startups has revealed common challenges related to complexity and failure modes when bridging small-scale and large-scale businesses. At Volvo Cars, we address these challenges by refining our approach to setting up programs and sourcing startups.

Annual events focused on sharing program experiences have been valuable in consolidating learnings over time. However, due to competitive integrity and legal considerations, we do not share information on specific technologies or startups under evaluation. Instead, we exchange insights from technology assessments that could support further implementation, accelerate startup growth, or offer valuable perspectives—even when a solution may not be suitable for one company but could benefit others. This approach enhances efficiency in evaluating new technologies.

**Startup community insights** - Running the program alongside research projects and ecosystem partners such as MobilityXlab and Combient Foundry has provided deeper insights into the innovation community. We have gained a better understanding of how the technological innovation landscape evolves differently from traditional business relationships.

We have also explored how lessons from successful innovation hubs can be applied to Swedish startup communities. Mario Draghi's report on European competitiveness highlights a decline in innovation across Europe. However, Sweden has a strong opportunity to build a

thriving innovation ecosystem by leveraging extensive OEM experience and fostering deeper cooperation between the startup ecosystem and industries beyond the automotive sector.

## 4. 4. Program experiences from startups

### 13. 4.1 Klimator

#### **Experiences**

Participating in ASP has been a valuable experience for us as a startup. Several key factors contributed to making this collaboration particularly impactful:

**A unique opportunity to collaborate with industry leaders** - Being part of ASP allowed us to work closely with well-established OEMs. This collaboration gave us direct insight into the challenges faced by larger organizations and an opportunity to align our innovative solutions with real-world needs.

**Validation of our ideas** - Working on projects that involved real-world challenges and receiving feedback from established industry players was a strong validation of our technology and approach. This has given us the confidence to develop and refine our solutions further.

**Faster decision-making and accelerated processes** - The involvement of a dedicated company representative assigned to liaise with ASP dramatically shortened lead times in discussions. Additionally, the representative's active role in crafting the project description and participating in multiple meetings throughout the project lifecycle significantly simplified logistical and administrative processes. Their input ensured smoother coordination and execution.

Overall, this experience has strengthened our technology and processes and demonstrated how partnerships between startups and large organizations can be mutually beneficial.

#### **Contributions**

**Specialized expertise and research depth** - We contributed with advanced research knowledge and specialist skills, which provided a foundation for solving highly specific and complex challenges. This research depth complemented the broader, more practical expertise of the larger companies involved.

**Flexibility and agility** - Our smaller organizational structure enabled us to respond quickly to evolving project needs and make iterative improvements without being hindered by long-lasting internal processes. This agility was particularly valuable to drive the project forward.

**Data-driven insights** - By leveraging cutting-edge tools and methodologies, we contributed to the program with detailed data analysis and actionable insights.

#### **Learnings**

**The importance of financial support** - The availability of financial support proved pivotal in fostering a willingness to explore innovation among OEMs. Previously, we have observed that funding constraints often hindered defining project scope, leading to a focus of rather slimming down the projects than executing what brings value. With financial backing through the program, discussions were more open and innovative, creating opportunities for more impactful collaborations.

**The value of speed in processes** - For small companies, time is critical. Prolonged lead times can be detrimental to startups. The ability to initiate projects quickly and minimize ramp-up periods was therefore crucial for us. This agility ensured that we could capitalize on opportunities without wasting resources.

**Optimal project duration** - While fast project starts are essential, it is equally important that projects are not too short. Every project inherently involves lead times to some extent. To maximize value, our recommendation is to structure projects with a minimum duration of six months. This timeframe strikes a balance between providing enough time to deliver results and maintaining momentum.

#### 14. 4.2 Sigtic

Great experience for Sigtic to understand the complexity of the automotive industry and the importance of the MVP approach.

Working in the automotive industry has provided valuable insights into its complexity and the critical importance of adopting an MVP (Minimum Viable Product) approach for a successful market entry.

**A unique opportunity to collaborate with industry leaders** - This collaboration has offered Sigtic a unique opportunity to understand market demands while shaping our solution and product strategy. Initially, the scope of the project shifted due to evolving legislation, but we were able to adapt our strategy and product development. This flexibility has helped position the company as a thought leader in the industry.

