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Evaluation of the challenge competitions for leading companies

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Foreword

The basis of Finnish wellbeing stems from the wealth and jobs created by the success of Finnish companies in the global market. The role of Business Finland is to promote the prosperity of Finland by stimulating the emergence of new and innovative initiatives and by supporting the internationalisation of the Finnish industry.

The Leading Company Initiative was launched in 2020 as a challenge competition for large, internationally operating R&D-intensive companies. The aims of the initiative are to incentivise R&D investments from these leading companies, mobilise networks and ecosystems to address global challenges and market opportunities, and thereby boost Finnish employment, competitiveness, and growth.

The focus of this evaluation is predominantly on assessing the impact of the initiative on leading companies themselves. The evaluation zooms in on the first ten finished leading company projects that were funded and finished between 2020 and 2026. As ecosystem impacts and company-research organisation collaboration are a key part of the Leading Company Initiative, and an important facilitator for knowledge spillovers, key results on ecosystem impacts are also included in the analysis.

Business Finland thanks the evaluators 4FRONT and Technopolis Group for their rigorous and analytical evaluation work, as well as the steering group for good discussions, and the leading company representatives who have contributed to this evaluation by providing data and insights.

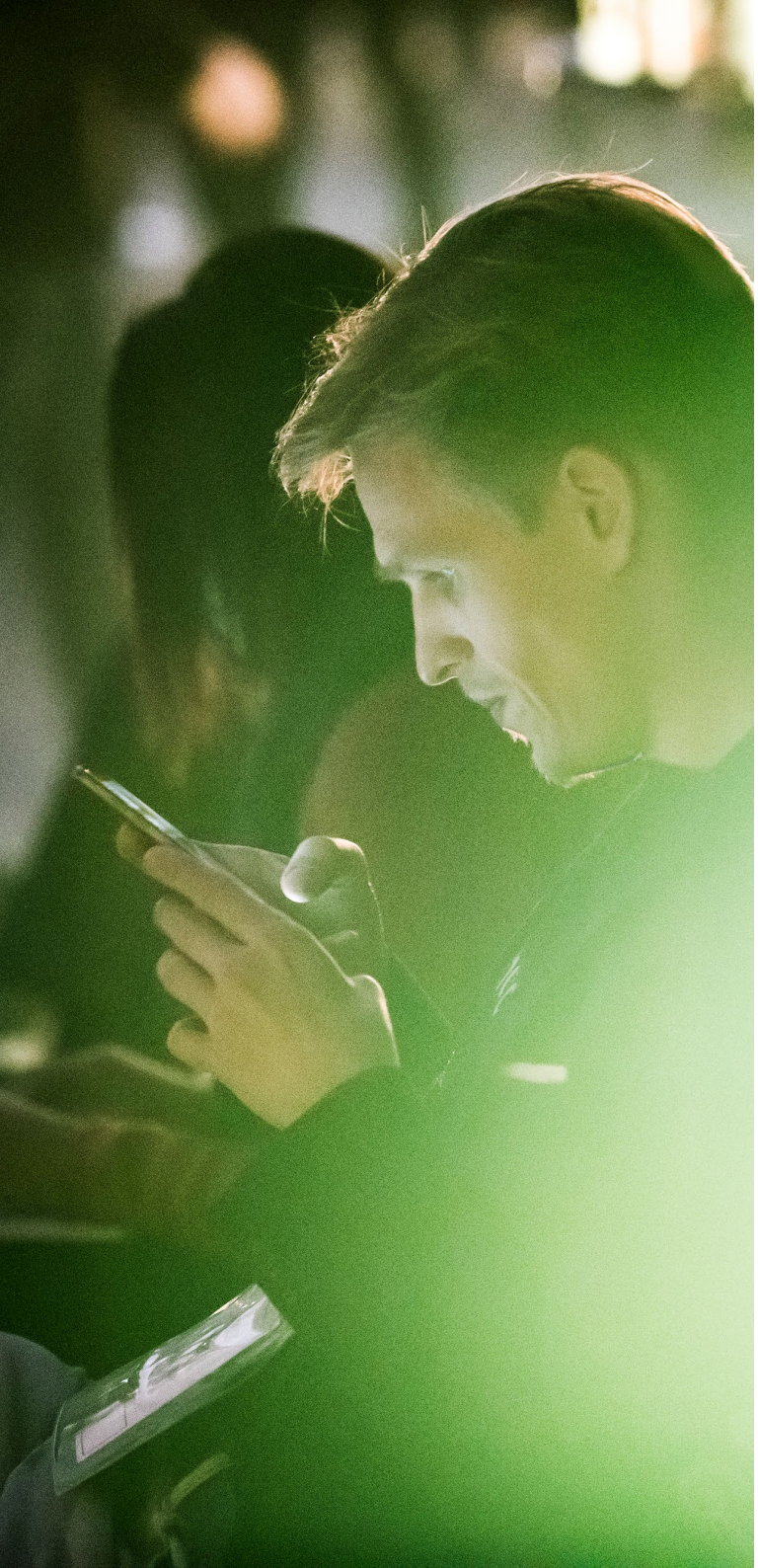
Helsinki, November 2026
Business Finland

Executive summary

This report presents the evaluation of Business Finland's Challenge Competitions for Leading Companies (Veturi). This is a **public version of the final evaluation report**. A separate non-public version including confidential company-level information has been prepared for Business Finland's internal use.

The evaluation covers ten completed Veturi projects funded since 2020. Its primary focus is on the impacts of the funding on the leading companies, with ecosystem-level effects as a secondary focus, and it also assesses the relevance, coherence, efficiency and implementation of the instrument. The purpose of the evaluation was twofold: to assess the extent to which Veturi funding has contributed to Business Finland's strategic objectives, and to provide evidence-based recommendations for the further development of the instrument.

The evaluation applied a mixed-method design combining an analysis of research and development (R&D) expenditure and company performance, case studies and interviews covering all ten



Veturi projects, a large language model (LLM) analysis of 622 ecosystem project reports, webscraping and network analysis of the ecosystems, and analysis of documents and funding data.

Key conclusions

Veturi has achieved its core objective of leveraging additional R&D investment in Finland. Eight of the ten evaluated cases met or exceeded their R&D growth target. At portfolio level, realised R&D growth of approximately EUR 1.5 billion was reached against a combined target of around EUR 841 million, and nearly 1,500 projects were launched in the Veturi ecosystems. The additionality of the funding is well evidenced, particularly in raising the level of R&D investment and anchoring R&D activity in Finland.

The headline figures should, however, be interpreted with caution. The roughly six-fold leverage relates the R&D growth only to the Veturi funding and does not take into account inflation[1] and other public R&D support (including any other R&D funding from Business Finland). The R&D figures are unaudited, results vary considerably between companies, and the largest overshoots partly reflect group-level accounting conventions, evolving reporting practices and general challenges in defining and measuring R&D.

The Veturi concept shows clear added value compared with earlier instruments. Its strategic scale has lifted R&D agendas from project level to strategic level within the companies and enabled higher-risk, more exploratory R&D than the companies would otherwise have pursued. The leading companies have also built new ecosystem orchestration capabilities and institutional structures intended to outlive the funding period. The companies differ, however, in how they have taken on the leading role, and many had to build these capabilities from scratch during the project.

As most projects have only recently ended, it is too early to assess their longer-term commercial and economic impacts. Concrete innovation outputs are documented, but the broader economic impacts remain uncertain. Most cases produced market- or investment-ready outputs, but the projects are predominantly early-stage R&D with a commercial horizon of five years or more, and regulatory bottlenecks hinder market uptake in several cases.

[1] Note. Funding is not inflation-adjusted.

Veturi is highly relevant to Finnish research, development and innovation (RDI) policy, but it has also reshaped the funding landscape. The instrument responds directly to the national target of raising R&D expenditure to 4% of GDP, and the ten evaluated Veturi companies accounted for around 29% of private R&D expenditure in Finland in 2024. Links to commercialisation, exports and productivity growth, as well as to other policy instruments and actors – later-stage financing, regulation, public procurement and regional ecosystems – remain weak.

The Veturi ecosystems are well connected but diverse, and their continuity is largely undesigned. The number of ecosystem partners reached around 1,284 against a combined target of around 690, and the networks are relatively dense. The leading companies play different roles within their ecosystems, ranging from internal anchors to outward-facing connectors. Small and medium-sized enterprises (SMEs) were engaged mainly through procurement (EUR 140 million) rather than through their own Business Finland-funded projects.

Implementation of the Veturi initiative has evolved over time, but some issues remain. Veturi is considered more flexible and less bureaucratic than comparable EU instruments, and the Veturivarikko peer forum and Business Finland's operational contacts are valued by the companies. Recurring issues include long processing times for ecosystem projects, the absence of standard consortium and intellectual property rights (IPR) agreement templates, inconsistent feedback in the evaluation of project applications, and difficulties in defining and reporting R&D expenditure.

Recommendations for developing Veturi as a concept:

Continue Veturi as an instrument for leveraging strategic-level business R&D investment, but reconsider its scope and magnitude relative to other instruments if the national R&D target or the policy priorities change.

Avoid diluting the concept: adhere to its core mission of large-scale, ecosystem-led industrial transformation, while supporting planned diversification such as "Challenger Veturi" models. Recognise that Veturi is not suited to all purposes, and consider other or new concepts for fields without strong lead companies.

Design continuation around company incentives and test a lighter bridging instrument for ecosystems between formal Veturi cycles, and assess follow-up Veturi projects critically against the instrument's disruptive aim.

Build a progression path from early-stage R&D towards piloting and scaling-up within Veturi, and strengthen market uptake and spillovers by linking Veturi better with other Business Finland and Team Finland services and with other innovation ecosystem actors, including cities, regional ecosystems and regulators.

Strengthen the assessment of the broader economic and societal impacts and role of Veturi through further research and evaluation, including of the subsequent and follow-up Veturi projects.

Recommendations for implementation by Business Finland:

Clarify R&D reporting through upfront written guidance, a standard reporting approach for multi-entity companies and the inclusion of R&D reporting in project audits.

Align payment indicators with the progression of the companies' R&D agendas, and complement them with qualitative targets.

Speed up the processing of ecosystem co-innovation projects and follow it as a KPI, with lead companies taking a stronger role in preparing applications, and continue developing shared principles and templates for consortium and IPR agreements.

Direct SME and startup participation towards development-stage work and track it separately in the ecosystem KPIs, make informal funding rules explicit, and continue documenting and disseminating good practices across the Veturi companies (e.g. Veturivarikko).

1 Introduction

This report is a public version of the evaluation report and it does not include confidential information of the Veturi companies or their projects. A more detailed report, including confidential information of the Veturi projects, has been prepared for Business Finland's internal use.

Background and objective of the evaluation

The focus of this evaluation is on the Challenge Competitions for Leading Companies (Veturi), with a primary focus on impacts on leading companies and their projects. The evaluation covers 10 completed Veturi projects funded since 2020.

The Veturi initiative is a key element of Finland's innovation policy. It is designed to catalyse significant increases in private R&D investments, strengthen productivity and competitiveness and contribute to the national objective of raising R&D



expenditure to four percent of GDP by 2030. The instrument combines substantial public funding with expectations regarding ecosystem development, international positioning and long-term economic impact.

The purpose of the evaluation is twofold: 1) to assess the extent to which the instrument has contributed to Business Finland's strategic objectives, and 2) to provide practical, evidence-based recommendations for further development of the instrument.

The evaluation addresses three interrelated dimensions:

- **Impacts on leading companies**, including effects on R&D investments, innovation activities, growth and competitiveness;
- **Ecosystem-level effects (secondary focus)**, with a focus on collaboration, network dynamics and the role of leading companies;
- **Relevance, coherence, efficiency and implementation** of the instrument from the perspective of both beneficiaries and Business Finland.

Evaluation approach and scope

The evaluation applied a mixed-method design combining data-analyses with in-depth qualitative case-analysis, including evidence from R&D expenditure and company performance analysis, interviews, LLM-analysis, webscraping and document analysis. Given data restrictions and the small number of cases, the evaluation applied a contribution-oriented logic, assessing how and to what extent Veturi funding has influenced observed outcomes, rather than attempting full causal attribution.

Main evaluation question / topic	Judgement criteria	Primary methods and data sources
Impacts of Veturi funding on leading companies	Changes in ambition level, R&D personnel, R&D and other investments, new products, experts, turnover, etc. (compared to overall R&D investments and other leading R&D investors)	Analysis of R&D expenditure and company performance; Veturi project cases (interviews); LLM-analysis; Webscraping
Ecosystem-level effects	Number and diversity of ecosystem actors; New collaborations and networks; Role of Veturi companies in ecosystem success	Veturi project cases (interviews); LLM-analysis; Webscraping
Relevance, coherence, efficiency and implementation	Funding vs outputs / investments; Distribution of funding across portfolio; compatibility and coherence with other instruments; Lessons learned	Document and data analysis; interviews with BF experts and beneficiaries; Sense-making workshop

Table 1. Overview of main evaluation topics, judgement criteria, methods and data sources.

The evaluation has been guided by a structured framework (impact model, Figure 1) linking evaluation questions and evaluation criteria with anticipated impact paths of the Veturi initiative. Business Finland's inputs and activities produce direct outputs in the form of implemented Veturi projects and increased R&D activity. These outputs are expected to generate impacts along two interlinked paths – on the Veturi companies themselves and on their ecosystems – each progressing from short-term outcomes (e.g. increased R&D investment, higher ambition level and new collaboration) through medium-term outcomes (new products and services, improved market position, more structured ecosystems) to long-term impacts (business renewal, global competitiveness, sustainable ecosystems and new value chains), and ultimately contributing to societal impacts such as industrial renewal, and productivity and economic growth.

It should be emphasised that the focus of this evaluation is on the impacts on the Veturi companies. Impacts on the broader ecosystem as well as broader economic and societal impacts are discussed only indirectly, and it is still too early to draw conclusions on the broader societal and economic impacts of the Veturi funding.

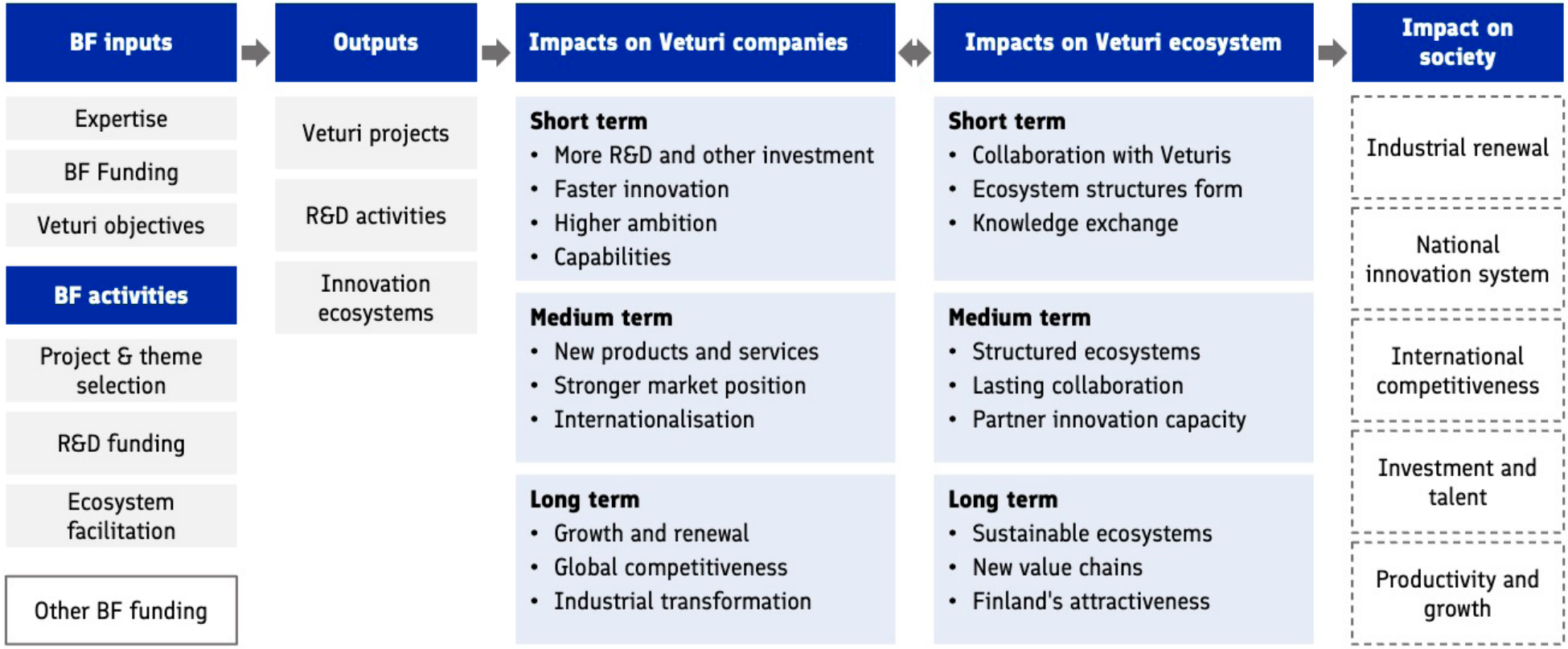


Figure 1. Impact model for the evaluation (simplified).

Description of methodology and data sources

The evaluation applied a mixed-method design in which each strand of work produced evidence for a specific set of evaluation questions (Table 1). The methods and data sources used are described below.

Documents and background data. The work started with a review of background documentation and funding data, covering Business Finland strategies and plans, Veturi programme documentation, previous evaluations and descriptive funding data on the Veturi companies and their ecosystem projects. This was complemented by background interviews with Business Finland experts, including those responsible for managing the Veturi projects, and by a structured case summary prepared for each of the ten Veturi projects.

Analysis of R&D expenditure. Business Finland carried out an in-house analysis of the promised and realised R&D expenditure of the Veturi companies during the Veturi years. The analysis was based on both aggregate level and company-level data, reported by the Veturi companies to Business Finland. The analysis was supplemented by a company-level analysis of financial statement records obtained from the Finnish Patent and Registration Office.

Webscraping and network analysis of ecosystems. The analysis of administrative data was complemented with webscraping, offering a low-burden and efficient way to generate additional evidence on interactions between the Veturi companies and other ecosystem members. For the webscraping, Technopolis B.V.'s in-house scraper was used, which successfully scraped 95% of websites of ecosystem members that participated in one or more ecosystem projects. The following signals were analysed to identify relationships in the data: 1) URL references: whether company A's website includes a URL reference to company B's website; 2) Name mentions: whether company A's website mentions company B by name (or a variant on it); 3) Joint Business Finland project participation: whether organisations participated in the same Business Finland-funded projects. After collecting the data, the relationship ties were classified into different archetypes to better understand the nature of relationships within the ecosystems.

Large language model (LLM) analysis. To support the analysis of the Veturi ecosystem projects, a large language model was applied to extract and classify information available in project reports, made available to the evaluation team by Business Finland. The analysis covers 622 projects from 2020–2026, involving 265 unique businesses. The objective was to systematically identify reported outcomes, experiences and perceived effects across the project portfolio using a common analytical framework. The classification framework covered four dimensions: company effects, ecosystem and societal effects, instrument performance and lead company effects. Within these dimensions, a series of predefined questions was used to iden-



tify topics such as innovation outputs, business outcomes, international positioning, collaboration effects, societal benefits, experiences with the funding instrument, and impacts on Veturi lead companies. For most questions, the model assessed whether a specific topic was discussed in the project documentation and classified the reported effect as positive, negative, mixed, neutral, or not mentioned. This approach was used to analyse recurring patterns across a large number of projects and to quantify these themes.

In addition to the aggregate level LLM-analysis, targeted analyses were conducted through a structured LLM-based classification carried out within Business Finland's secure environment to support the implementation of case studies. The analysis provided inputs on the development of the specific Veturi ecosystem as well as findings on the role of Veturi companies.

Case studies and interviews. A case study was prepared for each of the ten Veturi projects, based on semi-structured interviews with representatives of the Veturi companies, Business Finland representatives and selected ecosystem partners (for some cases). The case studies examined the contribution of Veturi funding to R&D investment, ambition level, innovation activities and new products, services and capabilities, as well as its effects on competitiveness, exports and broader business performance, and the implementation of the projects, including the competition model and collaboration with ecosystem partners. The cases form the basis for a cross-case analysis identifying common patterns and differences.

Synthesis. The findings of the different work packages were synthesised for each evaluation question. The synthesis combined a contribution analysis of the role of Veturi funding in company behaviour and outcomes, an implementation analysis of how the instrument works in practice, and an assessment of the proportionality of inputs and outcomes. Building on these findings, the evaluation team developed the conclusions and recommendations. The key findings, conclu-

sions and recommendations were discussed with Business Finland in three Steering Group meetings and in a sense-making workshop.

Use of AI tools

In addition to its use as an analytical method described above, general-purpose AI tools (Claude Enterprise) were used as support tools in the evaluation process and in the preparation of this report: summarising background documentation, structuring of findings, assisting in the formulation and editing of language, and carrying out consistency and quality checks on the report text. All AI-assisted outputs were reviewed and verified by the evaluation team, which remains responsible for the analysis and the conclusions presented in this report. Confidential project material was processed only in secure environments and with appropriate safeguards for data security.

Limitations

The findings, conclusions and recommendations of this evaluation should be read in the light of limitations related to its scope, evidence base and methods.

First, the evidence base is limited by the small number of cases. The evaluation covers ten Veturi projects led by eleven companies, each of which is large, operates in a different sector and has followed its own development path. With so few and heterogeneous cases, the results cannot be generalised statistically, and portfolio-level figures are strongly influenced by individual outliers. The highly selective nature of Veturi funding also means that there is no plausible counterfactual group of comparable non-funded companies. The evaluation has therefore applied a contribution-oriented approach, assessing how and to what extent Veturi funding has plausibly influenced the observed outcomes, rather than attempting to establish full causal attribution.

Second, the evaluation focuses only on the first ten Veturi projects, launched in 2020–2022, which have only recently ended. Later Veturi projects, including follow-up projects of the same lead companies, are not covered, and the findings may not fully reflect how the instrument and its implementation practices have since evolved. As many of the expected impacts materialise over a timeframe of five years or more, it is also too early to assess the longer-term commercial, economic and societal impacts, or the sustainability of the ecosystems after the funding period.

Third, the assessment of the primary objective of the instrument – increasing company R&D investment – is affected by challenges in defining and measuring R&D (discussed in more detail in section 3.1.1).

Finally, much of the qualitative evidence comes from the Veturi companies themselves and from project reports prepared by the funded organisations, which may be subject to positive reporting bias. These limitations have been mitigated by triangulating evidence across data sources.



2 Challenge competitions for leading companies

2.1 Background and rationale of the Veturi initiative

The Business Finland Leading Company Initiative (Veturi initiative) was launched in 2020 as part of Finland's broader innovation and industrial policy framework aimed at strengthening long-term competitiveness, economic renewal and productivity growth. The Veturi initiative emerged in a context where Finland, like many advanced economies, sought to increase private-sector investment in research, development and innovation (RDI), deepen collaboration between firms and research organisations, and accelerate the creation of globally competitive business ecosystems.

A central policy driver behind the Veturi initiative has been Finland's national targets to raise RDI expenditure to 4% of GDP and to strengthen employment and economic growth through innovation-led development. The launch of the initiative was also partly motivated by the observation, highlighted in a 2019 report, that R&D expenditure by

large companies in Finland had stagnated, unlike in comparable economies[2]. The Veturi initiative is explicitly designed to contribute to these objectives by mobilising large, internationally active companies as anchors of innovation ecosystems.

The overarching objective of the Veturi initiative is to significantly increase private RDI investment in Finland while simultaneously fostering the development of new high-value business ecosystems. Leading companies are expected to commit to substantial increases in their RDI expenditure in Finland and to act as orchestrators of ecosystems that generate new business opportunities and technological capabilities.

A key anticipated impact is the creation of "billion-euro ecosystems", referring to large-scale, internationally competitive clusters of companies and research actors built around shared missions and technological roadmaps. These ecosystems are expected to drive new business creation, attract additional investments and strengthen Finland's industrial base.

The Veturi initiative also aims to contribute to employment growth and broader societal outcomes – such as sustainability transitions, digital transformation and industrial renewal – through mission-oriented RDI activities. By supporting the emergence of new industries and scaling innovative solutions, Veturi projects are expected to generate new jobs and contribute to long-term economic resilience. By linking large firms, SMEs, startups and research organisations, the Veturi initiative aims to foster networks that facilitate learning, innovation diffusion and capability building across the economy.

2.2 Organisation of the Veturi challenge competitions

Funding through challenge competitions

The Veturi initiative is implemented through periodic challenge competitions organised by Business Finland. In these competitions, globally operating companies or companies with strong potential to scale internationally are invited to submit proposals outlining ambitious RDI programmes and ecosystem roadmaps addressing major future challenges.

The competitive nature of the calls is a defining feature of the Veturi initiative. Rather than continuous application, companies compete based on the ambition, scale and impact of their proposed Veturi projects. The selected "leading companies" receive substantial funding and gain a central role in orchestrating ecosystem activities.

Funding is structured at two levels: support for the leading company's own RDI activities and additional funding for ecosystem partners. For globally operating companies capable of major RDI expansion, Business Finland funding at the time when the evaluated Veturi projects were selected could reach up to EUR 20 million[3] for the leading company and up to EUR 50 million for its ecosystem. For smaller or emerging leading companies, funding levels are typically up to EUR 10 million for the company and EUR 20 million for the ecosystem.

In addition to the initial competition, ecosystem projects, such as joint RDI projects between companies and research organisations, can receive funding through separate but linked instruments (e.g. Co-Innovation and Co-Research funding). These funding streams are aligned with the leading company's roadmap and are often open on a continuous basis.

[2] Ormala (2019). Suomen kilpailukyvyn ja talouskasvun turvaaminen 2020-luvulla.
https://valtioneuvosto.fi/documents/1410877/2132296/Ormala+kalvot+final+1_2019/5d3eca6b-4949-a451-986b-507fdd79d869/Ormala+kalvot+final+1_2019.pdf

[3] According to the European Commission's amendment, the maximum amount for a grant is now 35 million Euros.

The overall funding model is designed to leverage significant private investment. Leading companies commit to large cumulative increases in RDI expenditure, and successful projects are expected to catalyse several billion euros in additional industrial investments in Finland.

Selection criteria for projects

The selection of Veturi projects is based on a combination of strategic, economic and innovation-related criteria, reflecting the ambition of the Veturi initiative. A central requirement is that proposals must address **significant future challenges**, either challenge-driven societal challenges or major technological opportunities, with the potential for substantial global impact. They also need to show **international relevance and scalability**. Companies are expected to operate globally or have strong potential to do so, and the proposed solutions and ecosystems should demonstrate the potential to scale beyond Finland and compete in international markets.

A key criterion is the **scale and credibility of the company's commitment** to increase RDI investments in Finland. Leading companies are expected to demonstrate the capacity to make substantial, long-term investments and to anchor these activities domestically.

Another critical dimension is the **quality and ambition of the ecosystem approach**. Proposals must include a clear roadmap outlining how the company will build and lead an ecosystem involving SMEs, startups and research organisations. The ability to mobilise partners and generate broad collaboration is a central evaluation factor.

The **expected economic and societal impact** also plays a major role in selection. Projects are assessed based on their potential to create new business, generate employment, strengthen competitiveness and contribute to national policy objectives such as increased RDI intensity and industrial renewal.

Impact-based funding model

The progress and impact of Veturi projects are assessed through three complementary mechanisms. First, disbursement metrics are used, which are derived from the company-specific objectives and expected outcomes of the Veturi project. Second, a set of monitoring indicators is applied to capture the broader societal impact of the project. Third, all projects are subject to Business Finland's standard reporting practices. The disbursement metrics and monitoring indicators constitute a distinctive feature of the Veturi funding model. The leading company defines the targets for the disbursement metrics in its funding application, and their realisation is monitored on an annual basis. In contrast, the monitoring indicators are standardised and applied uniformly across all Veturi projects. In addition to these, projects follow the general reporting and monitoring practices applied to all Business Finland-funded activities.

Veturi projects are governed by **two main disbursement metrics that determine the level of funding to be paid:**

- **The first metric (M1)**, which carries a weight of 70%, measures the cumulative annual growth of the leading company's (or group's) total RDI expenditure in Finland over the duration of the project, relative to the baseline year preceding the project. The reported figures follow the same principles as those used in Statistics Finland's R&D survey.

- **The second metric (M2)**, accounting for 30% of the total, relates to **ecosystem growth** and is composed of three equally weighted components.
  - The first component measures the number of Co-innovation joint applications submitted within the Veturi ecosystem. These applications must follow the partnership model, involve company partners with parallel projects aligned with the Veturi roadmap, and include financial or otherwise clearly defined participation by the leading company. Only multi-partner joint applications are counted, whereas individual applications by single organisations are excluded. Other Veturi companies are not considered as partners for the purposes of this metric. Nationally funded international joint projects are also included.
  - The second component of M2 captures the **number of applications submitted** to international funding bodies, such as the European Union. These must be directly linked to the Veturi roadmap and involve the leading company as an applicant. Relevant funding programmes include Horizon Europe as well as comparable programmes funded by the European Commission, NATO, or similar international actors, including instruments such as the Innovation Fund, the Connecting Europe Facility (CEF), the European Defence Fund (EDF), and Joint Undertakings such as SNS or Chips JU/KDT.
  - The third component measures the number of ecosystem partners. This includes domestic organisations participating in ecosystem partnership projects as well as organisations that have formally committed to being part of the ecosystem. Each organisation is counted only once in the calculation.

A distinctive feature of the Veturi funding model is the **negative incentive mechanism**, or "cut-off". If, at the final reporting stage, the project is found to fall short of its agreed targets, the amount of funding paid is reduced. The final funding amount depends solely on the overall outcome, i.e. the ratio between achieved and target values. Annual reporting is used only for monitoring purposes and does not affect interim payments.

The disbursement outcome is calculated as $0.7 \times M1 + 0.3 \times M2$. If the project falls short by more than 20% in M1 or 40% in M2, the funding decreases rapidly. If the shortfall exceeds 50% in M1, or 70% in M2, no funding is paid.

For example, for a Veturi project with a total volume of EUR 50 million, Business Finland funding (40%) amounts to EUR 20 million. If the reported outcomes are for M1 = 0.8 and for M2 = 0.6 (thus the combined score 0.74), the payable funding is EUR 14.8 million out of the maximum EUR 20 million.

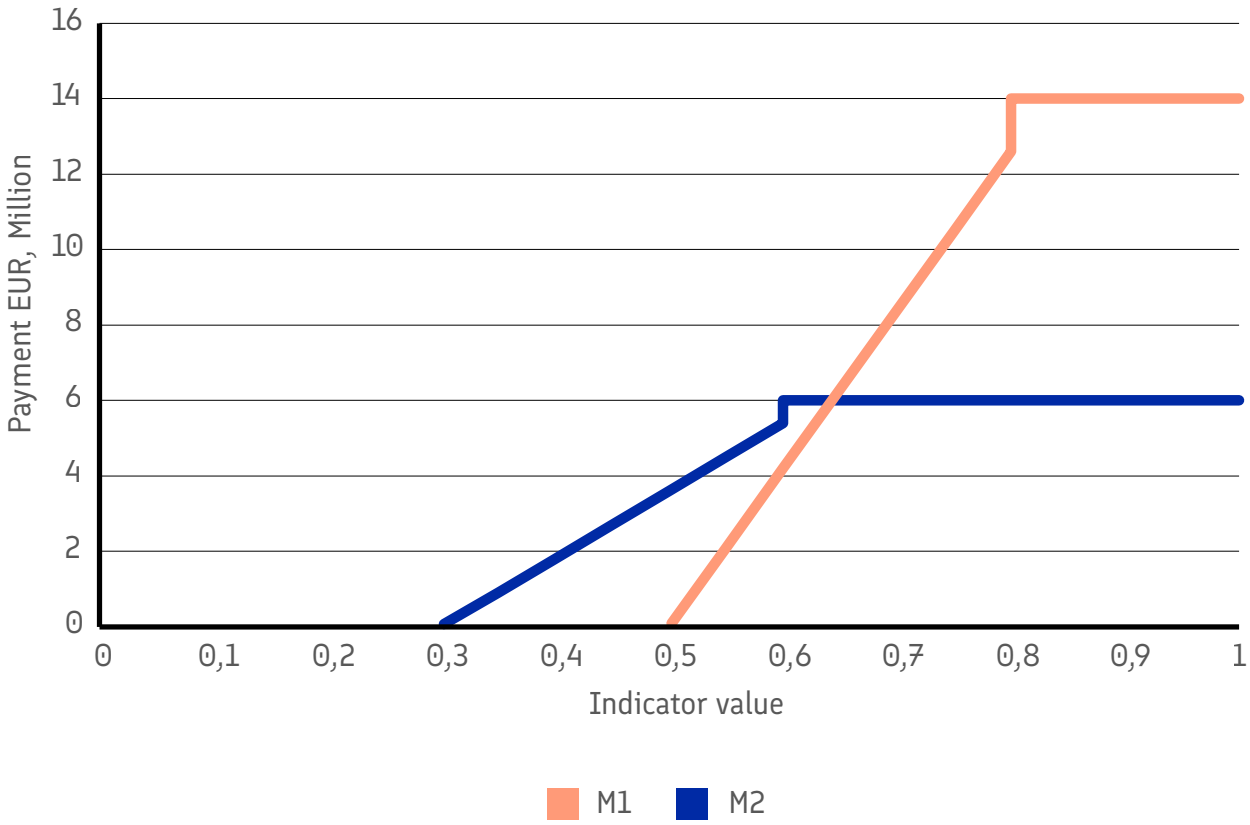


Figure 2. Graphical illustration of Veturi funding indicators (M1 & M2) and their cut-off values (here with an example of EUR 50 million total and EUR 20 million BF funding). Source: Business Finland.

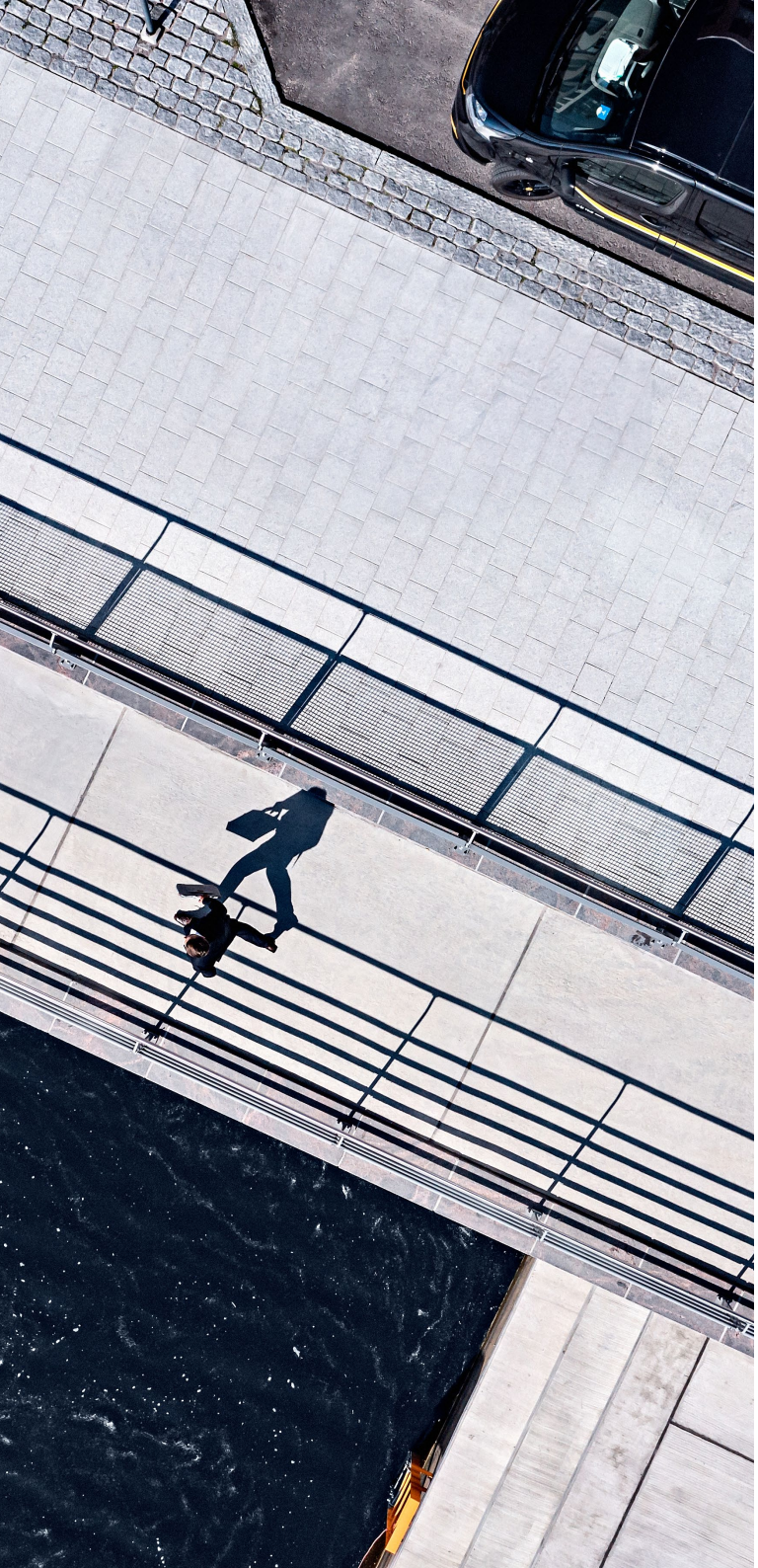
General monitoring of Veturi projects

In addition to the disbursement metrics, Veturi projects are required to report annually on a set of monitoring indicators that do not affect funding payments. These indicators are submitted as part of the annual reporting process.

The monitoring framework covers several dimensions. Economic impacts include developments in the company's non-RDI investments in Finland, such as pilot and demonstration facilities, changes in employment levels and the evolution of corporate tax revenues paid in Finland. Environmental impacts include the company's carbon footprint as well as other contributions to climate change mitigation and adaptation.

The development of the ecosystem is monitored through indicators such as the number of ecosystem members, the number of ecosystem events organised by the leading company, and the volume of ecosystem-related publications, including newsletters, blogs and media articles. Additional indicators capture the number of new companies established within the ecosystem and the level of engagement among ecosystem members.

Finally, indicators related to competence and research ecosystem development include the number of RDI personnel employed by the leading company, the establishment of new competence clusters and endowed professorships, the number of patents generated within the Veturi project,



changes in the size of the company's patent portfolio, and the number of academic theses produced.

In addition to the Veturi-specific elements, all projects follow Business Finland's standard reporting practices. The overall progress and content of the project are monitored through regular project follow-up procedures. Reporting takes place once a year. As part of this reporting, the leading company must also provide updates on the status of both the disbursement metrics and the monitoring indicators. However, interim monitoring of the disbursement metrics does not influence funding payments during the project period; only the final outcome determines the amount of funding disbursed.

Evolution of the Veturi initiative

The Business Finland Leading Company Initiative (Veturi) has evolved significantly since its launch, both in terms of scale and conceptual design. The Veturi initiative was initially introduced as a **challenge-based funding mechanism targeting large, globally operating companies**, with the aim of catalysing major increases in RDI investment and ecosystem development in Finland.

The first Veturi challenge competition was launched during 2020–2021. In this initial round, **six Veturi projects led by seven companies** (ABB, Fortum, Metsä Group, Kone, Neste, Nokia and Sandvik). The total Business Finland funding for these projects was approximately **EUR 120 million**, marking a substantial initial commitment to the new policy instrument.

This first round established the core principles of the Veturi initiative: large-scale company-led RDI programmes, strong commitments to increasing domestic RDI expenditure, and the development of broad innovation ecosystems. It also demonstrated strong demand and policy relevance, as additional projects were effectively supported when funding availability increased, expanding the initial cohort beyond the originally anticipated scale (often described as an initial selection followed by additional projects enabled by budget flexibility).

The second challenge competition was launched in 2022 and marked a significant expansion of the Veturi initiative. In this round, **six new Veturi**

projects were selected (including Borealis, Meyer Turku, Nokia, TietoEVRY [4], Valmet, and Wärtsilä).

A key feature of this round was the integration of **EU Recovery and Resilience Facility (RRF) funding**, which enabled larger-scale commitments and reinforced the role of Veturi as a central instrument in Finland's post-pandemic recovery and green/digital transition agenda. While most projects in this round were supported through RRF funding, at least one project continued to rely on core Business Finland funding, reflecting a hybrid financing structure.

The third Veturi competition, launched in 2023, represented a conceptual shift in the instrument. While continuing to support large leading companies, the round introduced a **new "challenger" category**, targeting smaller but high-potential companies capable of acting as ecosystem leaders in emerging niches.

In this round, one major Veturi (Konecranes) and several challenger companies (Bittium, Danfoss, Mirka, Orion, Picosun, Ponsse and Epec) were selected. This diversification reflected a policy learning process: rather than relying solely on large incumbents, the Veturi initiative began to recognise the importance of **mid-sized and specialised firms as ecosystem orchestrators**, particularly in fast-growing technological domains.

The fourth call, organised in 2024, further institutionalised the dual structure of the Veturi initiative by explicitly incorporating **"challenger Veturi" companies** alongside traditional large leading companies. The projects selected in this round were led by Wärtsilä, Valio, Patria, Nokia and Kempower.

This phase reflects a maturation of the Veturi initiative into a **multi-tier ecosystem policy instrument**, combining large-scale industrial leaders capable of driving systemic transformation, and smaller, agile firms able to lead innovation in specialised or emerging areas.

At the same time, the overall scale of the Veturi initiative continued to grow, with an increasing number of funded ecosystems and participants. By the mid-2020s, Veturi ecosystems collectively involved **hundreds of partner organisations and a rapidly expanding network of projects and collaborations**.