**Validation of our ideas** - The feedback received about our solution has been immensely valuable. As a small company, this confirmation that we are on the right track with our solution gives us confidence and reinforces the strength of our product.

**Faster decision-making and accelerated processes** - Unified feedback from OEMs is crucial for a small company like ours. Interacting with large organizations can be challenging, particularly when trying to identify who is responsible for what and manage expectations. We encountered varying expectations across different teams—production, research, and advanced engineering—but navigating these challenges has been an excellent learning experience.

#### Contributions

- **Specialized expertise and research depth**—We contributed with advanced research and data that are crucial for both OEM and us. We also understood that simulator data will never create a robust solution; therefore, we refocused on real-world data.

- **Flexibility and agility**—It was a great experience for Sightic to understand the complexity of the Automotive industry and the importance of the MVP approach. Sightic gained invaluable experience in understanding the complexity of the automotive market and the importance of adopting an MVP approach. This flexibility allowed us to quickly adapt to changes, ensuring that we could respond effectively to shifting project needs.
- **Data-driven insights**—Sightic provided detailed data analysis and actionable insights that directly contributed to shaping the project's direction.

## Learnings

- **The importance of financial support**—Financial support was crucial to continuing the project and enabling reshaping the strategy and innovative and more impactful collaborations.
- **The value of speed in processes**—Time is a critical factor for small companies like ours. Prolonged lead times can be detrimental to startups. Our ability to initiate projects quickly and minimize ramp-up periods allowed us to capitalize on opportunities and maintain momentum without wasting valuable resources.
- **Optimal project duration**—Our recommendation is to structure projects with a maximum duration of six months, but of course, this depends on the scope.

## 5. 5. Scouting & Matchmaking

### 15. 5.1 MobilityXlab

MobilityXlab is an innovation hub, founded in 2017. Hosted by Lindholmen Science Park, offering startups and scaleups with pioneering ideas within mobility and connectivity the opportunity to access the network and accelerate through a strategic partnership with five global industry leaders; Magna International, Polestar, Volvo Group, Zeekr Technology Europe, and Zensect.

MobilityXlab has been a FFI Accelerate Startup Partnership project partner during the entire program period, 2021-2024.

The Work Package 3, Scouting & Matchmaking, serves as a crucial element in connecting Swedish industrial partners with innovative startups to address key focus areas such as Electromobility, Energy Systems, Autonomous Enablers, Sustainability, and Connectivity. The collaborative efforts, where MobilityXlab have supported Volvo Group and Volvo Cars, aim to identify, evaluate, and establish partnerships with startups/SMEs through a structured and replicable process. The goal is to validate that the startup's offer meets the OEM's needs and to pave the way for a potential long-term collaboration effort.

Key Activities and Outcomes:

- Target Setting (Task 3.1): Industrial partners identified and refined business needs with ecosystem collaborators, creating clear requirements that guided the scouting

process. Every 6 months, the focus areas have been updated, for example Electromobility, Energy, Connected Services, Sustainable Materials, Autonomous Enablers.

- Scouting & Outreach (Task 3.2): MobilityXlab's global outreach attracted over 650 startup applications from 30 countries across multiple batches. Direct scouting, marketing, outreach through MobilityXlab's extensive ecosystem and key events like CES, MWC Barcelona, and EcoMotion amplified engagement.
- Evaluation and Selection (Task 3.3): Rigorous screening processes, workshops, and pitches helped evaluate startups' alignment with industrial needs.
- Proof-of-Concept Co-Creation (Task 3.4): Selected startups collaborated with Volvo Group and Volvo Cars to develop PoCs, leveraging regular meetings, deep-dive sessions, and guided facilitation by MobilityXlab. Startups like Klimator, Reselo, and Sigtic demonstrated impactful solutions.

Impact:

- Strengthened partnerships between Swedish manufacturers and global startups, with notable collaborations including Reselo, Klimator, Sigtic, Tether, and Fever Energy.
- Enhanced diversity, with 45% of startups featuring female founders or leaders, enriching the ecosystem with inclusive and innovative perspectives.
- Established a scalable framework for scouting and matchmaking, laying the groundwork for future initiatives in industrial innovation.
- Greater innovation networks with knowledge-sharing opportunities, reduced costs and reduced risks

Through this initiative, the FFI Accelerate Startup Partnership has effectively bridged the gap between industry challenges and cutting-edge startup solutions, fostering growth, sustainability, and technological advancement.