Eight further Veturi projects started in 2025, led by Sumitomo SHI FW, Nokian Tyres, Kone, Kalmar, Canatu, ANDRITZ, AMD Silo AI and ABB, and three in 2026, led by SSAB, Sokli / Finnish Minerals Group and Meyer Turku. The Veturi initiative has resulted in altogether 36 **Veturi projects** (status 5/2026) across multiple funding rounds. The Veturi initiative has thus evolved from a relatively focused pilot into a **large-scale, central pillar of Finland's innovation policy**, with cumulative commitments to significantly increase private RDI investment and generate multi-billion-euro ecosystem-level impacts.

[4] Project has been extended and has therefore not been included in this evaluation.

Start year	Veturi projects
2020–2021	• Nokia: Unlocking Industrial 5G Beyond Connectivity • **Kone: The Flow of Urban Life** • **Fortum and Metsä Group: ExpandFibre** • **Neste: Novel sustainable & scalable solutions for transportation and chemicals** • **Sandvik: SHIFT'25** • **ABB: Green Electrification 2035**
2022	• **Wärtsilä: Zero Emission Marine** • **Valmet: Beyond Circularity** • **Nokia: Competitive Edge** • **Meyer Turku: NEcOLEAP – Climate-Neutral Cruise Ship** • **Borealis: SPIRIT – Sustainable Plastics Industry Transformation** • TietoEVRY: Luottamukseen perustuva digiyhteiskunta
2023	• Ponsse and Epec: FORWARD'27 • Picosun: Chip Zero • Orion: dataa ja tekoälyä hyödyntävä lääkealan tutkimusekosysteemi • Mirka: SHAPE, Shaping the Green Transition – with net carbon negative surfaces (+ expansion 2026) • Konecranes: Zero4 • Danfoss: Fossil Free Future • Bittium: Seamless and Secure Connectivity
2024	• Wärtsilä: Wide & Intelligent Sustainable Energy • Valio: Food 2.0 (+ expansion 2026) • Patria: eALLIANCE • Nokia: LEAD • Kempower: Heavy Electric Traffic Ecosystem
2025	• Sumitomo SHI FW: Net Zero Energy Ecosystem • Nokian Tyres: Futureproof • Kone: Renaissance • Kalmar: Move2Green • Canatu: Carbon Age • ANDRITZ: BioCircleToZero • AMD Silo AI: Compute to Impact • ABB: H2 Springboard
2026	• SSAB: Sustainable World through Steels • Sokli / Finnish Minerals Group: More than a Mine • Meyer Turku: MERiON

Table 2. Start years of Veturi companies and projects.
Source: Business Finland. Bolded Veturi projects included in this evaluation.

2.3 Previous evaluations

The Veturi initiative has been evaluated twice before, but with a different angle and timeframe. The 2022 evaluation of ecosystem funding instruments and the partnership model examined Veturi mainly as a newly launched instrument and therefore approached it primarily through a design and early-development lens. The 2025 mid-term evaluation went further in analysing Veturi partnerships, business–research collaboration, knowledge spillovers and additionality, but it still framed much of the evidence at partnership and ecosystem level rather than as an ex-post assessment of completed Veturi company projects. Sandvik's own 2026 review of its SHIFT'25 programme adds a focused, practice-oriented perspective on systemic impact, knowledge flows and long-term collaborative structures.

What previous evaluations indicate about impacts on the Veturi companies

The strongest and most consistent conclusion in the earlier evidence is that Veturi has been effective in mobilising large-scale private R&D activity and in giving leading companies a stronger strategic platform for long-term R&D in Finland. The 2022 evaluation described this as the central strength of the Veturi initiative: leading companies create direction through the roadmap, bring stability and strategic capability, attract partners and provide a strong financial impulse for R&D investment in Finland. The same evaluation also noted that, particularly for large and multinational firms, the Veturi initiative helps Finland remain competitive relative to other countries that offer R&D support, thereby making Finland a more credible location for corporate R&D activity.

The 2025 mid-term evaluation largely reinforces this picture, but with richer evidence on collaboration and organisational change. It shows that large companies in Veturi partnerships tend to operate through broad, multi-partner collaboration structures, often involving four to six research organisations per project, and that these partnerships are frequently anchored in long-term relationships with major actors such as VTT and the larger universities. The evaluation further argues that Veturi participation has generated input additionality and behavioural additionality, including increased R&D investment, stronger use of ecosystem-based innovation models, more intensive sustainability and digitalisation agendas, and significant organisational learning in managing multi-stakeholder R&D collaboration. It also reports growth in skilled personnel and stronger intangible capital formation among participating firms.

Much of the 2025 evidence concerns participating companies more broadly or the partnership structure around them, not the completed Veturi company projects as distinct units of analysis. The report itself explicitly notes that a deeper understanding of the impacts on the leading companies themselves is still needed. Likewise, while it presents evidence suggestive of stronger R&D investment and better company performance, it also recommends that future work compare funded firms with non-funded firms, examine the temporal dimension of additionality, and analyse the distributional effects of funding more precisely. In other words, earlier evaluations indicate strong input and behavioural additionality for leading companies, but only partial evidence on output additionality and still weaker evidence on ex post business effects that can be specifically attributed to Veturi company projects.

The earlier studies also show that positive company-level effects are conditioned by how the Veturi initiative is implemented. Already in 2022, interview evidence suggested that leading companies were very strong as strategic anchors and R&D investors but operated with limited incentives to invest in broader ecosystem development. The result was that many ecosystem members experienced the Veturi initiative primarily through individual projects rather than through a clearly legible

ecosystem governed by the leading company. This is important because, if the leading company's role is interpreted narrowly as a project owner rather than a wider system integrator, the company-level effects and the ecosystem-level effects may diverge.

What previous evaluations indicate about ecosystem effects

At ecosystem level, the earlier evaluations present a more differentiated picture. The 2022 evaluation found that Veturi ecosystems benefited from a strong sense of direction because they were organised around a roadmap and a clearly identifiable leading company. This created a mission-like orientation and made it easier to align projects over a longer horizon than is typical for disconnected R&D projects. The same evaluation also found that Veturi ecosystems were, on average, larger than those supported by the Growth Engine instruments, with large companies and research organisations often occupying central positions in the observed networks. It concluded that the Veturi initiative clearly lowered the risk of R&D activity, enabled collaboration with key partners and clients, and improved access to knowledge and shared resources.

At the same time, the 2022 evaluation identified several structural weaknesses. Collaboration was often compartmentalised at project level, many members related more strongly to the projects they participated in than to the ecosystem as a whole, and the leading company often had the clearest overview of the overall ecosystem while smaller members lacked visibility on the wider business case and future commitment. The evaluation also noted that ecosystems were often overly research-driven and positioned at lower technology readiness levels, while development closer to the market remained more difficult. Particularly for SMEs, the logic of participation could therefore be ambiguous. The ecosystem opened doors to key clients and knowledge networks, but it did not necessarily provide a clear route to sales, scaling, or long-term position within the ecosystem.

The 2025 mid-term evaluation confirms many of these points but also suggests that ecosystem effects are broader than the 2022 evidence could yet show. It argues that Veturi partnerships have generated knowledge spillovers, new collaborative platforms, stronger trust between actors and lasting structural changes in the Finnish innovation landscape. It reports that ecosystem collaboration has supported sustainability transitions, international networking, shared infrastructures, cross-ecosystem links and patent-related activity. The report also highlights the emergence of mission-oriented collaboration and gives examples of collaboration patterns that cut across ecosystem boundaries. At the same time, it acknowledges that ecosystems are at different stages of maturity, that comprehensive coverage of their impacts remains difficult, and that broader spillovers are not yet systematically documented.

The 2026 Sandvik policy brief adds an important refinement to this ecosystem picture. Its argument is that ecosystem impact depends not

only on project portfolios or actor networks, but on whether a Lead Company programme creates long-lived collaborative structures that persist beyond the funding period, enables cumulative knowledge flows between projects, and develops metrics that capture systemic rather than merely firm-level effects. The brief emphasises that conventional KPIs such as RDI spending, patents and headcount are not sufficient to understand what makes company-driven ecosystems valuable. It also points to a concrete implementation problem. The projects under the same Lead Company programme may operate too independently, with knowledge protection practices inhibiting learning and creating duplication.

What previous evaluations indicate about implementation of the Veturi initiative

The earlier evaluations are particularly valuable in showing that the main implementation challenges of the Veturi initiative do not lie in its capacity to mobilise activity, but in the balance between R&D funding, ecosystem development and strategic steering. The 2022 evaluation was explicit on this point. It found that the Veturi initiative strongly supports private R&D investment, but that the large scale of funding, combined with national pressure around the 4% R&D target, can create a bias towards generating project volume rather than ensuring coherence and synergy across projects. It also found that many members had only a limited understanding of governance structures and what they could expect from the leading company, while non-financial support from Business Finland often remained light and more "sounding board" than strategic in nature. On this basis, the evaluation recommended, among other things, stronger transparency, more systematic involvement of members in shared roadmaps, greater attention to SMEs' incentives, more explicit prioritisation of ecosystem development, broader scope beyond R&D alone, and a stronger strategic role for Business Finland.

The 2025 mid-term evaluation supports the view that implementation is still uneven across the portfolio. It shows that Veturis differ substantially by maturity and structure, and that the portfolio is already large and complex in scale. The report also identifies the need for better coordination across funding sources, improved pathways to European and international funding, stronger information exchange within and between Veturis, and better long-term monitoring.

The 2026 policy brief sharpens the implementation perspective further by focusing on governance mechanisms. It argues that consortium agreements and governance practices often favour protection over sharing, and that stronger business logic should be introduced into co-innovation projects so that technological achievements connect more clearly to market pathways.

2.4 The Veturi projects being evaluated

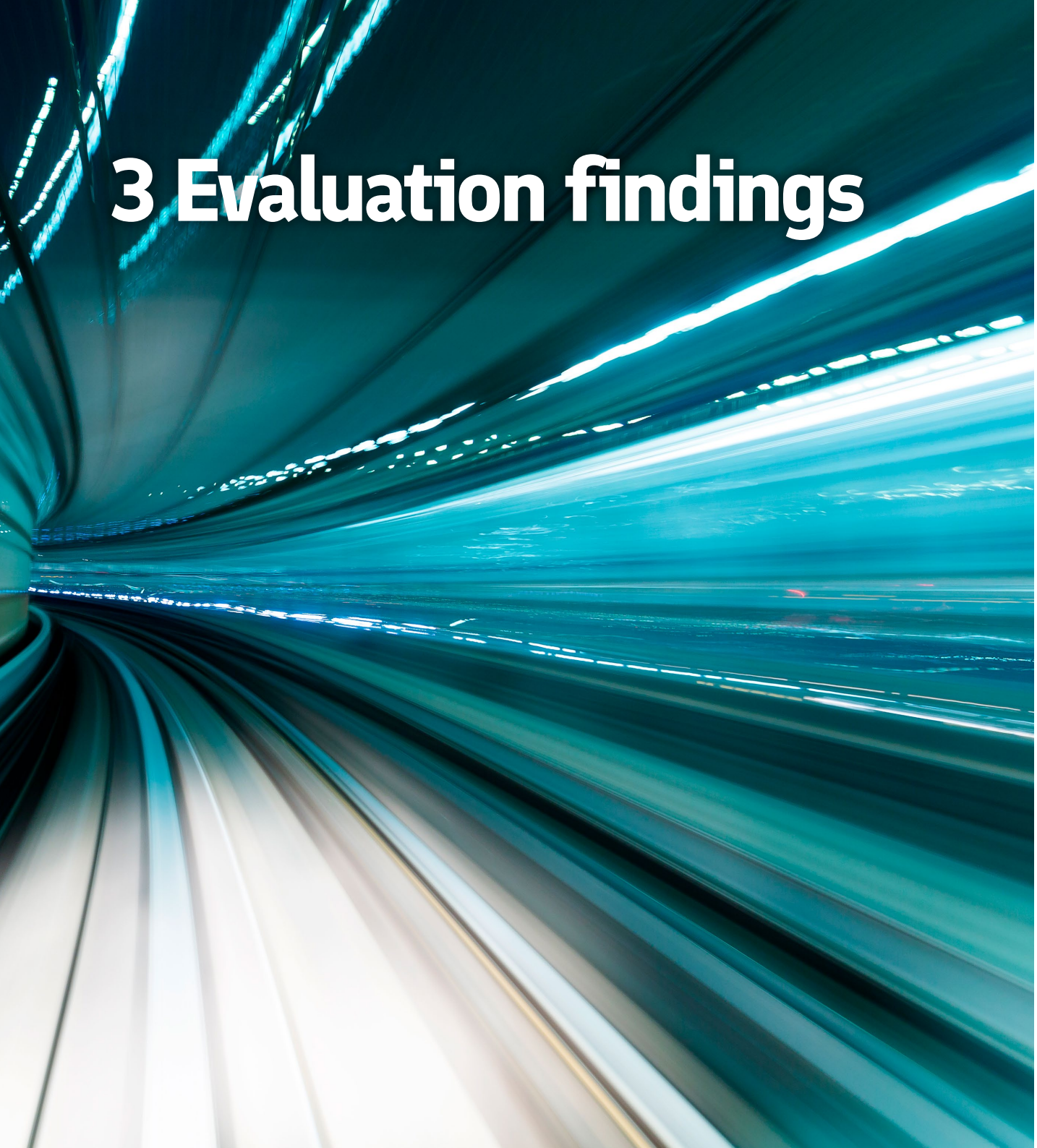
This section introduces the ten Veturi projects covered by the evaluation. Each project is described

briefly below, and the key information on the lead company and focus is summarised in Table 3. The descriptions and targets refer to the situation when the projects were launched, as stated in the project plans and Business Finland's funding decisions, and not to actual, realised development (discussed later in the report). **Business Finland funding may reach up to EUR 20 million for the leading company and up to EUR 50 million for its ecosystem** (see section 2.2 for more information). Projects included in this evaluation last three to five years.

1. **ExpandFibre** is a project led jointly by **Fortum and Metsä Group** and was among the first Veturi projects. The project focuses on developing new value chains from sustainable forest biomass and side streams, including biochemicals, textile fibres and packaging solutions, with the aim of replacing fossil-based materials and creating new high-value bio-based industries.
2. The **Flow of Urban Life** was led by **Kone**. The project aims to transform urban mobility systems through smart, connected and sustainable people-flow solutions, integrating buildings, transport and digital platforms to improve urban efficiency and user experience.
3. **Novel Sustainable & Scalable Solutions** was led by **Neste**. The project develops scalable solutions for renewable fuels, circular feedstocks and sustainable chemicals, with the aim of accelerating the transition to low-carbon transport and materials through new technologies and ecosystem collaboration.
4. **Competitive Edge** was led by **Nokia**. The project focuses on next-generation communication technologies (5G/6G), secure networks and digital platforms, with the aim of strengthening Finland's position in global telecom and enabling new digital ecosystem applications.
5. **Green Electrification 2035** was led by **ABB**. The project advances electrification technologies for industry, transport and energy systems, with the aim of supporting decarbonisation through energy efficiency, automation and smart grid solutions.
6. **SPIRIT – Sustainable Plastics Industry Transformation** was led by **Borealis**. The project targets circular plastics solutions, including recycling technologies, bio-based feedstocks and new materials, with the aim of reducing fossil dependency and enabling a circular plastics economy.
7. **NEcOLEAP – Climate-neutral Cruise Ship** was led by **Meyer Turku**. The project develops concepts and technologies for climate-neutral cruise ships, including energy systems, fuels and design solutions, with the aim of significantly reducing emissions in maritime transport.
8. **SHIFT '25** was led by **Sandvik**. The project focuses on digitalisation, automation and sustainability in mining and manufacturing, with the aim of improving productivity and reducing environmental impact through smart technologies.
9. **Beyond Circularity** was led by **Valmet**. The project develops solutions for carbon-neutral and circular industrial processes, particularly in the pulp, paper and energy industries, emphasising resource efficiency and new bio-based products.
10. **Zero Emission Marine** (ZEM) was led by **Wärtsilä**. The project aims to enable zero-emission shipping through integrated energy systems, alternative fuels such as hydrogen and ammonia, and digital optimisation of marine operations.

Name	Lead	Description
ExpandFibre	Fortum & Metsä Group	Developing new value chains from sustainable forest biomass and side streams, including biochemicals, textile fibres and packaging solutions, aiming to replace fossil-based materials and create new high-value bio-based industries.
The Flow of Urban Life	Kone	Transforms urban mobility systems through smart, connected and sustainable people flow solutions, integrating buildings, transport and digital platforms to improve urban efficiency and user experience.
Novel Sustainable & Scalable Solutions	Neste	Scalable solutions for renewable fuels, circular feedstocks and sustainable chemicals, accelerating the transition to low-carbon transport and materials through new technologies and ecosystem collaboration.
Competitive Edge	Nokia	Focuses on next-generation communication technologies (5G/6G), secure networks and digital platforms, strengthening Finland's position in global telecom and enabling new digital ecosystem applications.
Green Electrification 2035	ABB	Electrification technologies for industry, transport and energy systems, supporting decarbonisation through energy efficiency, automation and smart grid solutions.
SPIRIT	Borealis	Circular plastics solutions, including recycling technologies, bio-based feedstocks and new materials, aiming to reduce fossil dependency and enable a circular plastics economy.
NEcOLEAP	Meyer Turku	Concepts and technologies for climate-neutral cruise ships, including energy systems, fuels and design solutions to significantly reduce emissions in maritime transport.
SHIFT'25	Sandvik	Digitalisation, automation and sustainability in mining and manufacturing, aiming to improve productivity and reduce environmental impact through smart technologies.
Beyond Circularity	Valmet	Solutions for carbon-neutral and circular industrial processes, particularly in pulp, paper and energy industries, emphasising resource efficiency and new bio-based products.
Zero Emission Marine	Wärtsilä	To enable zero-emission shipping through integrated energy systems, alternative fuels (e.g. hydrogen, ammonia), and digital optimisation of marine operations.

Table 3. Summary of key information of the ten Veturi projects.



3 Evaluation findings

This chapter presents the findings of the evaluation, drawing together the evidence from the ten evaluated Veturi cases, Business Finland funding and project data, company-level R&D and financial statement analysis, the classification of ecosystem project documentation and the network analysis of ecosystem linkages. The findings are organised along the evaluation framework: section 3.1 examines the impact of Veturi funding on the leading companies, covering R&D investments, innovation activities and outcomes, and strategic ambition and capabilities; section 3.2 turns to ecosystem-level dynamics and effects; and section 3.3 assesses the relevance and coherence of the instrument and the efficiency and quality of its implementation.

3.1 Impact of Veturi funding on the leading companies

This section assesses what the Veturi funding changed in the leading companies themselves. It draws on the ten case studies and interviews,

the companies' KPI reporting to Business Finland, and the company-level analysis of R&D expenditure and financial statement data. The findings are presented in three parts: the impact on the level and composition of R&D investments (section 3.1.1), the impact on R&D outcomes, including innovation outputs and their commercialisation (section 3.1.2), and the impact on strategic ambition and organisational capabilities (section 3.1.3).

3.1.1 Impact on R&D investments of the leading companies

Findings on R&D expenditure in Veturi companies

The sum of cumulative R&D expenditure over the project timespan has been the key performance indicator for the Veturi companies (the same performance indicator was not extended to the ecosystem members and co-innovation project partners).

Across the ten evaluated Veturi projects, company R&D expenditure increased substantially over the funding period. Formal R&D-growth targets were met or significantly exceeded in eight of the eleven companies, with combined actual R&D growth of approximately EUR 1.5 billion against a combined target of around EUR 841 million (a ratio of roughly 1.8 times the targets), corresponding to an estimated six-times gross leverage on the Veturi funding committed to lead companies. In the three companies that fell short of their R&D-growth target, the shortfall coincided with unrelated company-wide challenges, such as corporate restructuring and cyclical downturns, rather than weaknesses in Veturi design or delivery, and should be read accordingly.

The figures below present this development on the basis of Business Finland funding and project data. It should be noted that the Veturi projects started in different years (2020–2022) and their baseline years (2019 or 2020) differ, which affects the comparability of the annual development between companies.

The reported R&D expenditure growth of Veturi companies exceeded the funding-decision target

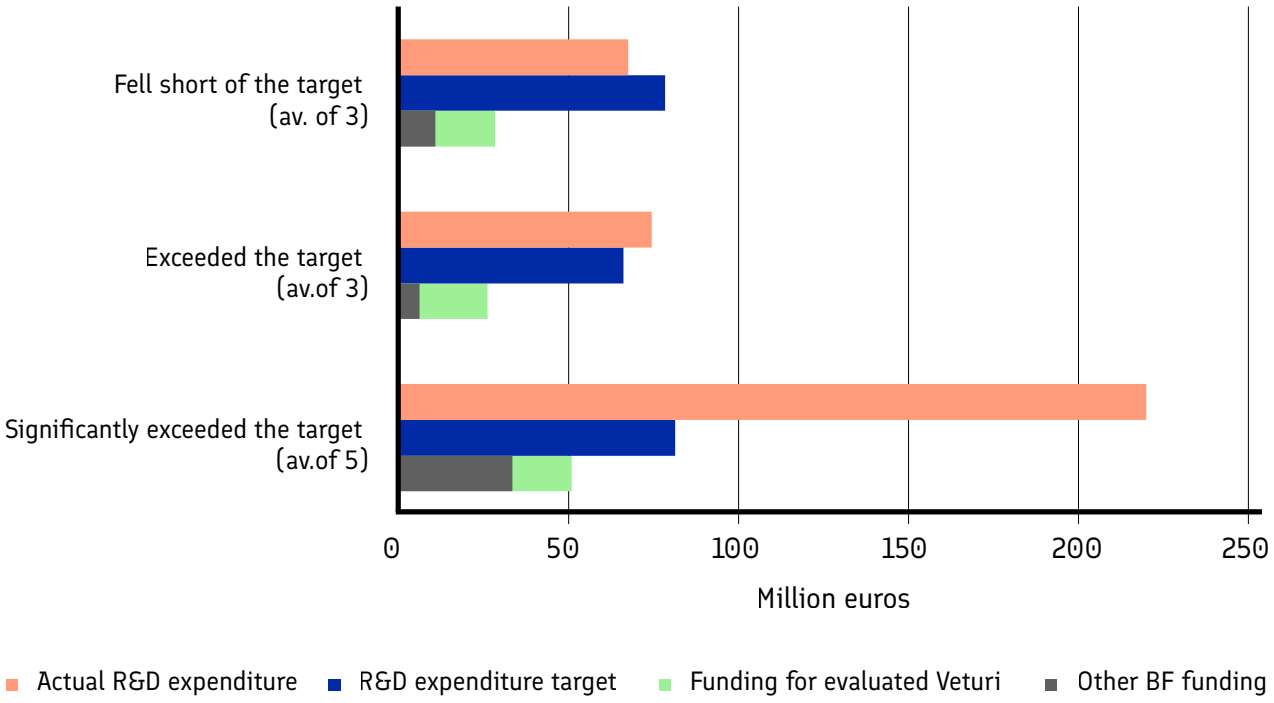
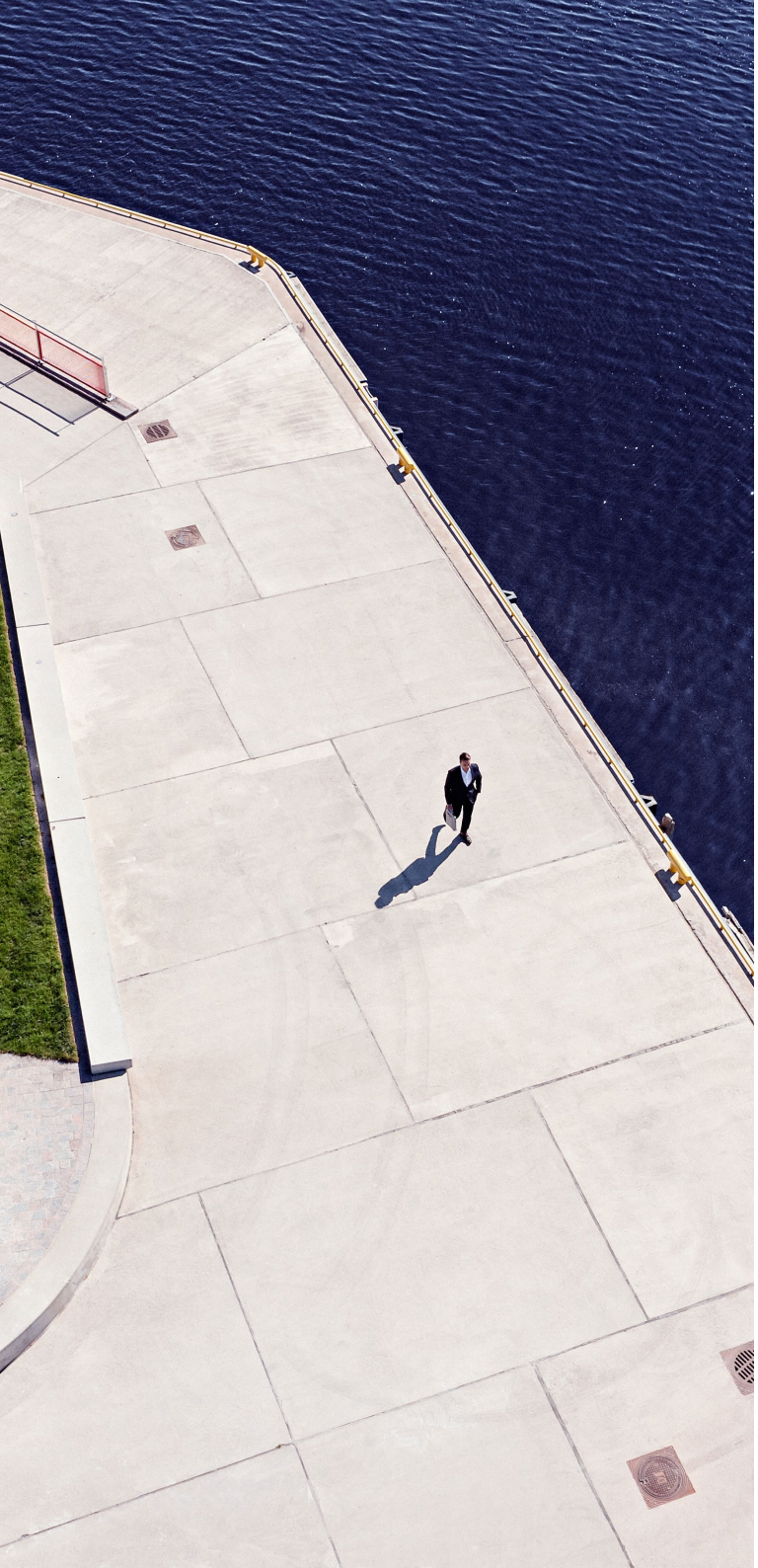


Figure 3. Cumulative increase of R&D expenditure, planned and actual & Business Finland funding[5]. Source: Business Finland, actual numbers based on Veturi companies' self-reporting to Business Finland.

[5] Veturi funding includes only funding related to the evaluated Veturi projects. Some firms have more than one Veturi project, and this funding is included in Other BF funding category, which includes all other BF funding that was granted during the Veturi project time span.ng is included in Other BF funding category, which includes all other BF funding that was granted during the Veturi project time span.



in eight of the eleven companies. Five of the companies exceeded their target significantly (their average cumulative R&D expenditure was 220 million euros while the target was on average 81 million euros). Three companies exceeded the target by on average 9 million euros and the three companies who did not meet the target fell short by 10 million euros on average. The variation in R&D growth between the Veturi companies was thus significant: target attainment ranged from below 90% to more than four times the target, and the leverage on Business Finland funding varied roughly eight-fold between cases. This dispersion is likely to reflect differences in the companies' size, sector, business cycle and starting level of R&D, as well as differences in how R&D baselines and cost definitions were set and revised (see the critical analysis below). Portfolio-level totals and averages therefore conceal very different company trajectories, and the results are driven to a considerable extent by a small number of strong performers.

The development of the Veturi companies' R&D expenditure in Finland was also compared with that of their global, group-level R&D expenditure in 2020–2024. As group-level data were available only for part of the companies, the comparison is indicative. For most of the period, the two developed in parallel, with growth in domestic R&D broadly tracking growth in global R&D. While definitive conclusions cannot be drawn from this analysis, it suggests that the increase in R&D in Finland has not come about mainly by relocating existing group R&D to Finland, but has accompanied a broader expansion of the groups' R&D activity. In 2024, however, domestic R&D turned down more sharply than group-level R&D. This may indicate that R&D activity in Finland is more sensitive to cyclical downturns and to the ending of the first Veturi projects.

Findings on leverage of Business Finland funding on Veturi companies' R&D expenditure

Leverage on Veturi funding describes how many euros of additional R&D expenditure the Veturi companies invested for each euro of Veturi funding. Measured in this way, leverage ranges from an average of 2.4 euros in the lowest leverage category to 14.2 euros in the highest (Figure 4, orange bar). Leverage has been calculated for 11 companies, as one of the ten projects had two Veturi companies. To ensure anonymity, the companies have been grouped into three categories by size of leverage, and the figure shows the average for each category.

However, these results should be interpreted with caution, as leverage is difficult to estimate precisely and several sources of uncertainty affect the estimates. First, in addition to Veturi funding, the companies have received other Business Finland funding during the review period, in some cases for another Veturi project, and part of the increase in R&D expenditure may therefore be attributable to that funding. Second, the estimates do not take into

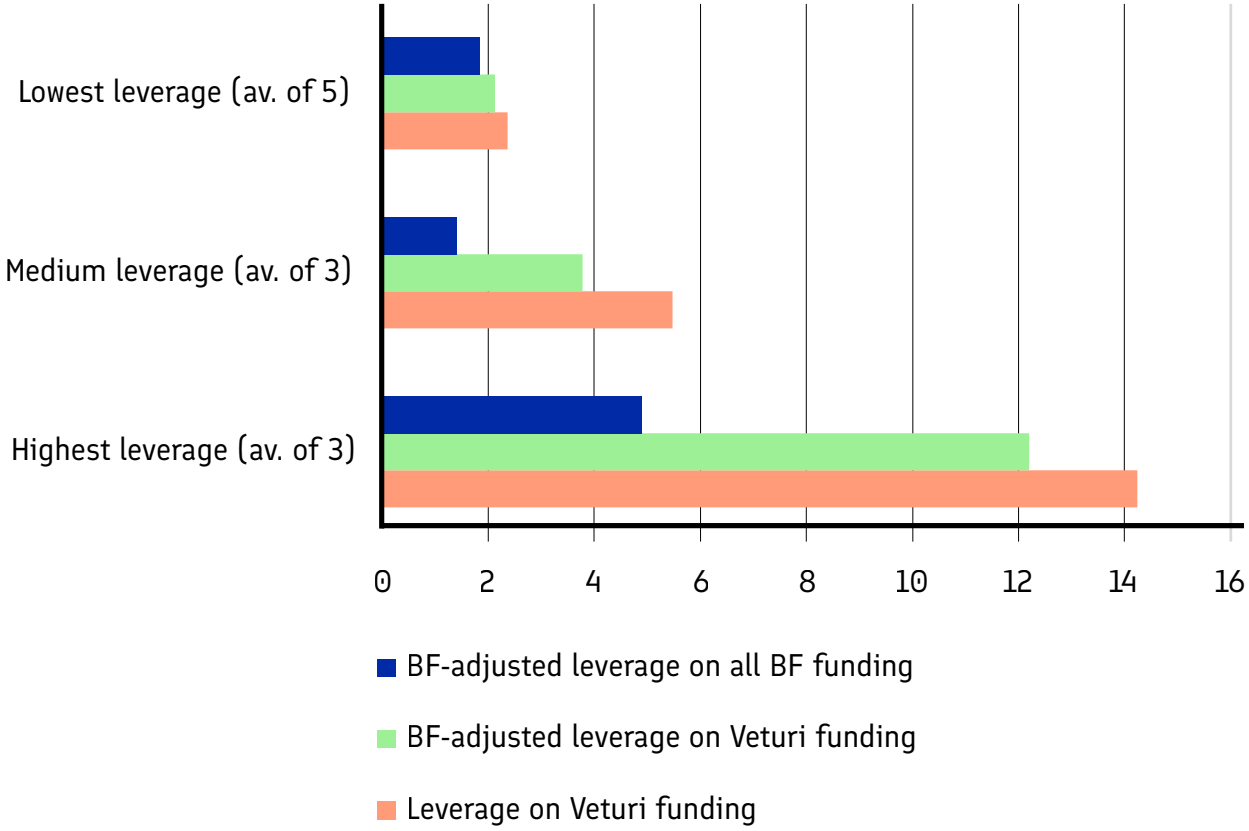


Figure 4. Leverage effect estimations (euros per euro of Business Finland funding).

Leverage = (R&D expenditure – Veturi funding) / Veturi funding; BF funding adjusted leverage to Veturi funding = (R&D expenditure – all BF funding)/ Veturi funding; BF funding adjusted leverage to all BF funding = (R&D expenditure – all BF funding) / all BF funding. Other BF funding was accounted from the years that the Veturi was reporting R&D expenditures as a payment indicator. Both the R&D expenditure and all BF funding are accounted for the whole corporation in Finland. Source: Business Finland, actual numbers based on Veturi companies' reporting to Business Finland.

account other public R&D support, such as R&D tax incentives, or the effect of inflation on R&D costs. Third, the calculation does not establish a counterfactual: it is not known how much of the increase in R&D expenditure would have taken place without Veturi funding, and many other factors, such as business cycles, corporate strategies and restructuring, also influence companies' R&D investment decisions. Fourth, both R&D expenditure and Business Finland funding are accounted for the whole corporation in Finland, so the figures may also include R&D activities that are not directly linked to the Veturi project.

To account for these uncertainties, in particular the overlap with other Business Finland funding, two adjusted leverage estimates have been calculated in addition to the basic leverage on Veturi funding (Figure 4, green and blue bars). The three estimates are defined as follows:

- Leverage on Veturi funding (orange bar):

$$\frac{(\textit{Cumulative R\&D exp.} - \textit{Veturi funding})}{\textit{Veturi funding}}$$

- BF-adjusted leverage on Veturi funding (green bar):

$$\frac{(\textit{Cumulative R\&D exp.} - \textit{All BF funding}}{\textit{Veturi funding}}$$

- BF-adjusted leverage on all BF funding (blue bar):

$$\frac{(\textit{Cumulative R\&D exp.} - \textit{All BF funding}}{\textit{All BF funding}}$$

In all three formulas, R&D expenditure refers to the cumulative increase in R&D expenditure relative to the baseline, as reported by the Veturi company to Business Finland as a payment indicator over the review period. In the basic leverage (orange bar), Veturi funding is subtracted from R&D expenditure, as the funding itself finances part of that expenditure; the result thus shows the additional R&D expenditure per euro of Veturi funding. In the two adjusted estimates, all Business Finland funding the company received during the review period, i.e. both Veturi funding and other BF funding, is subtracted from R&D expenditure. Other BF funding is included for the years in which the company reported R&D expenditure as a payment indicator. For the green bar, the result is divided by Veturi funding only. This assumes that only Veturi funding leverages private R&D investment and that other BF funding merely finances part of the R&D expenditure. For the blue bar, the result is divided by all BF funding, which assumes that all BF funding leverages private R&D investment equally. The green bar therefore represents the upper and the blue bar the lower adjusted estimate.

The actual leverage most likely lies between the two adjusted estimates, ranging from 1.8–2.1 euros in the lowest category to 4.9–12.2 euros in the highest.

Challenges in defining R&D expenditure

The findings on R&D expenditure presented above should be read with several qualifications in mind. First, the data are based on the companies' own reporting to Business Finland. The companies report to Business Finland the same R&D expenditure figures that they report to Statistics Finland. This approach is linked to the national target of raising R&D expenditure to 4% of GDP, as these are the same data on which monitoring of progress towards that target is based. R&D expenditure was reported against project-specific baselines agreed with Business Finland, and it has not been possible to verify these figures independently in full.

Second, defining and measuring company R&D activities is not straightforward, and it proved genuinely difficult in practice for many companies. A recurring, cross-case measurement issue emerged during the evaluation: at least five companies required a mid-project correction to their R&D expenditure baseline or cost definitions, most often because pilot-, demonstration- or innovation-stage costs had not originally been captured.

Third, while assessing R&D expenditure at group level is justified, as it prevents R&D expenditure from simply being shifted between group entities without a genuine increase in its overall level, group-level figures can mask considerable variation between units. Thus, for companies operating through several legal entities or business areas, interpreting group-level R&D figures poses additional challenges.



Fourth, the evidence points to the development of companies' internal R&D reporting practices during the Veturi projects, and in some cases the relabelling of activity previously recorded under other cost categories. The evaluation was not able to quantify the size of this effect, but the differences between the figures reported to Business Finland and those appearing in corporate financial accounts – although not fully comparable – suggest that it is not negligible. This does not mean that the reported R&D is flawed or wrong, but highlights the more general challenge regarding the R&D definitions and reporting.

The difference between R&D expenses reported to Business Finland and those reported in company annual financial reports is largely explained by differences in the R&D definition used in four Veturi companies' R&D KPI calculations. In all four companies the R&D expenses reported to Business Finland were higher than those they reported in their annual reports. For all these four companies, the baseline for calculating R&D increases was raised, while the absolute investment targets were increased similarly. Hence, the revisions did not influence the agreed increase of company R&D expenses, but the reference level for its calculation, as well as what expenses were included in it.

Fifth, the leverage figures presented above are gross figures and are likely to overstate the leverage effect of the Veturi funding since the Veturi companies have during the same period most likely received substantial other public R&D support, such as the R&D tax incentive introduced in 2021. Full assessment of all public support to Veturi companies has not been possible as part of this evaluation but should be considered when interpreting results.

Sixth, the R&D figures are expressed in nominal terms and have not been adjusted for inflation, which was exceptionally high in 2022–2023 and raised R&D costs, particularly personnel costs. Part of the reported growth may therefore reflect price and salary increases rather than an increase in real R&D activity. The impact of this could not be assessed as part of this evaluation.

Key findings

- Eight of the ten evaluated cases met or exceeded their R&D-growth target. Combined actual R&D growth reached approximately EUR 1.5 billion against a combined target of around EUR 841 million, roughly 1.8 times the target.
- Results vary considerably between companies, and portfolio-level totals are driven to a considerable extent by a few strong performers.
- Leverage on Veturi funding was high but varied widely between companies, from an average of 2.4 euros of additional R&D expenditure per euro of Veturi funding in the lowest leverage category to 14.2 euros in the highest. When other Business Finland funding received by the companies is taken into account, the actual leverage most likely lies between 1.8–2.1 euros in the lowest category and 4.9–12.2 euros in the highest. Even the adjusted figures do not take into account other public R&D support or inflation and should be interpreted with caution.
- The reported R&D figures involve several uncertainties and should therefore be interpreted with caution (see “Challenges in defining R&D expenditure” above).

3.1.2 Impact on business performance and R&D outcomes of Veturi companies

Effects on business performance and competitiveness

Commercial impact of Veturi projects is consistently described as real but still emerging rather than fully realised within the funding period, a pattern repeated almost word-for-word across Veturis. Where quantified, effects are large in a few cases but the companies are generally careful to note that broader market cycles, unrelated

restructuring, or mergers also affected these figures during the same period, complicating clean attribution to Veturi funding alone.

Turnover and export development of Veturi and ecosystem companies before and after Veturi projects

As further assessed in the following section, most of the Veturi companies' innovations have a very long time-to-market and they involve significant technology, market and regulatory risks. Therefore, only a few of the Veturi companies have turned the new innovations into turnover by the end of the project. Moreover, as the Veturi companies are large, it would be impossible to isolate the share of the Veturi innovations in their turnover. However, for smaller ecosystem companies, Veturi participation may be more significant.

When looking at the turnover data from before, during and after the project, the data show that micro and small companies have increased their turnover by 40–60%. While it is impossible to isolate the effect of Veturi itself, the evidence suggests that smaller companies have benefited from the collaboration. In terms of exports, the same trend can be seen in micro, small and medium-sized companies. Micro-sized companies have seen a 3.5-fold growth in exports from 2020 to 2024. There is large variance between companies, especially small and micro-sized ones, but the development is generally positive for most of them. Some interviews with Veturi companies highlight this, noting that many small and micro-sized companies benefited largely from the visibility and networks provided by the ecosystem and Veturi.

The data includes a total of 28 microenterprises, defined as companies with fewer than 10 employees. On average, these microenterprises have multiplied their exports since the start of the Veturi programme, particularly in 2024 and 2025. The averages, however, mask a wide range of individual stories. Export figures for microenterprises can fluctuate considerably from year to year. Eight companies have at least doubled their exports, some by as much as tenfold. At the same time, exports have declined for six microenterprises in 2024 and 2025 compared with 2020.