MobilityXlab had the opportunity to co-host the annual seminar for the program: 2022 in Gothenburg, 2023 in Södertälje and 2024 again in Gothenburg.

## 16. 5.2 Combient Foundry

Combient Foundry is a venture alliance of leading industrial OEMs that has validated its venturing model through feedback from over 250 projects since 2018. Our venture client approach identifies, scopes, and addresses concrete business needs, turning them into successful pilots with top startups. OEMs have accelerated their time-to-market and technology adoption using Foundry's advanced startup-sourcing technology and processes.

Since 2019, Scania's collaboration with startups through Combient Foundry has focused on strategic priorities such as autonomous systems, electrification, connectivity, production & logistics, and sustainability. Connecting to the ASP program, Scania has attracted and evaluated over 1,200 unique startup solution proposals through Combient Foundry across all major continents and startup hubs. With Foundry's facilitation, selected startups have been invited to co-create joint value propositions and design pilot projects with Scania.

### Learnings

- **Empowering OEM teams** - The program has empowered OEM teams by lowering barriers to engaging in external innovation with startups. By providing pilot funding for collaborations, more OEM departments—especially those with limited startup experience—have been able to partner up with Combient Foundry. This has helped them understand the practical benefits of external innovation, particularly through the Venture Client model. As a result, Combient Foundry has expanded its reach within the OEM, launching more startup projects and fostering a culture where industrial teams increasingly leverage startup capabilities. After their first startup project, OEM teams often pursue further initiatives independently, confident in the value startups bring to their business needs.
- **Bringing speed to projects** - The program has also accelerated project timelines by giving access to pilot funding, reducing potential delays related to resourcing and budget approvals in the OEM. As a key value proposition in the Venture Client model, the projects that are launched together with OEMs include committed project teams with a budget and a streamlined process from the get-go. This readiness signals OEMs' strong commitment, enhancing collaboration prospects and encouraging startups to engage—especially those accustomed to lengthy sales and negotiation cycles. Additionally, the Vinnova program has encouraged OEMs to standardize pilot purchasing processes, streamlining negotiations and contracting. These improvements have shortened lead times, boosted project success rates, accelerated startup solution adoption, and amplified business impact.

## 6. 6. Research and learnings from the program

The automotive industry, like most industries, is grappling with a rapidly evolving and increasingly complex market environment. This ongoing transformation is propelled by unprecedented technological advancements that are reshaping production and development processes, vehicle capabilities, and customer expectations. The automotive sector also faces mounting pressure to meet stringent sustainability goals, requiring a fundamental shift toward greener technologies, circular business principles, and reduced environmental footprints across the entire lifecycle of vehicles. Hence, companies within the automotive industry need to enhance their ability to adapt and innovate – in everything from supply chain practices to product design and business models – to effectively navigate the complexities and uncertainties of this rapidly evolving business landscape. To tackle these diverse challenges, firms are increasingly opening their boundaries to collaborate with external actors, seeking to access, create, and share knowledge and innovation across the broader ecosystem.

It is within this transformational context that the four-year FFI-funded project Accelerate Startup Partnership (ASP) is best understood. The purpose of the initiative is to support meaningful connections between innovative startups and scaleups, and three leading OEMs: Volvo Group, Volvo Cars, and Scania. A fast and streamlined process has been established, enabling the OEMs to quickly launch proof-of-concept (POC) projects in collaboration with carefully selected startups and scaleups. The small firms are supported with funding from FFI, ensuring that they are fairly compensated for their time and effort without being overly dependent on the OEMs, during the time that they work closely on the explorative innovation projects.

## 17. 6.1 Challenges and opportunities with corporate-startup collaboration

Enabling large corporations to collaborate with innovative startups has, in recent years, gained significant attention as a strategic approach for driving mutual growth and transformation. This model has the potential to harness the unique strengths of each party: established corporations can provide scale, resources, industry expertise, and network connections, while startups offer agility, fresh perspectives, disruptive innovations, a high tolerance for risk, and innovative approaches to work processes. When functioning effectively, these partnerships can tackle complex challenges and drive technological progress, enabling the delivery of more advanced products and services to consumers, and improving processes to enhance creativity, efficiency, and productivity. As such, the model can also strengthen the geographical region by attracting talent and resources, facilitating an open and creative climate that spurs entrepreneurship and economic prosperity.