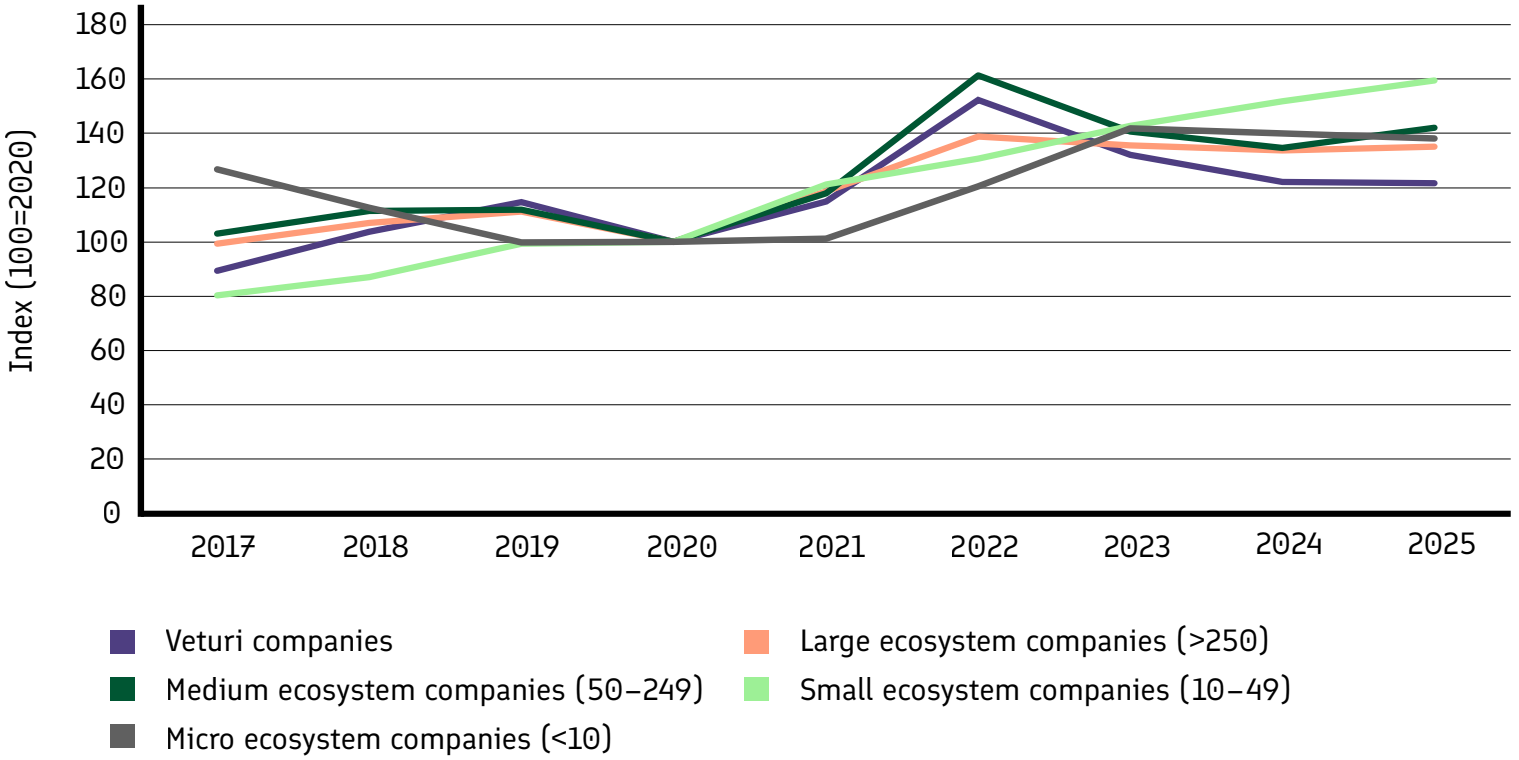


Figure 5. Turnover development in Veturi companies and their ecosystems (2020=100).

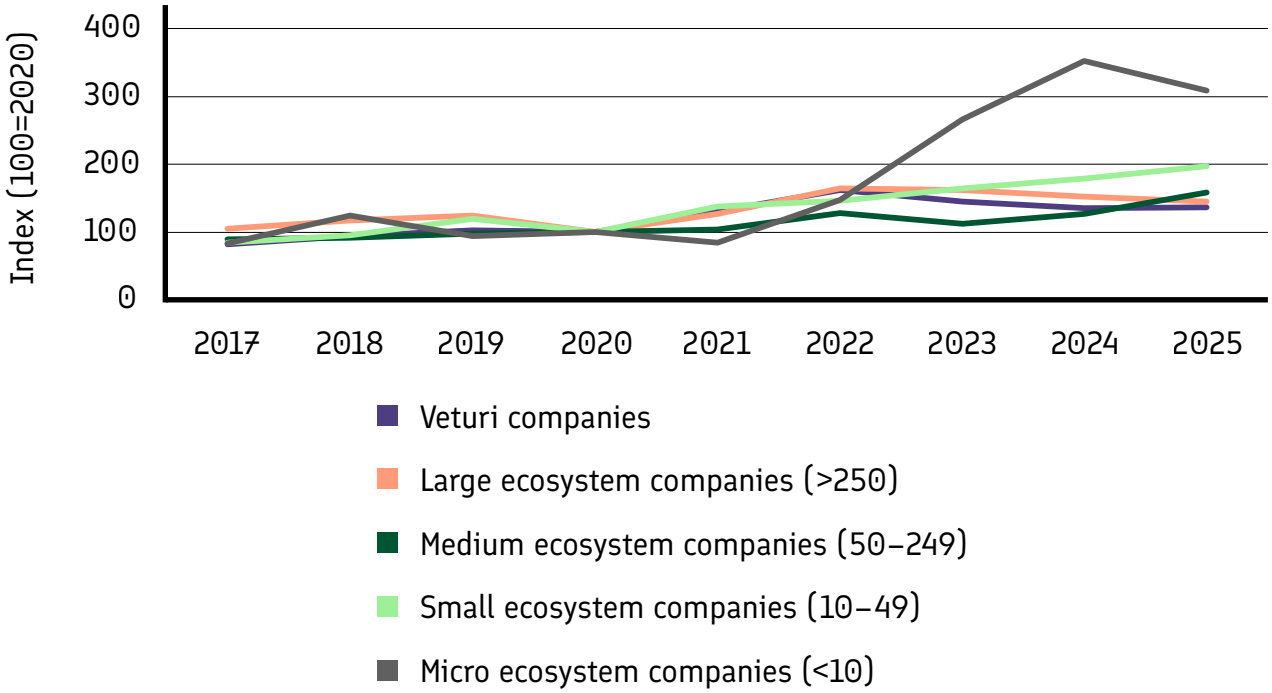


Figure 6. Export development of Veturi companies and their ecosystem (2020=100).



Impact on R&D outcomes

Case evidence shows that Veturi funding enabled higher-risk, more exploratory R&D than companies would likely have pursued on their own. Companies estimate that, absent Veturi funding, this riskier R&D would have progressed at roughly half the pace. Several interviewed Veturis independently estimated their projects would have advanced "at least half as fast" without the funding.

Concrete new technologies and products reached market or investment-decision stage in most cases. However, not every high-risk line succeeded, and several were legitimately discontinued or descoped during the project period. These discontinuations can be seen as evidence that the Veturi model has enabled the companies to explore more high-risk radical innovations instead of incremental development.

On the other hand, the focus on more explorative R&D means that the projects are typically further away from markets. Full commercial or revenue impact from the Veturi projects is consistently described by companies as a five-year-plus horizon, reflecting the exploratory nature of the projects, length of industrial investment and regulatory cycles.

A small number of cases already show quantified, project-linked commercial outcomes.

Some of the Veturi projects coincided with unrelated company-wide challenges – such as restructuring and a market downturn – which, according to the interviews, significantly affected the projects and their outcomes.

According to the evidence from project reports and interviews, R&D personnel grew in most cases. There is also some evidence on the development of R&D infrastructures, although some infrastructure investments were seen as coinciding with the Veturi project rather than being caused by it.

Key findings

- Commercial impact of the Veturi projects cannot be fully assessed. Evidence suggests that significant broader economic impacts are attainable but still emerging; commercial-scale impact is a multi-year process extending beyond the funding period.
- Where quantified, estimated effects are large in a few cases, but market cycles, restructuring and mergers during the same period complicate attribution to Veturi funding. Also, as the Veturi companies are large, the share of Veturi innovations in their turnover cannot be isolated.
- Evidence suggests that smaller companies have benefited from the collaboration with the Veturi companies and ecosystems.
- Concrete, market- or investment-ready innovation outputs are documented in most cases, but companies expect a five-year-plus horizon for commercialisation, reflecting the exploratory early-stage nature of the R&D projects.

3.1.3 Impact on strategic ambition and capabilities

Interviewed companies consistently describe Veturi as having raised their internal ambition level for R&D, moving projects from incremental improvement toward transformational, ecosystem-scale challenges. The additionality evidence is strongest where Veturi anchored or restarted R&D activity in Finland that might otherwise have moved abroad or not existed at meaningful scale: one Veturi company rebuilt its R&D function from a near-zero base, and another undertook its first major R&D project in around 20 years.

The strategic scale of Veturi funding is its most clearly documented added value. Because the instrument commits substantial public co-funding over several years against company-level growth targets, it requires the company to formulate a business-driven R&D agenda at group strategy level, in contrast to smaller project-based instruments, which tend to support more incremental R&D within existing lines of work. In several of the cases the Veturi project became the frame under which previously separate development activities were consolidated into a single strategic programme with visible internal ownership.

A distinct effect emphasised in the interviews was the resulting elevation of R&D agendas from project level to strategic level inside the companies, including in globally operating groups where R&D resources are allocated in internal competition between countries, business areas and technology portfolios. Companies reported that the Veturi mandate strengthened the internal case for group R&D resources and secured management attention at a higher level than a conventional development project would have done.

Building the organisational capability to run a large, multi-partner ecosystem was itself a distinct and, for several companies, unfamiliar challenge. Some Veturis report that systematic ecosystem-building was a capability the company had to learn from scratch, having previously worked mainly through bilateral partnerships. Several Veturi companies also built new institutional capacity intended to outlive the Veturi funding period itself, including new group-level R&D units, university PhD schools and knowledge centres and strategic platforms subsequently opened to external partners.

Effects on innovation capability and outputs

All Veturi projects report concrete technology and commercial outputs.

Patent output is substantial and broadly comparable in scale across the larger cases (Veturi 1: 92 priority applications; Veturi 2: 44; Veturi 3: 46 patents plus 349 invention disclosures; Veturi 4: 29 patent families/162 applications; Veturi 5: 88 new patents filed).

Several Veturis also name at least one work stream that underperformed or was discontinued, which highlights the nature of the Veturi instrument, which aims to support low-TRL, high-risk R&D.



Key findings

- Veturi raised companies' internal ambition level for R&D, shifting projects toward transformational rather than incremental goals.
- In some cases, Veturi anchored or restarted R&D activity in Finland that might otherwise have moved abroad or not occurred at meaningful scale.
- The strategic scale of the funding is its most clearly documented added value: the Veturi mandate lifted R&D agendas from project level to strategic level and helped them win internal competition for resources within globally operating groups.
- Running a large ecosystem was itself a new organisational capability for several companies and required significant investments to develop management practices.
- Several companies built lasting institutional capacity (new R&D units, knowledge centres, open platforms) that outlives the funding period.

3.2 Ecosystem-level dynamics and effects

This section shifts the focus from the leading companies to the ecosystems built around them. It draws on Business Finland funding and project data and the companies' KPI reporting, on the network analysis of ecosystem linkages based on web-based material, on the classification of ecosystem project documentation, and on the case interviews with the leading companies and selected ecosystem partners.

3.2.1 Development of Veturi ecosystems and KPIs

Besides private R&D expenditure, Veturi companies had other payment indicators, e.g. number of Business Finland funded ecosystem projects, number of ecosystem members (including also other than Business Finland funded co-innovation) and number of international projects. The following sections assess the development of the Veturi ecosystems through these indicators.

Allocation of funding across the Veturi ecosystems

Business Finland funding for the Veturi companies has been mostly 20 million euros per Veturi company, which is the maximum amount that can be granted. The respective ecosystem funding varies from 27 million euros (Kone) to 54 million euros (Valmet). Most of the Veturi ecosystems were more research oriented with over half of the ecosystem funding going to research organisations. Especially Fortum & Metsä Group (ExpandFibre, 36 million euros for research organisations) and Neste (Novel sustainable & scalable solutions for transportation and chemicals, 35 million euros for research organisations) were heavily research oriented. A few ecosystems leaned more towards the private sector, such as Kone (Flow of Urban Life) and Nokia (Competitive Edge), which both had around half of the ecosystem funding allocated to companies.

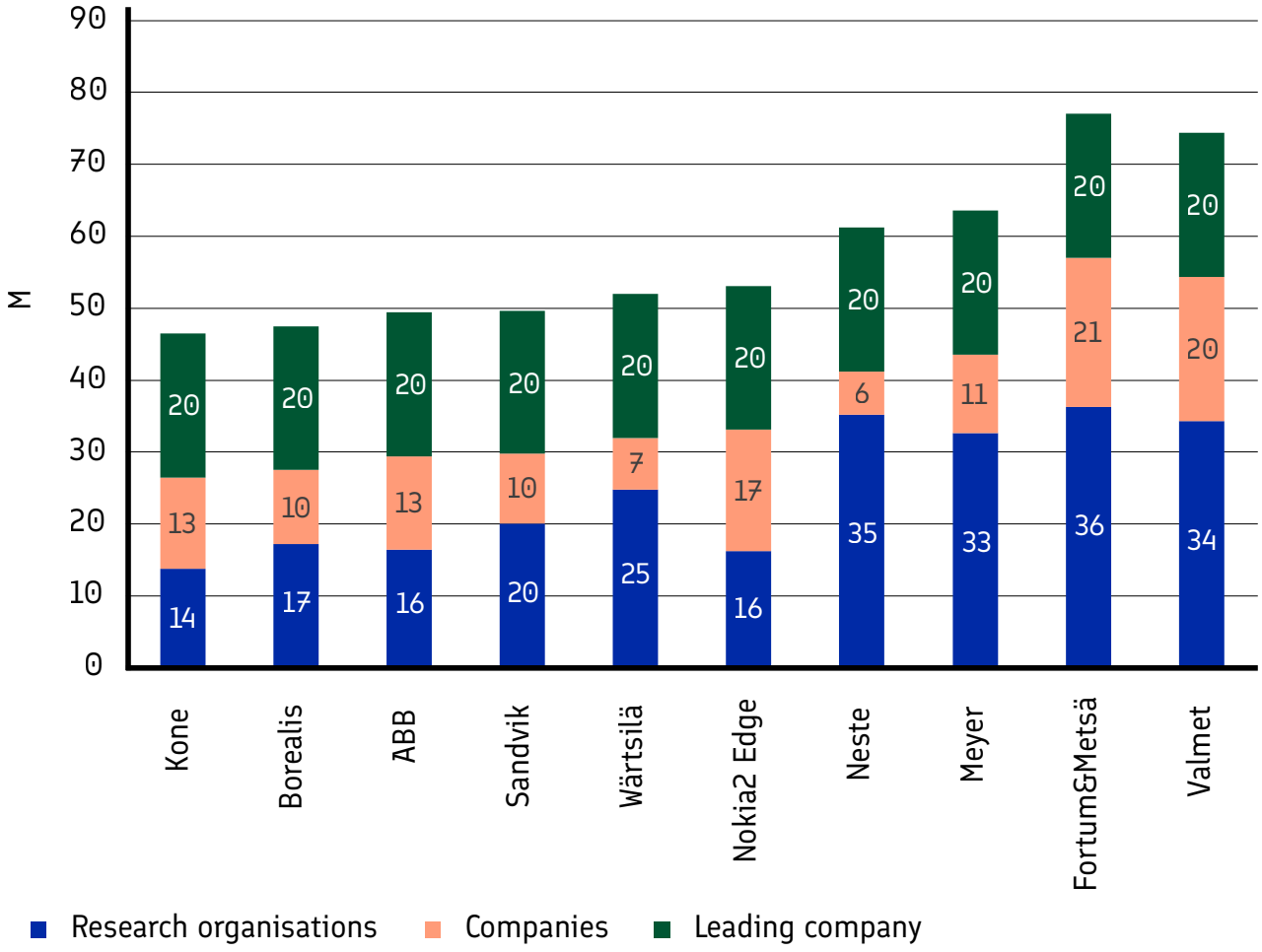


Figure 7. Total granted funding. Source: Business Finland funding data. Based on public data and hence the names of the Veturi companies are included unlike in other graphs.

Based on the analysis of documented KPIs, ecosystem size and partner mobilisation grew substantially across the portfolio and, in aggregate, exceeded the targets set for the instrument. Combined ecosystem-partner numbers reached approximately 1,284 organisations against a combined target of around 690, roughly 1.9 times target, and the number of ecosystem projects exceeded target in nine of the ten cases; only one of the cases fell short, which was nonetheless judged a success in context given the company's starting position. Ecosystem composition typically combined large companies, universities, research institutes such as VTT, and small and medium-sized enterprises, mixing formal and informal participation.

The number of Business Finland funded ecosystem partners varied from 58 to 112. Measured in number of organisations, most of the ecosystems were more research oriented, although the share of research partners of all partners varied considerably across the Veturi projects (from 37% to 78%). The share of company partners was generally lower (22%–63%).

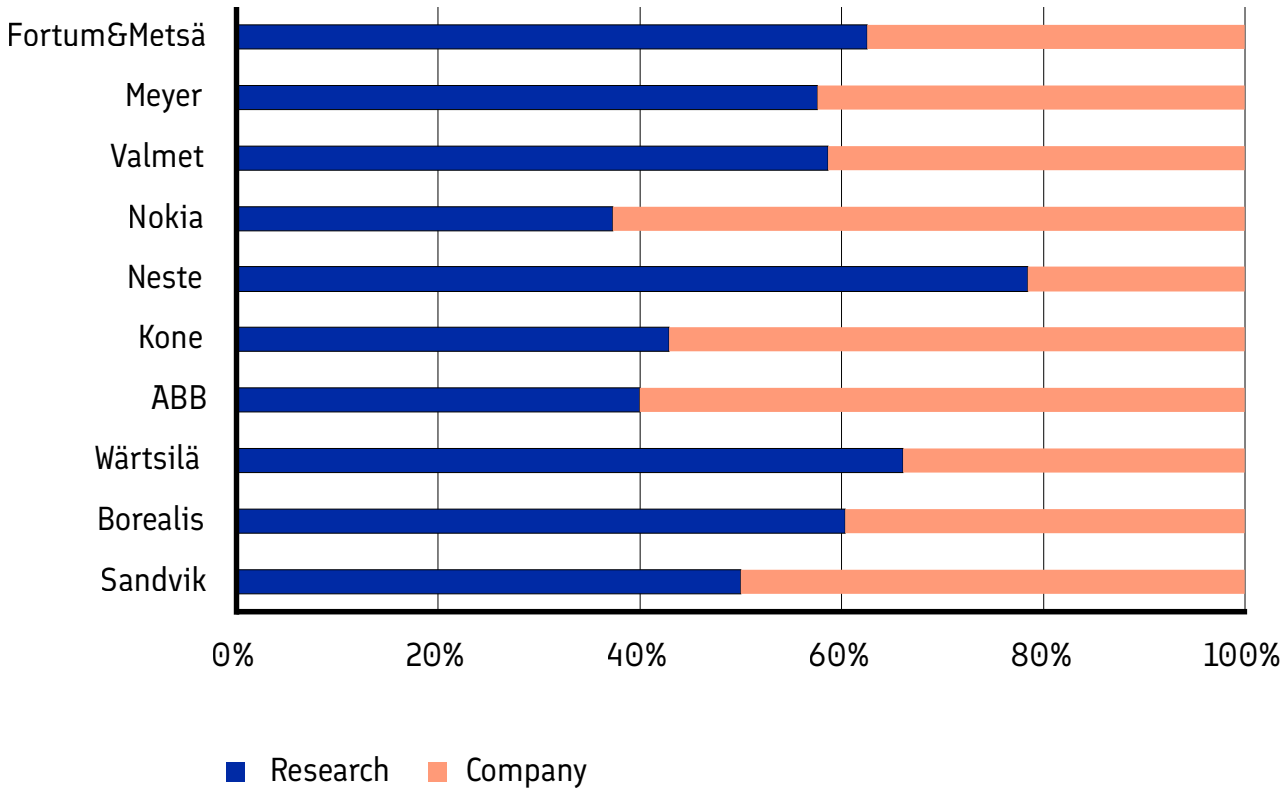


Figure 8. Number of organisations per Veturi that have received funding from Business Finland. Business Finland funding data.

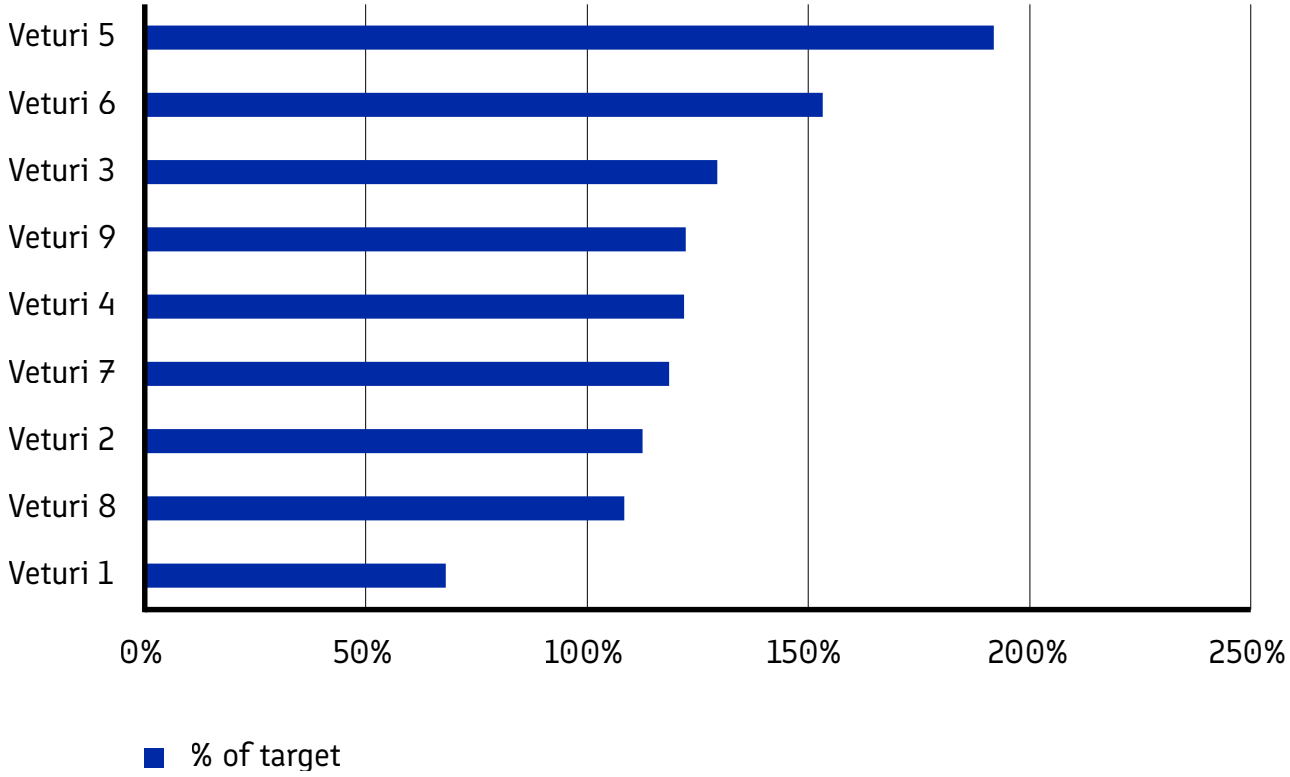


Figure 9. M2a: Number of Business Finland funded Co-innovation applications or applicants in the Veturi ecosystems. Actual versus target. One Veturi did not have this KPI and is hence not reported. The numbering matches only with Figure 10.

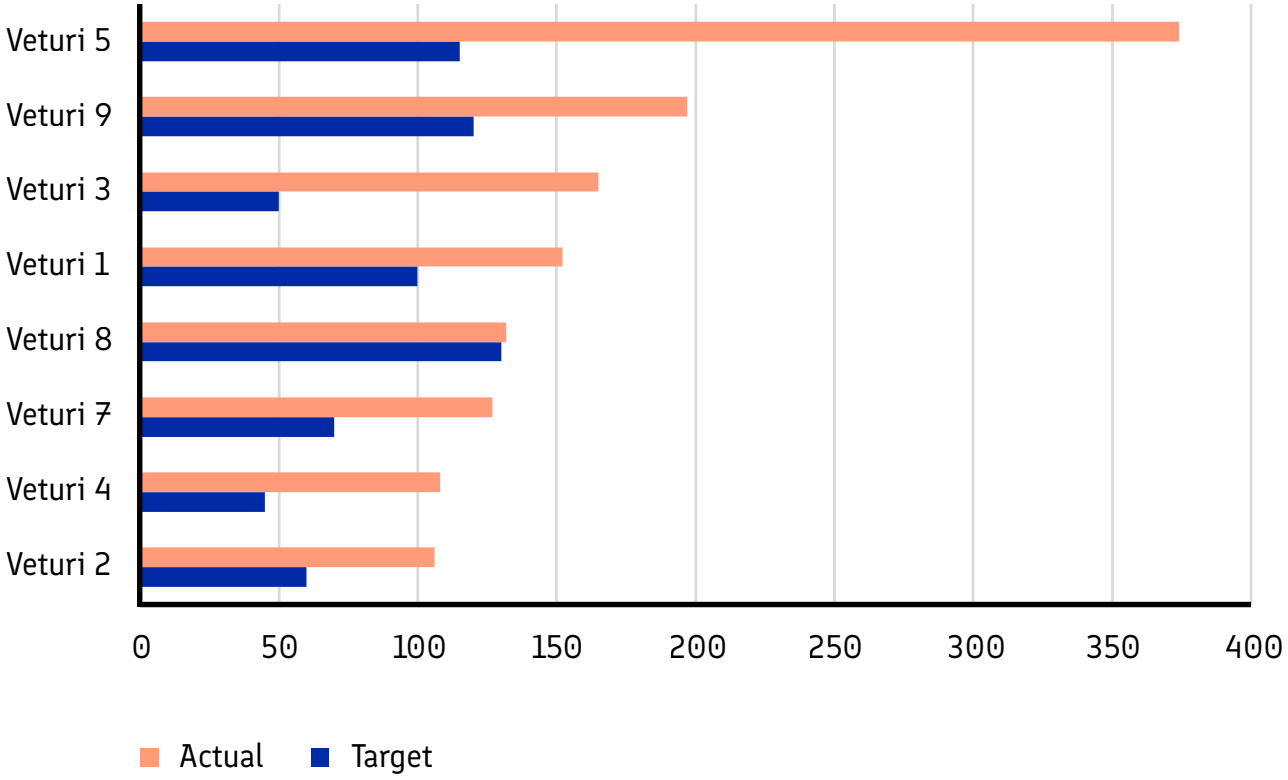


Figure 10. M2c: Number of ecosystem partners. Actual versus planned. Two Veturis did not have this KPI and are hence not reported. The numbering matches only with Figure 9.

Veturi's procurements from SMEs and research organisations

Besides the Business Finland funded ecosystem projects, the Veturis and their ecosystems involve other actors through procurements. Overall, even though the Veturi ecosystems were generally more research organisation focused (measured by volume of Business Finland funding), the procurements were heavily skewed towards SMEs. The total procurements from SMEs were 140 million euros and total procurements from research organisations were 81 million euros. The volume of procurements varies significantly from Veturi to Veturi (between 3 and 42 million euros). The numbers involve both the procurements made by the Veturi company and their ecosystem members.

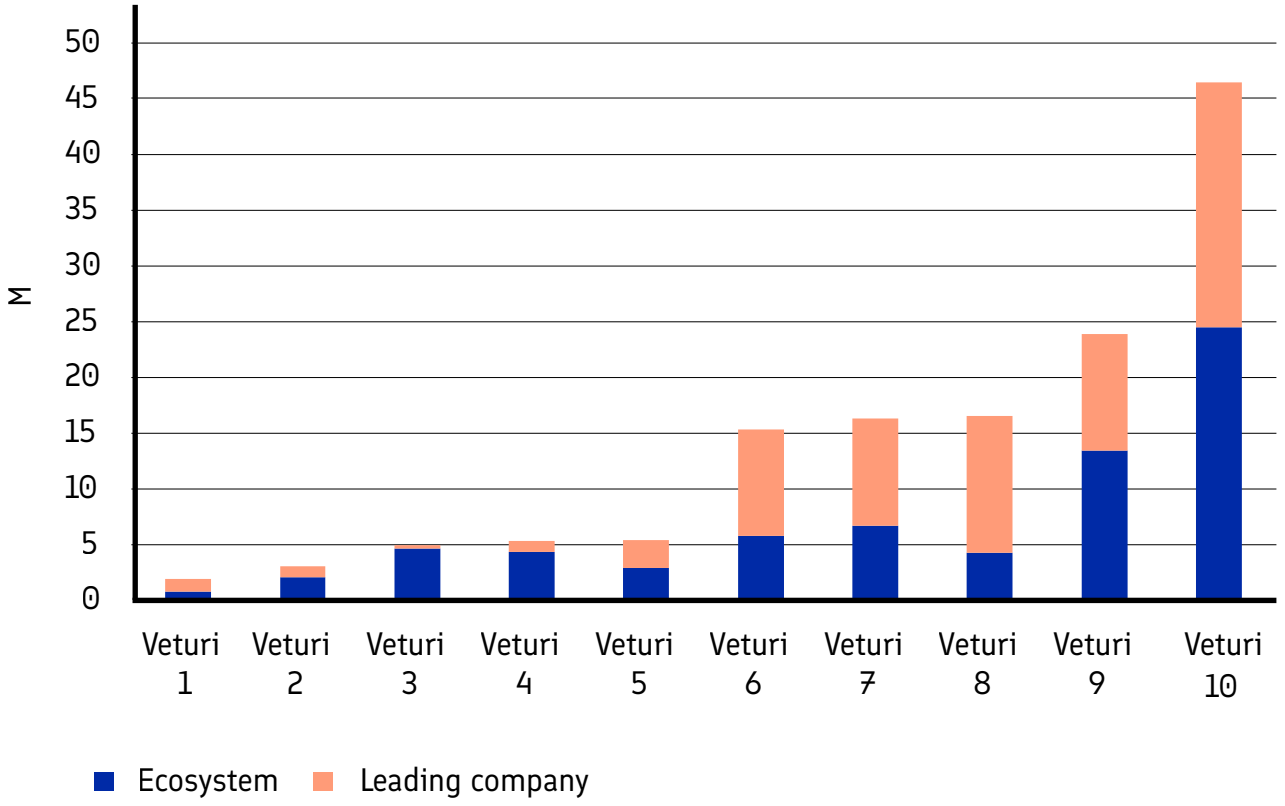


Figure 11. Procurements from SMEs. Business Finland funding data.

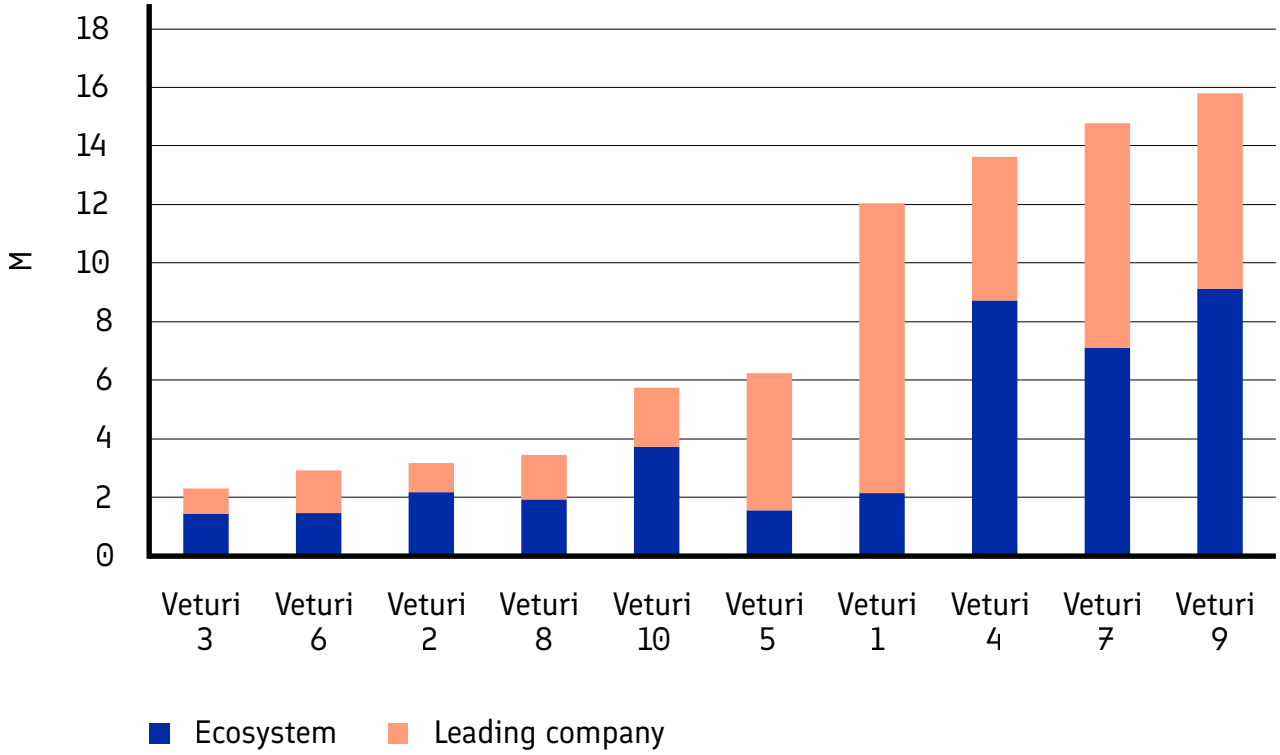


Figure 12. Procurements from research organisations. Business Finland funding data.

Ecosystem continuity

Ecosystem continuity beyond the formal funding period varied across cases. Some ecosystems were formally wound down at project close or left with open questions about their future despite continued partner interest, while others were bridged for a further period of around one year through self-funding by the lead company pending a decision on follow-on support. There is no dedicated ecosystem-continuation funding mechanism, and in practice the most common route observed was the lead company applying for a further Veturi project (for example Wärtsilä into WISE, and Sandvik and Meyer Turku into follow-on projects), which sustains the lead company's own R&D trajectory but does not by itself secure the business growth of the wider ecosystem partners.

Key findings

- Ecosystem size and partner mobilisation grew substantially and exceeded the targets set for the instrument in aggregate. The combined number of ecosystem partners reached approximately 1,284 organisations against a combined target of around 690, roughly 1.9 times the target.
- The number of Business Finland funded ecosystem projects exceeded the target in all but one case, and the ecosystem member target was exceeded in every case that had this KPI.
- The number of Business Finland funded ecosystem partners varied from around 60 to over 110 per ecosystem, with share of research partners ranging from 37% to 78% and share of company partners from 22% to 63%. Most ecosystems were research-oriented, with over half of the ecosystem funding going to research organisations.
- SMEs were involved in the ecosystems also through procurement: EUR 140 million was procured from SMEs (EUR 81 million from research organisations). Procurement volumes vary greatly between ecosystems, from under EUR 3 million to more than EUR 40 million procured from SMEs.
- Ecosystem continuity beyond the funding period is uneven and largely undesigned. There is no dedicated continuation mechanism, and the most common route is the lead company applying for a further Veturi project, which does not by itself secure the continuity of the wider ecosystem.

3.2.2 Ecosystem dynamics and role of the leading companies

Overall ecosystem dynamics and roles

The webscraped data show **evidence of intra-ecosystem collaboration for 95% of the members**, based on ties identified through web scraping and joint Business Finland-funded projects. This means that 95% of organisations have at least one tie. Naturally the larger ecosystems also have more ties.

Figure 13 provides an overview of the average number of connections across different types of organisations in the Veturi ecosystems, highlighting differences in their level of ecosystem connectivity. Although each ecosystem has a distinct network structure, one clear pattern emerges: **universities and VTT are consistently among the best-connected actors**. This appears to be driven mainly by their involvement in a large number of Business Finland funded projects.

Compared with many other studies, **these ecosystems appear relatively dense** with between 22% and 46% of all theoretically possible network relationships being realised. This suggests that ecosystem members are comparatively well connected and familiar with one another.

Average number of connections inside ecosystem by organisation type

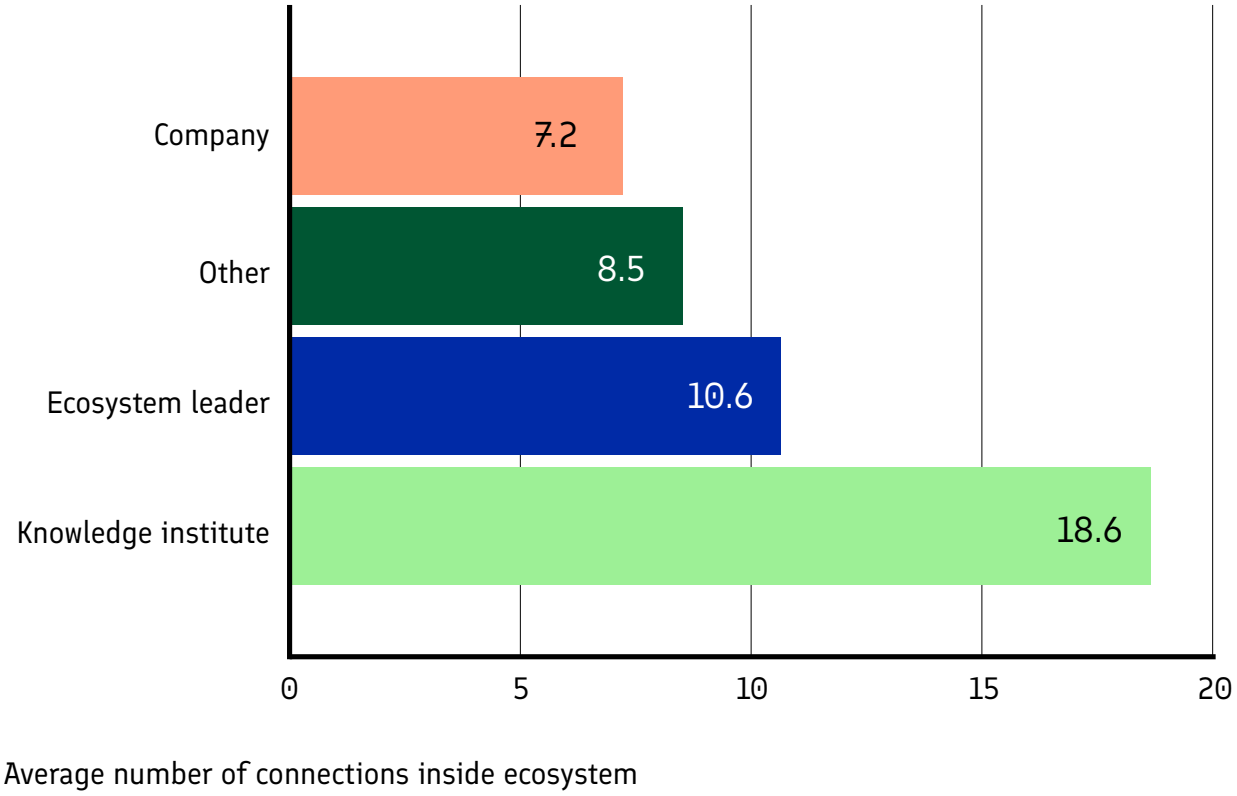


Figure 13. Average number of connections in ecosystem by organisation type. Source: relationships extracted from webscraped and Business Finland funding data.

While the collaborations within the ecosystems are already well established, the network analyses also indicate that each network still could strengthen its density by adding some missing organisations that are well connected within the ecosystem, which could then also fulfil a bridging role to other ecosystems.

Role of the leading companies

The network analysis shows that the Veturi companies occupy different structural roles within their ecosystems. Figure 14 compares the leading companies along three dimensions: 1) their internal reach with BF funded ecosystem partners inside their own ecosystem, 2) the share of relationships extending to partners external to the own ecosystem, and 3) their brokerage role in connecting otherwise less-connected parts of the network, indicated by bubble size. Together, these dimensions provide a more nuanced picture of ecosystem leadership than centrality alone.



A key pattern is the tension between internal reach and external orientation. Veturi companies with particularly broad reach within their own ecosystem do not generally have the highest shares of external relationships, while the most outward-facing leaders tend to have more limited internal reach. This points to a balancing act between anchoring and connecting the internal ecosystem and linking it to wider external networks. Strong performance on both dimensions is possible but appears relatively uncommon in the observed networks. This should not necessarily be interpreted as a trade-off in performance, but rather as reflecting different roles and strategic orientations across the ecosystems.

Several leadership profiles can be distinguished:

- **Internal anchors**: Meyer Turku represents the clearest example, with high reach within its ecosystem but a comparatively lower share of external relationships. Nokia and Wärtsilä also have relatively strong internal reach, although Wärtsilä combines this with a stronger external orientation.
- **Outward-facing connectors**: Neste is the clearest example, combining relatively limited internal reach with a high share of relationships outside the ecosystem. Sandvik and Borealis show similar outward-oriented characteristics, although to a lesser extent.
- **Boundary spanners**: Some Veturi companies combine relatively strong internal reach with substantial external orientation. These actors appear to play a dual role, maintaining broad connections within the Veturi ecosystem while also linking it to organisations and networks beyond its boundaries.