However, while the differences between the OEMs and startups are the source of their potential synergies, these same differences can simultaneously create barriers to successful collaboration. The significant imbalance in power and resources between the parties may have an improper impact on decision-making, leaving the smaller actors feeling marginalized or unable to fully use their creative potential. There may also be a huge difference between the collaborators in aspects such as corporate culture, values, processes, and formalization. Large corporations benefit from economies of scale due to their size but are often more bureaucratic, slower-moving, and risk-averse compared to small entrepreneurial firms. If not handled effectively, these differences can lead to tensions and unfulfilled expectations, which in turn may lead to internal legitimacy struggles within the large corporations, and frustration and missed business opportunities for the vulnerable small firms.

## 18. 6.2 Not a One-Size-Fits-All

A key insight from the interactive research on the implementation of the ASP project is that large corporations begin their open innovation journey from varying starting conditions. For instance, each organization has its own established organizational structures and processes, organizational culture and leadership, and previous and ongoing experiences of working with startups. The OEMs can also have different overarching purposes (their “why”) for engaging with startups. The innovations they are looking for can range from incremental to radical innovations, from innovations closely aligned with the core business to those based on complementary technologies, or from innovations that add to the corporation's value proposition to those aimed at improving business processes and supply chain effectiveness. The OEMs also differ in whether they have an output emphasis, in that the successful results are the most important aim, or a process or learning emphasis, in that the most important benefit from the model is to develop internal capabilities of agility and exploration.

However, regardless of the specific inner drives behind engaging with startups, OEMs need to develop new internal capabilities to be able to engage in open innovation fruitfully. These capabilities include, among other aspects, establishing faster and less bureaucratic processes, fostering leadership that views failure as opportunities for learning, and enhancing the ability to integrate innovations into established practices. This is not an easy task, as they disrupt many of the ingrained ways of working and often introduce knowledge that the organizational members are not used to, or comfortable with. Therefore, such a

transformation needs time and resources, as well as an internal commitment to change and adaptation.

## 19. 6.2 ASP as a catalyst for change

The ASP program has served as a catalyst for such internal change within the participating OEMs, making it easier for them to take the leap of faith required to collaborate with the unconventional partners – startups and scaleups – in areas where the OEMs do not have all the answers themselves. Although the funding provided by FFI is primarily allocated to the startups and scaleups in the program, it has enabled OEMs to internally justify their exploratory efforts and willingness to take risk by engaging in proof-of-concept projects with startups in uncharted areas. And for the startups and scaleups selected for the ASP program, they do not only receive funding for their innovation efforts but, perhaps more importantly, gain direct access to the OEM's resources, expertise, and network, offering them a potential gateway into the OEM's broader innovation ecosystem.

This model of open innovation – corporate-startup collaboration – can, from a regional and national perspective, be viewed as a valuable complement to the public innovation system, which includes research institutes, university incubators, science parks, and other stakeholders. In contrast to these “traditional” entrepreneurship facilitators, OEMs possess unique opportunities to drive the growth of startups in tangible and immediate ways. By testing and aligning the startups’ innovations with the needs of large corporations, OEMs provide a practical pathway for refining and scaling these solutions. Furthermore, OEMs can play a pivotal role in a startup's future by becoming a partner, investor, or customer, offering long-term collaboration and support that significantly accelerates the startup's journey toward success. This direct engagement positions OEMs as critical ecosystem facilitators in bridging the gap between innovation and market impact.

From a public policy perspective, it therefore makes sense to fund these forms of innovation initiatives since 1) it provides invaluable concrete business support to startups by opening new venues for scaling their businesses, 2) it supports large corporations in their transformation toward open innovation, helping them to stay competitive, 3) it supports the evolution of the broader innovation ecosystem by attracting and maintaining entrepreneurial activities and knowledge creation and diffusion in the geographical region. From this perspective, public policymakers can provide “oil in the machinery” for companies to engage in these explorative activities that may otherwise be de-prioritized in their strive for short-term productivity and efficiency gains. Such funding can, in other words, generate a win-win-win: for startups, for corporates, and for the region.