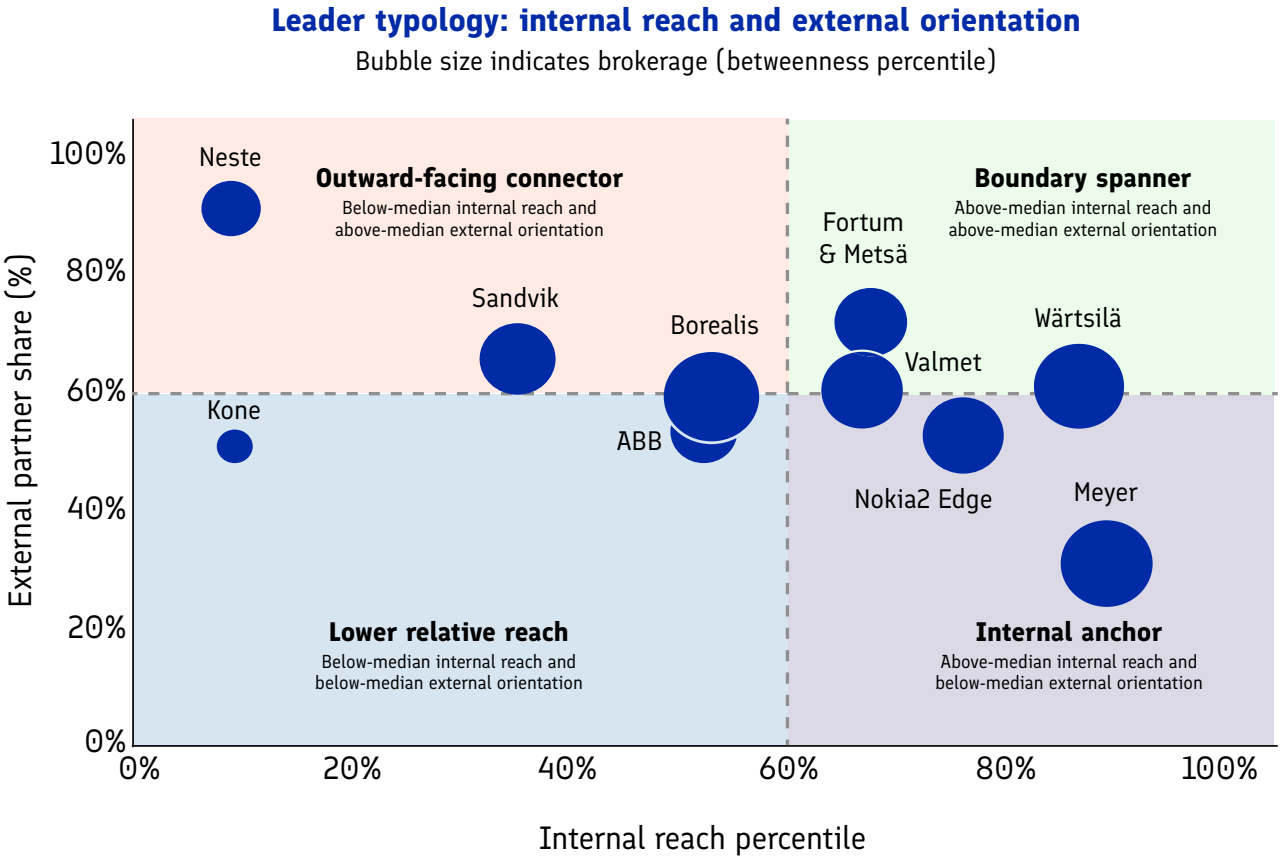


Figure 14. Ecosystem leader typology: internal reach and external orientation. Source: network analysis by Technopolis based on data scraped from websites of ecosystem members.

Based on the case interviews, new collaboration structures also emerged that go beyond the standard single-company ecosystem model, expanding the routes through which partner business growth can occur. At least three distinct structural forms are observed: parallel or adjacent ecosystems that coordinate jointly while remaining separately led (Wärtsilä and Meyer Turku's joint roadshows and events); a single ecosystem jointly led by two companies from inception (Fortum and Metsä Group's ExpandFibre); and a cross-sector, technology partnership between two Veturi companies (Sandvik and Nokia on mining connectivity). Public ecosystem roadmaps and gap-analyses were the most consistently cited mechanism enabling research organisations and smaller partners to align their own proposals and growth plans with industry needs.

Key findings of the Veturi ecosystem dynamics

- The ecosystems demonstrate broad internal collaboration, with 95% of ecosystem members showing at least one identified relationship through web-based links, mentions, or joint Business Finland projects.
- Veturi ecosystems are relatively dense innovation networks, with 22–46% of all theoretically possible relationships realised across ecosystems.
- Universities and VTT consistently act as central ecosystem actors, largely due to their involvement across many Business Finland-funded projects.
- Existing networks are well established, but there is still potential to increase connectivity by adding or engaging highly connected actors that can bridge different parts of the ecosystem.
- Veturi companies occupy different leadership roles within their ecosystems, showing that ecosystem leadership is not a single model. New ecosystem governance models emerged (jointly led ecosystems, coordination between parallel Veturi ecosystems and cross-sector pairings between two Veturi companies).

3.2.3 Reported ecosystem-level effects

Reported effects on leading companies in the ecosystem project reports

Figure 15 shows the sentiment associated with effects on the leading companies as reported in the ecosystem project documentation. The findings reflect the effects explicitly covered in the project reporting and may therefore partly reflect the structure of the reporting template. Only mentioned effects are shown, which is only a small share of the projects (5–9%), indicating that most project reports do not include any explicit discussion on the lead company effects. Among the reported effects, sentiment is overwhelmingly positive across all categories. Innovation



Outputs (N=56) is the most frequently mentioned effect, followed by Business Outcomes (N=44). Investment Signals (N=29) and International Positioning (N=29) are mentioned less often but show a similarly positive pattern. Neutral, negative and mixed sentiments account for only a small share of references in each category.

Lead company Innovation Outputs are reported in only 9% of the analysed reports (56). Sentiments towards the reported innovation outputs are overwhelmingly positive, often describing how leading companies will develop new technologies, products or prototypes. Reported outputs include pilot-scale demonstrations, digital tools and platforms, patents, new production methods, specifically linked to the lead company.

Lead company business outputs are only reported in 39 cases, again overwhelmingly positive. Reported outcomes mainly concern expected outcomes, of which it is not clear if they were realised. Expected business outputs for the lead company include a growth in competitiveness (12) or export growth (6).

Lead company investment signals and international positioning are both only reported on in 29 of the project reports (5%). As for the investment signals, examples include explicit mentions of an increase in R&D spending and staff growth during the project for leading companies. For international positioning, results are predominantly positive, with examples including linkages to international networks and identifying market opportunities for leading companies. Examples also often include applications for EU-level funding, Horizon partnerships and collaboration with international research organisations.

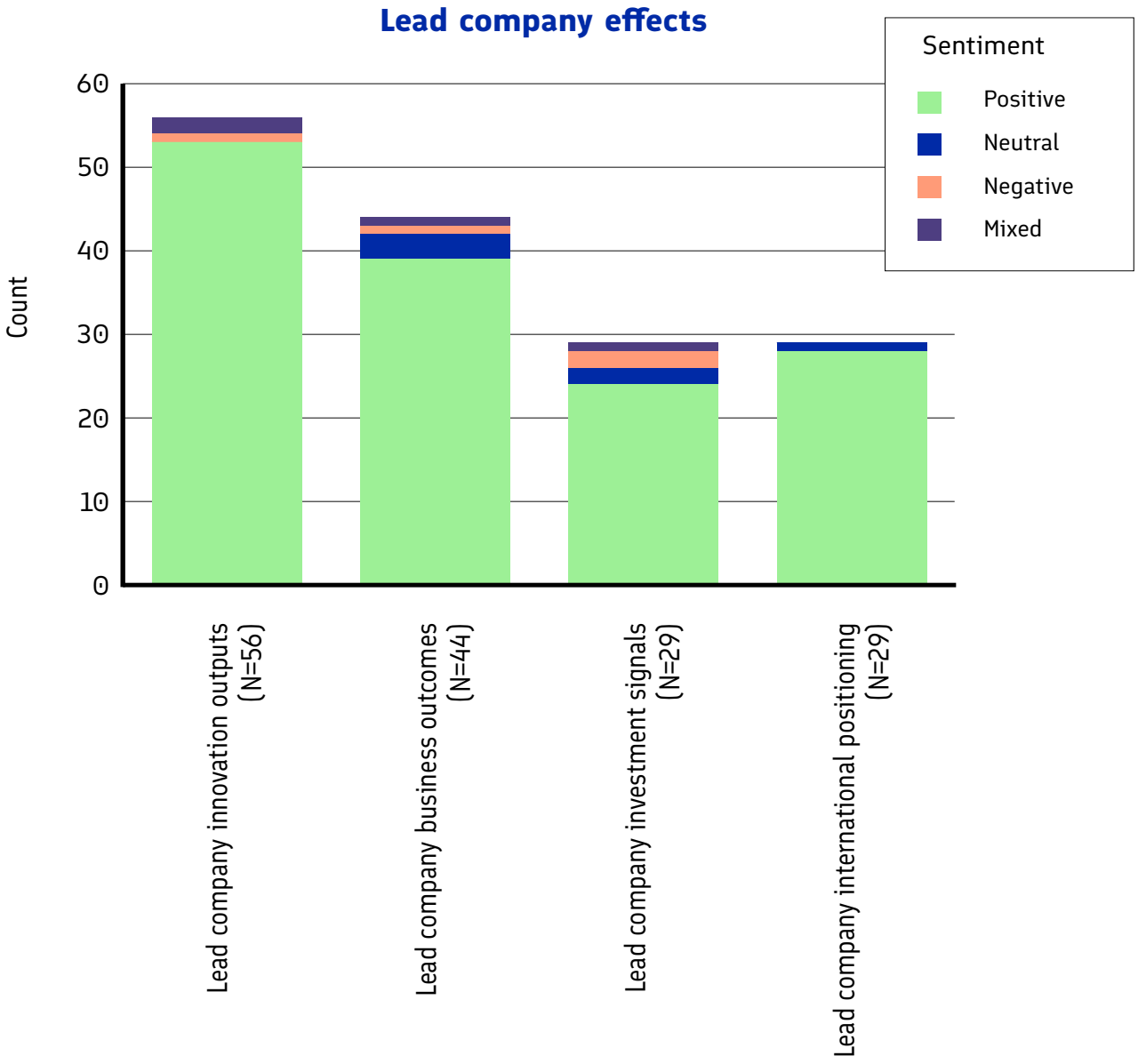


Figure 15. Lead company effects. Source: Technopolis based on textual analysis and classification of internal BF project reporting data (2026).

Reported effects on ecosystem companies

Figure 16 provides an overview of the company-level effects reported in Veturi ecosystem project documentation, covering innovation outputs, business outcomes, international positioning and investment signals. **Innovation outputs** are among the most frequently reported company effects, with 332 of 622 projects (53%) explicitly mentioning them. The sentiment is overwhelmingly positive, and the outputs commonly relate to the development and validation of demonstrators and prototypes, pilot-scale testing, new platforms or solutions. Many projects also report progress towards commercial deployment. Mixed sentiments often refer to projects where challenges such as delays or resource constraints occur. Negative sentiments are rare and examples here are absence of protectable IP, limited progress or lack of expected performance.

Business outcomes are reported on in 236 of the 622 projects (38%), and here, too, the sentiment is overwhelmingly positive. Positive references to business outcomes often relate to expected or realised improvements in competitiveness, business growth, export potential, market access, productivity and commercialisation opportunities. Mixed sentiments generally reflect promising prospects in combination with financial challenges, delays or market uncertainties. Negative outcomes are only reported 10 times, relating to weak demand, regulatory barriers or other risks.

178/622 reports include company effects for **international positioning.** These are overwhelmingly positive. Examples of these positive effects include the attendance of an international conference (5), or collaboration with international partners. A further indication of strengthened international positioning is that project activities are carried out around the globe.

Investment signals are only reported on in 102/622 projects. References are often related to increased R&D investment, the expansion of research capabilities, recruitment of R&D personnel and the establishment of new facilities or infrastructure. Reported investments include both the acquisition of specialised hardware and investments in physical infrastructure through the construction of new facilities.

Reported societal-level effects

Figure 17 provides an overview of the reported ecosystem- and societal-level effects of Veturi projects, including new partnerships and joint projects, societal benefits and sustained collaboration beyond the funding period. More than half of the projects (62%) **report new partnerships or other joint projects**, the majority of them positively, indicating a strengthening of the ecosystem. The reported effects primarily relate to the creation and strengthening of collaboration between companies, research organisations, universities, public actors, suppliers, customers

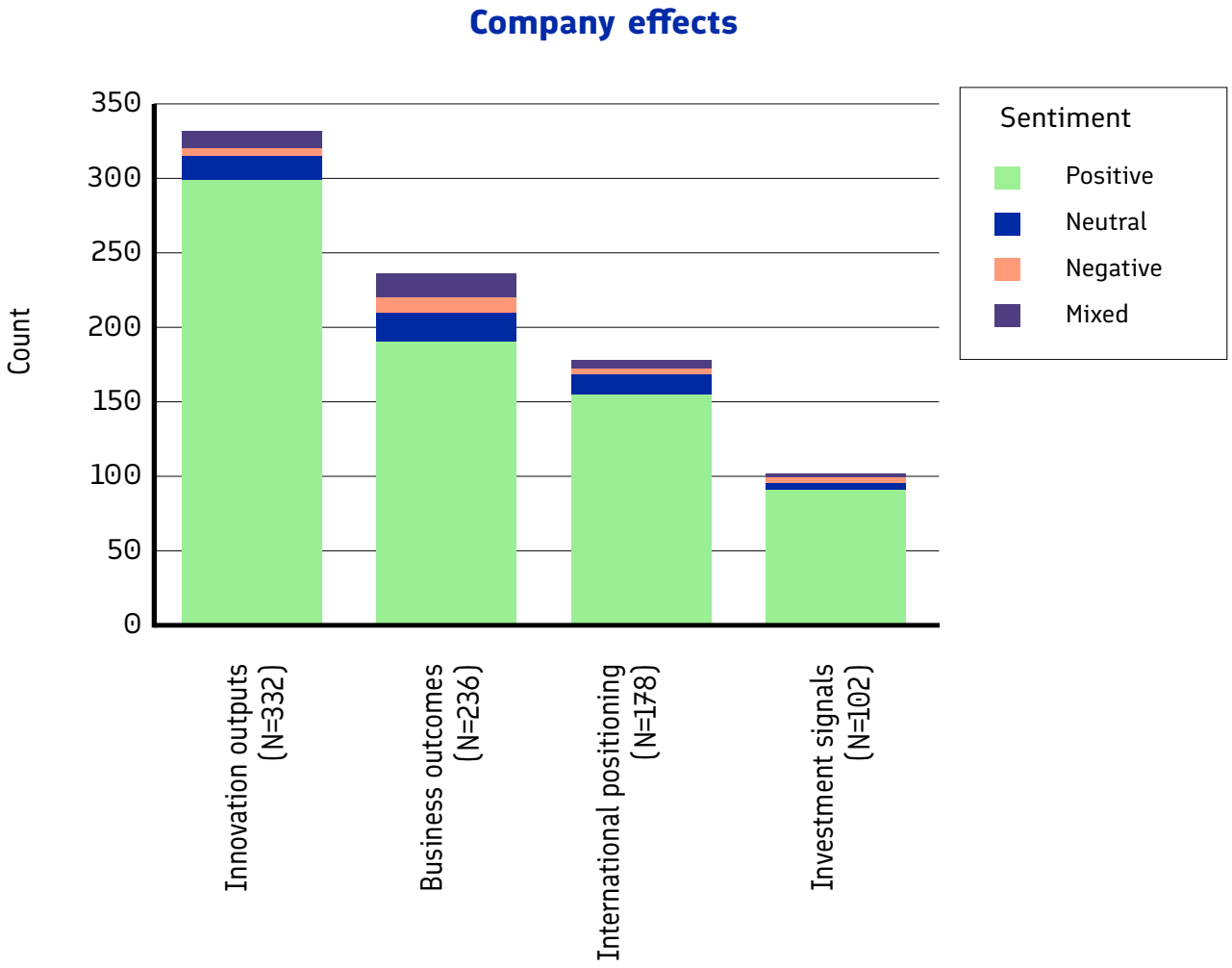


Figure 16. Reported company-level effects of the ecosystem projects. Source: Technopolis based on analysis of internal BF project reporting data (2026).

and international partners. Many projects operate through multi-actor consortia and describe expanded cooperation networks, joint pilot and demonstration activities, new value-chain partnerships, researcher exchanges and links to follow-on national and EU-funded projects. Several projects also highlight the formation of broader innovation ecosystems that connect actors across sectors and facilitate knowledge sharing, co-development and commercialisation. Only a small number of cases report challenges, such as collaborations that failed to develop as planned or weaker-than-expected consortium engagement.

347 of the 622 projects (56%) report **societal benefits** as outcomes of the project. These benefits are overwhelmingly framed in a positive way and most frequently relate to broader societal challenges such as sustainability, environmental impact, health and wellbeing, safety, resource efficiency and the strengthening of societal resilience and critical infrastructure. Many projects emphasise contributions to the green transition through reduced emissions, energy efficiency, circular economy solutions, or cleaner production processes. Other commonly reported benefits include improvements in healthcare services and quality of life, safer working environments, enhanced digital and technological capabilities, and increased knowledge sharing across organisations and sectors. Overall, the findings suggest that societal impacts are a central aspect of many Veturi projects, with benefits often extending beyond direct commercial outcomes and contributing to wider economic, environmental and societal goals.

Reported sustainability of the collaboration beyond Veturi-funded projects

Only 69 of the 622 projects (11%) explicitly report **sustained collaboration** beyond the Veturi-funded project period. Where such effects are reported, the sentiment is overwhelmingly positive. Common examples include follow-on projects, joint funding applications, continued research partnerships, researcher exchanges and the reuse of project results in new Veturi projects. Several projects also report the creation of more durable ecosystem structures, such as testbeds, networks, forums and commercial partnerships that are intended to continue beyond the original funding period. While these findings suggest that Veturi projects can catalyse longer-term ecosystem development, the low reporting frequency indicates that such impacts are not routinely documented in project reports.

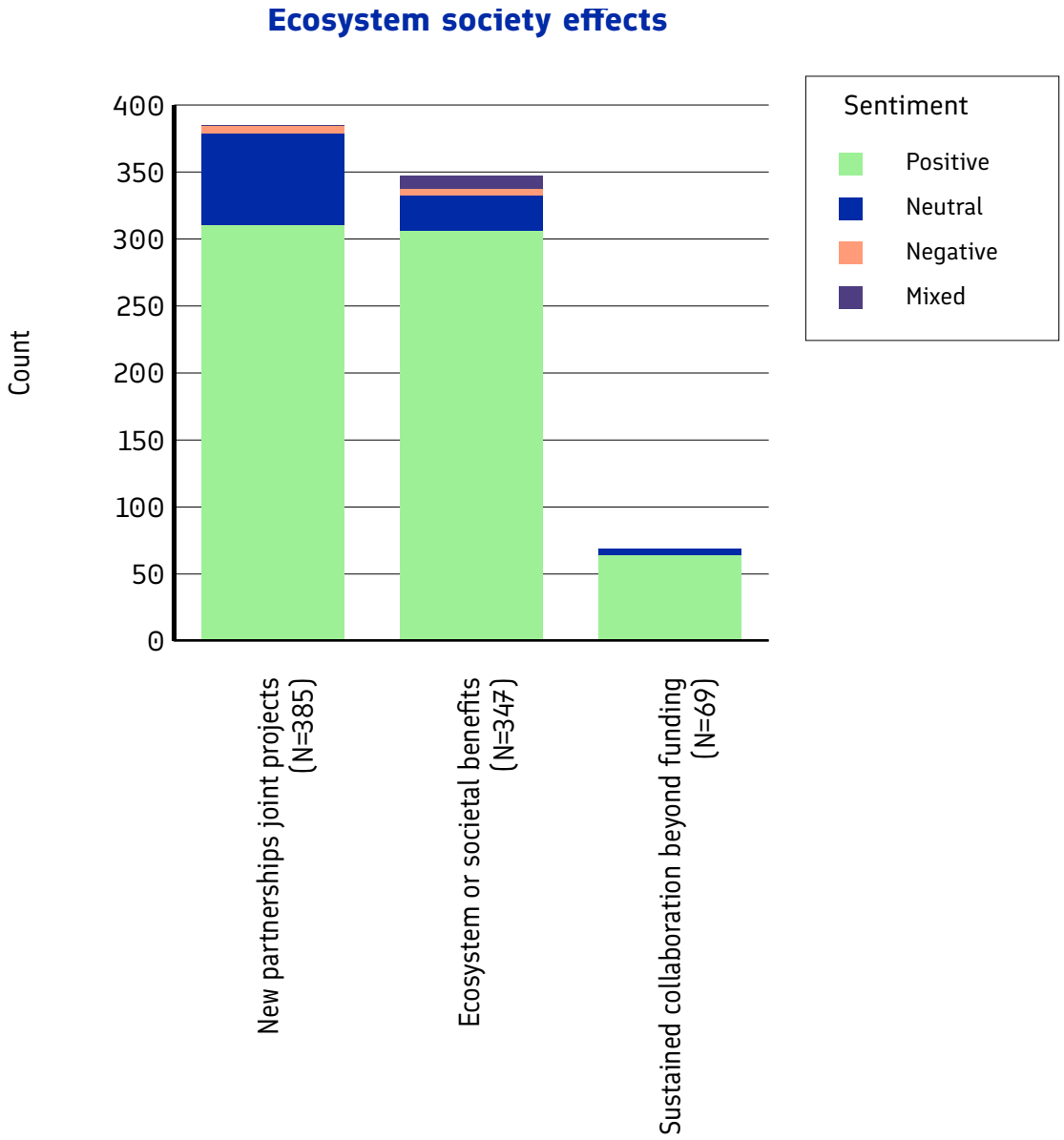


Figure 17. Ecosystem and societal effects. Source: Technopolis based on analysis of internal BF project reporting data (2026).

Synergy with other Veturi ecosystems

An analysis of ecosystem project funding data across all Veturi ecosystems shows that there is a clear indication that the organisations that have participated in one of the evaluated Veturi ecosystems have a tendency to join other Veturi ecosystems as well. In most cases at least half of the ecosystem members have participated in at least one other evaluated Veturi ecosystem, and at least one other later Veturi ecosystem (Veturis that have started after the first cohorts evaluated in this study). The later Veturi projects have generated a significant additional amount of Business Finland funding for the ecosystem companies of the first evaluated cohorts.