## 7. 7. Participating startups

Over the past four years, ASP has initiated more than 40 collaborations and pilot projects between the Swedish vehicle manufacturers Scania, Volvo Cars, and Volvo Group and startups and SMEs from Sweden, USA, Israel, UK, Finland, Germany, and more. Technology areas have included autonomous drive, electromobility, AI, connectivity, sustainability, hydrogen, fintech, and digitalisation. Some of the participating projects include:

Reg. Number	Description	Startup
<a href="#">2023-01957</a>	LiDAR-based road weather condition detection for increased traffic safety	Klimator
<a href="#">2022-01687</a>	Molnbaserad samarbets- och utvecklingsplattform för fordonsmjukvara	Remotive Labs
<a href="#">2023-03768</a>	Verification of rubber material in automotive applications	Reselo
<a href="#">2024-04005</a>	Testning av synkrotronljusröntgenmaterial för fordonskomponenter	Scatterin
<a href="#">2024-01950</a>	Bildesign för att reducera vikt , material och CO2 påverkan	Stilfold
<a href="#">2024-02011</a>	Safe autonomous vehicle deployment	Fortellix
<a href="#">2022-02814</a>	Connected Goods Proof of Concept	InnoTractor
<a href="#">2023-00976</a>	Deep learning computer vision in production	Roboflow Inc
<a href="#">2024-01515</a>	Automotive rubber parts from forestry waste	Reselo
<a href="#">2023-01933</a>	Virtual workflow training for heavy battery electric vehicles	Digitalnauts
<a href="#">2024-01506</a>	Machine learning for aerodynamics simulations	RICOS
<a href="#">2023-03365</a>	Flow optimized depot operation	Unikie
<a href="#">2023-03191</a>	Inductive charging of a heavy battery electric vehicle	InductEV
<a href="#">2024-04034</a>	Predictive accurate machine learning models for aerodynamics	PredictiveIQ
<a href="#">2024-04033</a>	AI-enhanced digital tool for design review processes	GoAutonomous
<a href="#">2024-04032</a>	Sorbent-based mobile carbon capture for heavy-duty vehicles	Qaptis
<a href="#">2021-01315</a>	Image Intelligence	Cetrez & HumbleBee
<a href="#">2021-02103</a>	Re-configurable battery packs with controllable output voltage	SEM
<a href="#">2021-03295</a>	Battery Classification for Battery Life Cycle Management	Nortical

<a href="#">2021-03889</a>	Digital Twins for Autonomous Solutions in Confined Areas	Repli5
<a href="#">2021-04244</a>	Monitoring & analysis of autonomous drive data	Annotell & Fortellix - application/project was canceled
<a href="#">2021-04327</a>	Elektrisk bomaktuator för batteri-elektriska grävmaskiner	Cascade Drives
<a href="#">2021-04631</a>	Design & validate work environment for Autonomous driver	CDE
<a href="#">2021-04788</a>	Hållbara bränslecellskatalysatorer utan ädelmetaller för tunga fordonsapplikationer	Celcibus
<a href="#">2022-01701</a>	Restvärdesprognos för elbilsbatterier; ska vi renovera, återanvända eller återvinna?	Sensai Analytics
<a href="#">2022-02422</a>	Utveckling av plattform för hantering av digital fraktsedlar mha blockkedje-teknik	12iD
<a href="#">2022-02920</a>	Detect influence of drugs through image analysis	Sightic Analytics
<a href="#">2022-03127</a>	Redigerbara digitala tvillingar	Repli5
<a href="#">2023-00029</a>	Markpenetrerande radar för robust lokalisering av autonoma fordon i tuffa miljöer	GPR - application/project was canceled
<a href="#">2023-01059</a>	Enable AI models to run on the edge	Embedl
<a href="#">2023-01730</a>	Thermal management for batteries	Carrar
<a href="#">2023-01987</a>	Improved Driver Experience and Safer Routing with Road Weather Data	Klimator
<a href="#">2023-03311</a>	Utvärdering av kryokomprimerade vätgastankar	Verne
<a href="#">2023-03592</a>	Accelerera adoption av fossilfritt material med AI	Synbiosis
<a href="#">2023-03759</a>	Detect influence of drugs through image analysis - Step 2	Sightic Analytics
<a href="#">2023-03768</a>	Verification of rubber material in automotive applications	Reselo
<a href="#">2023-04123</a>	Förbättra energi prediktering för elektriska fordon genom att inkludera information om vägväder	Klimator

<a href="#">2024-01939</a>	Utvärdering av Uni.T-teknik för termisk hantering av Li-ion batteripaket	Calogy
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## 8. 8. Dissemination

Dissemination activities have been core to the program. The program has continuously built insight and understanding of how the ecosystem works by involving startup sourcing partners such as MobilityXlab and Combient Foundry, together with the University of Gothenburg as the appointed research partner.

The program participants have jointly arranged an annual conference to present and promote project results. Some 50-100 people have participated in person, the majority being innovation managers from the Swedish industry. Online audiences have covered startups, corporates, academia, trade organizations, and ecosystem supporters.

2022: In-person conference and webinar in Gothenburg, Sweden. Speakers included Helene Niklasson, Head of CampX by Volvo Group, Andrea Wetterberg, Director Strategy & Portfolio Management, Service Portfolio & Delivery at Scania Group, Guillaume Cabrère, Head, Open Innovation Arena at Volvo Cars, Björn Remneland Wikhamn, Senior Lecturer Department of Business Administration at the University of Gothenburg, and Glenn Gran, Strategic Area Lead, Ecosystem for innovative companies at Vinnova.



2023: In-person conference and webinar in Södertälje, Sweden. Speakers included Gustaf Sundell, Executive Vice President and Head of Ventures and New Business at Scania, Karin Falck, Senior Innovation Manager at CampX by Volvo Group, Mats Bengtsson, Director R&D External Partnership Strategy at Volvo Cars, and Jonas Gustafsson, Senior Venture Collaboration Manager at Scania Group, Björn Remneland Wikhamn, Professor in Management and Organization at School of Business, Economics and Law at the University of Gothenburg, Lauri Lehtovuori, CEO at Combient Foundry, Helene Niklasson, VP Innovation

Ecosystems and partnerships and Head of CampX at Volvo Group, and Edvind Nygaard, Swish Business Development at Getswish AB.



2024: In-person conference and webinar in Gothenburg, Sweden. Speakers included Johan Lundén, Senior Vice President Project & Product Strategy Office at Volvo Group, Helene Niklasson, VP Innovation Ecosystems and partnerships and Head of CampX at Volvo Group, Karin Falck, Senior Innovation Manager at CampX by Volvo Group, Mats Bengtsson, Director R&D External Partnership Strategy at Volvo Cars, and Jonas Gustafsson, Senior Venture Collaboration Manager at Scania Group, Viktoria Bogren, Head of Business Area Automotive at Klimator, and Snjezana Simic, Senior Vice President Automotive at Sightic, Björn Remneland Wikhamn, Professor in Management and Organization at School of Business, Economics and Law at the University of Gothenburg, Henrik Forsberg, Head of Portfolio Development at Volvo Cars Tech Fund.



Following the great response from participants, the program was invited to discuss and share learnings at other events, such as [Tech Arena](#) and a [breakfast webinar together with FFI](#).



## 9. 9. Recommendation

To collaborate with startups, we notice that speed in administration is a make or break when enabling projects with startups. We have explored sending in projects when needs occur and receiving approval within 4-6 weeks. This has been possible through great support from the Vinnova team involved and a combination to secure quality by following criteria (time, description, and innovation height) set up initially by the program. Fast response cycles have been valuable in keeping momentum and project quality within the OEMs. The team has also explored the opportunity to collaborate across OEMs to evaluate startups in a common project.

Based on the outcome of the program, the participants have the following recommendations:

- **Continue the program** - Given the value and importance of developing innovative technology and business and the positive experiences expressed by all parties, we strongly recommend extending the program or initiating a new project with the same purpose.
- **Extend the program to other industries** - While this program has been focused on the automotive sector, it applies to other industrial branches to enhance and accelerate collaborations between OEMs and startup companies.
- **Apply the ASP work model to other funding programs** - The need to act "lean, agile, and fast" to implement projects is crucial for all research and innovation initiatives, especially in an increasingly competitive landscape with rapid technological advancements. Faster decision-making and financing will also improve the success rate of relevant programs and accelerate execution.