Evaluated Veturi	Share of ecosystem members participating in at least one other Veturi project within the (10) evaluated Veturis	Share of ecosystem members participating in at least one other later Veturi project (26 other Veturis)
Wärtsilä	81%	63%
Valmet	63%	55%
Sandvik	44%	76%
Nokia	27%	56%
Neste	79%	79%
Meyer Turku	44%	44%
Kone	35%	47%
Fortum & Metsä Group	50%	60%
Borealis	58%	55%
ABB	47%	47%

There is also a notable overlap of organisations participating in other Veturi ecosystems. The overlap between Veturi ecosystem organisations varies from 10% to over 50%. The highest overlaps are with ABB and Wärtsilä, Borealis and Neste, Valmet and Neste.

Table 4. Share of ecosystem organisations that have participated in other Veturis. Source: Business Finland funding data.

Veturi	Wärtsilä	Valmet	Sandvik	Nokia	Neste	Meyer Turku	Kone	Fortum & Metsä Group	Borealis	ABB
ABB	48 %	22 %	18 %	15 %	36 %	21 %	12 %	23 %	24 %	100 %
Borealis	30 %	29 %	18 %	13 %	54 %	23 %	14 %	25 %	100 %	19 %
Fortum & Metsä Group	26 %	41 %	21 %	16 %	46 %	29 %	14 %	100 %	39 %	28 %
Kone	33 %	20 %	26 %	13 %	25 %	10 %	100 %	12 %	18 %	12 %
Meyer Turku	41 %	24 %	21 %	16 %	43 %	100 %	12 %	27 %	33 %	23 %
Neste	37 %	31 %	21 %	16 %	100 %	25 %	16 %	25 %	45 %	23 %
Nokia	26 %	24 %	26 %	100 %	32 %	19 %	16 %	17 %	21 %	19 %
Sandvik	22 %	16 %	100 %	16 %	25 %	15 %	21 %	13 %	18 %	14 %
Valmet	41 %	100 %	24 %	22 %	54 %	25 %	23 %	38 %	42 %	26 %
Wärtsilä	100 %	22 %	18 %	13 %	36 %	23 %	21 %	13 %	24 %	30 %

Table 5. Heat map of organisations participating in other Veturi ecosystems (% of shared ecosystem partners). Source: Business Finland funding data.

Findings on ecosystem-level effects from case interviews

Leading company interview evidence indicates that ecosystem members' business growth and competitiveness gains are not uniform but are strongly shaped by how actively the lead company facilitated participation. Where lead companies engaged in deliberate facilitation, direct co-investment or dedicated matchmaking, the effects on ecosystem partners are more tangible and verifiable. Where engagement remained passive or by default, ecosystem partners more often stayed peripheral to the core project, with more limited business impact.



Key findings on the ecosystem-level effects based on project reports and funding data

- **Ecosystem projects' reported lead company effects are overwhelmingly positive, but rarely documented.** Only around 5–9% of ecosystem projects explicitly mention effects on lead companies. Where reported, positive impacts dominate, particularly regarding innovation outputs, business outcomes, investment attraction and international positioning. As these findings are largely self-reported, a positive reporting bias should be considered.
- **Innovation and business impacts are the most frequently reported company-level outcomes.** Innovation outputs are mentioned in 53% of projects (332 projects) and business outcomes in 38% (236 projects), with most projects reporting progress in prototypes, pilots, commercialisation opportunities, competitiveness and growth potential.
- **The strongest ecosystem-level impacts relate to collaboration and societal benefits.** New partnerships or joint projects are reported in 62% of projects, while 56% mention societal benefits such as sustainability, resource efficiency, health and wellbeing, safety and broader contributions to the green transition.
- **Ecosystem partners' business growth is conditioned by how actively the lead company facilitates participation.** Deliberate facilitation (co-investment, matchmaking) produces better documented growth; passive engagement leaves partners peripheral.
- **There is significant overlap between the ecosystems:** in some cases more than half of the ecosystem members also participated in at least one other Veturi ecosystem, based on the Business Finland funding data.

3.3 Relevance, coherence and efficiency of implementation

This section moves from the effects of the initiative to its place in the policy and funding system and to how it has been implemented. The analysis builds on Business Finland funding and project data, R&D expenditure statistics, the case interviews and publicly available information on related instruments and earlier analyses of the Finnish innovation system.

3.3.1 Relevance and coherence

Findings on policy relevance

Assessed against the policy objectives related to increasing R&D investments (see section 2.1), the Veturi initiative is highly relevant and occupies a distinct position in the Finnish RDI funding system. Its core design and KPIs directly address the national objective of raising total RDI expenditure to 4% of GDP. The evidence presented in sections 3.1 and 3.2 indicates that the instrument has also been successful in achieving this objective.

Based on the evaluation findings, the instrument is also coherent with the broader direction of Finnish and European innovation policy. Its challenge-driven logic and its emphasis on ecosystems built around shared technology roadmaps correspond to the approach adopted in EU framework programmes and industrial policy, where public funding is increasingly tied to transition-related missions rather than to individual projects. The interviewed companies considered Veturi more flexible and less bureaucratic than comparable EU instruments, and in some cases the Veturi project served as a springboard to EU funding, which suggests complementarity with the EU-level instruments.

The instrument is also well matched to the structural weaknesses that analyses of the Finnish innovation system have identified: fragmentation of RDI activities, a limited scale of individual investments, and the risk that global value creation is not anchored in Finland. Veturi responds to all three by concentrating funding in a small number of large commitments, by requiring the leading company to orchestrate an ecosystem around a shared roadmap, and by tying the funding to R&D growth realised in Finland.

The magnitude of the Veturi initiative is highlighted by the fact that the 10 evaluated Veturi companies account for a significant share of total private R&D expenditure in Finland. The Veturi companies' sum of R&D expenditure during the project timespan has been nearly the same as all other large companies (>500 employees) in Finland. During the timespan of the evaluated Veturi projects, all categories of companies, i.e. evaluated Veturis, other large companies and the rest of private R&D, have been increasing steadily. Evaluated Veturis' share of the total private R&D in

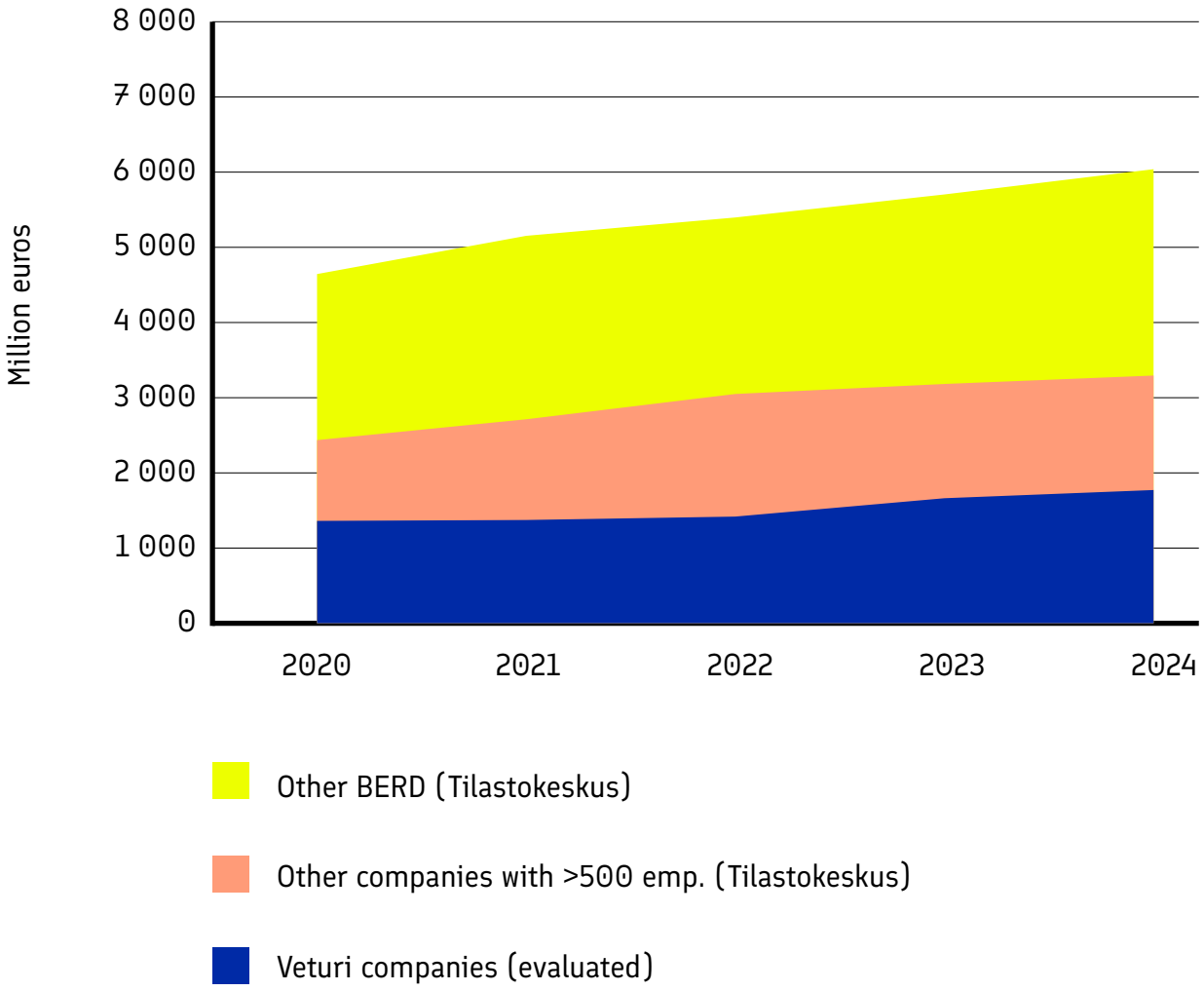


Figure 18. R&D expenditure in Veturi companies, other large (>500 emp.) Finnish companies and rest of the Finnish companies. Note. Some of the Veturis started in 2020 and some in 2021.

Finland has increased from 27% in 2021[6] to 29% in 2024[7]. Based on this observation, the increase in evaluated Veturis' R&D expenditure is partly following a general trend in increasing private R&D (e.g. due to inflation).

Policy relevance is, however, not unqualified. The use of R&D expenditure as the primary payment indicator aligns the instrument closely with the 4% target, but does not address commercialisation, exports and productivity growth – all objectives which have been identified as Finland's weaknesses in international comparisons. The Veturi projects are predominantly early-stage R&D and the companies consistently describe the commercial horizon as five years or more (section 3.1.2), while emphasising that from the company perspective, R&D should be considered a means, not an end in itself.

The concentration of activation funding on a small number of large companies also raises a policy-level question of balance within the Finnish RDI funding system, which is discussed below.

[6] 2021 was selected as the comparison year because it was the year when all evaluated Veturis had begun.

[7] 2024 was selected as the comparison year because some data was missing from 2025.

Coherence with other Business Finland instruments

As seen from Figure 19, Veturi projects have taken over as Business Finland's main mechanism for activating companies' R&D projects, particularly over Business Finland programmes and campaigns. Traditionally around half of Business Finland's R&D funding has been channelled thematically through targeted calls, mainly under programmes and campaigns. This was still the case in 2020, when R&D funding through programmes and campaigns represented 49% of all targeted R&D funding and Veturi companies (Veturi leaders and their ecosystems) represented altogether around 30%. In 2024, the share of programmes and campaigns had dropped to around 19%, and the share of Veturi companies had grown to around 60%.

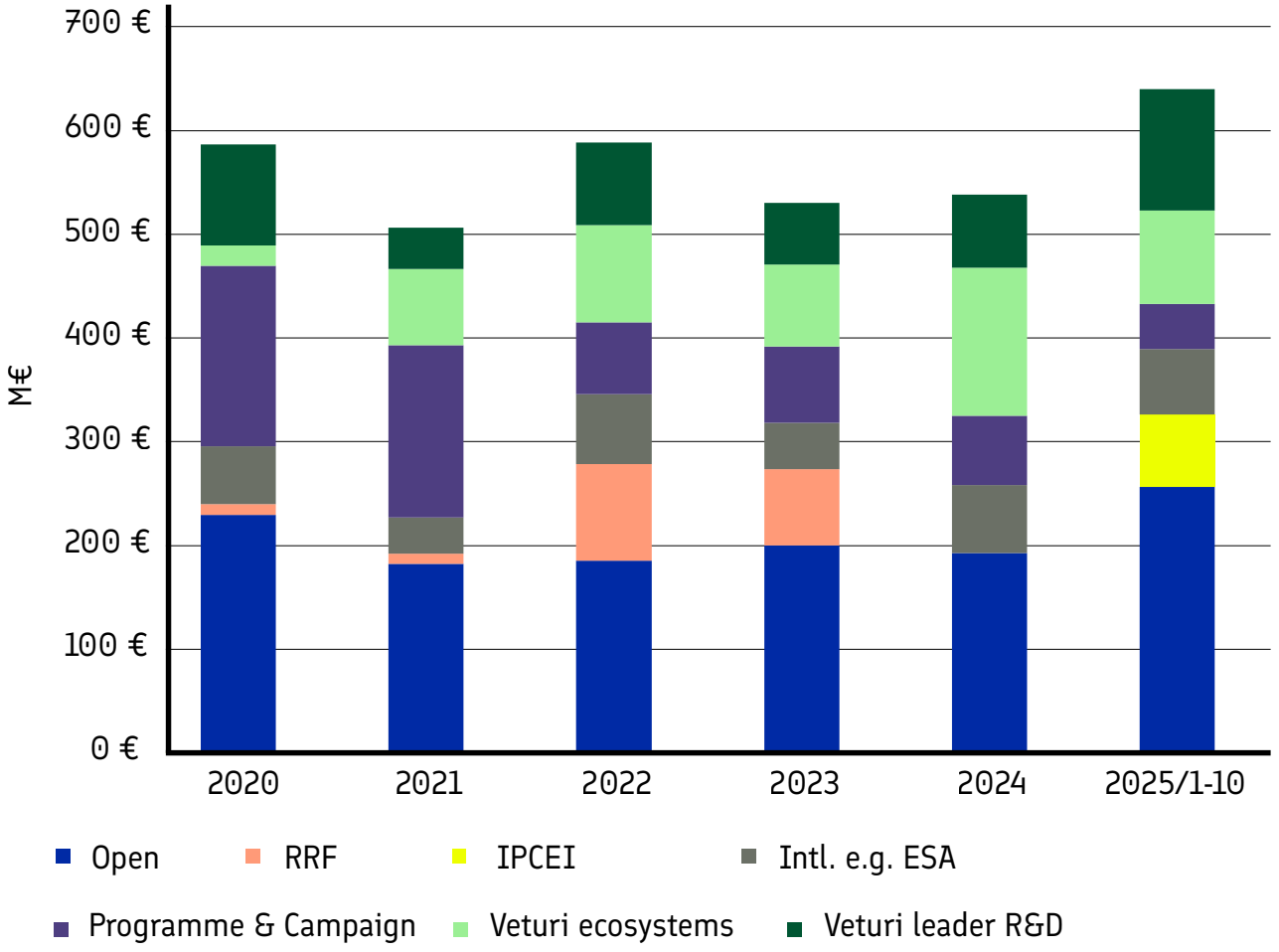


Figure 19. Development of Business Finland's R&D funding (EUR million) and its allocation in 2020–10/2025. Veturi leader R&D funding includes their share of RRF funding. Source: Business Finland.

At the same time, the focus of Business Finland programmes and campaigns has been turned to address business growth and exports, rather than R&D, which is the main focus of Veturi projects. In terms of coherence, this makes the two parts of Business Finland's portfolio complementary rather than overlapping. It also, however, concentrates a substantial part of Business Finland's R&D activation capacity in a small number of large, negotiated commitments.

It should also be noted that the Veturi initiative has no funding instrument of its own for ecosystem partners, and it is therefore operationally dependent on another Business Finland instrument, namely the co-innovation instrument. According to the evaluation findings, the long decision-making cycles of the co-innovation instrument have partly affected the implementation of the Veturi projects (see also section 3.3.2). It also produces an asymmetry in the underlying funding logic, as the results-based, KPI-driven logic applied to the leading company has not been extended to the ecosystem members.

A third observation concerns which companies the portfolio reaches. Measured by the volume of Business Finland funding, the Veturi ecosystems were research-organisation oriented, and the SMEs holding their own co-innovation project remained a relatively limited group. SMEs were engaged on a considerably larger scale through the leading companies' procurement, at EUR 140 million from SMEs against EUR 81 million from research organisations (section 3.2.1). In portfolio terms, Veturi has therefore reached SMEs largely indirectly, through the leading companies, rather than through Business Finland's own instruments – a mechanism that is effective but neither visible in Business Finland's funding statistics nor steerable by Business Finland, as it depends on the leading companies' procurement decisions.

Finally, the coherence question that follows from the discussion above concerns the handover from R&D to commercialisation and exports. As the Veturi indicators do not extend to commercialisation, exports or productivity, and as Business Finland's programmes and campaigns have been reoriented towards precisely those objectives, there is a logical complementarity between the two. The evaluation did not, however, identify a systematic mechanism for routing the Veturi companies and their ecosystem partners into Business Finland's growth and internationalisation services.

Coherence with other RDI policy instruments and initiatives

The evaluation did not include interviews with other funding agencies, ministries or regional actors, and the Veturi companies were not asked systematically about instruments outside Business Finland. The observations in this subsection are therefore reflections by the evaluation team, based on the case evidence, on publicly available information on the instruments concerned and on earlier analyses of the Finnish innovation system, rather than findings verified with the actors in question.

First, the general **R&D tax incentive** introduced in 2021 is meant as a general and non-selective R&D subsidy, whereas Veturi is highly selective and concentrated on a small number of large companies. The two instruments therefore at least on paper address different parts of the company population. However, potential overlaps or synergies between Veturi and R&D tax incentives were not part of this analysis, but are worth a closer examination in the future.



The clearest gap in the instrument mix concerns the financing of the stages that follow the R&D and the **collaboration with other funding agencies**. Veturi funding covers R&D costs, but instruments for later stages exist outside Business Finland: Tesi as the state's investment company, Finnvera as the provider of loans and guarantees, and the instruments of the European Investment Bank group at EU level. The Veturi design contains no explicit link to any of them and it seems that there has been only limited exchange of information on Veturi projects across other funding organisations.

The case evidence identifies **regulation** as the most concrete external bottleneck to commercialisation. In several cases – clean marine fuels, chemical and mechanical recycling, hydrogen and power-to-X solutions, and novel bio-based materials – market uptake depends on standards, permitting procedures and regulatory classifications that are decided at EU or national level and lie outside the companies' control. Veturi contains no mechanism for feeding this experience back into regulatory preparation. The technology roadmaps produced by the ecosystems would in principle be a good source of information on which regulatory bottlenecks are binding and when, but they are not used for that purpose, and no systematic channel exists between the Veturi ecosystems and the ministries responsible for the relevant regulation. This is a policy-level coherence gap rather than a weakness of the instrument as such, but it limits the economic return on the R&D that has been financed.

Public procurement is another demand-side tool that remains unconnected to the initiative. Several Veturi themes – electrification, low-carbon construction and shipping, circular materials and digital infrastructure – concern sectors in which the public sector is a significant buyer. Veturi does not, however, include any element of demand-side commitment or lead-market creation, and the evaluation found no indication that public procurement had been used to create early reference markets for Veturi outputs.

The relationship to **cities and regional innovation ecosystems** is also largely undefined. The Veturi ecosystems are organised around a company's technology roadmap and are national or international in scope, whereas the ecosystem work of cities and regions – the innovation ecosystem agreements between the state and the largest urban regions, regional smart specialisation strategies and the EU structural funds instruments – is organised around cities and regional strengths. In practice the two overlap and in some cases the Veturi companies are highly integrated into the regional ecosystems (e.g. Wärtsilä in the Vaasa energy ecosystem or Nokia in the Oulu ICT ecosystem). However, the evaluation found no evidence of deliberate coordination in either direction. Aligning the Veturi ecosystems, also on the instrument level, with the regional innovation ecosystems would help extend the reach of the initiative to a broader group of SMEs and to regional pilot and testing infrastructure.

Key findings on relevance and coherence of the Veturi initiative

- Veturi is highly relevant to the national objective of raising RDI expenditure to 4% of GDP by 2030, and it addresses the structural weaknesses identified in analyses of the Finnish innovation system: fragmentation of RDI activities, the limited scale of individual investments and the risk that global value creation is not anchored in Finland.
- The initiative is of a magnitude that matters at national level. The ten evaluated Veturi companies accounted for around 29% of total private R&D expenditure in Finland in 2024, and their combined R&D expenditure has been of the same order of magnitude as that of all other large companies together.
- The instrument is coherent with the mission-oriented direction of Finnish and European innovation policy. Companies consider it more flexible and less bureaucratic than comparable EU instruments, and in some cases it has served as a springboard to EU funding.
- However, the Veturi concept does not address commercialisation, exports or productivity growth – areas identified as Finland's weaknesses in international comparisons, and the outcomes to which the companies themselves regard R&D as a means rather than an end.
- No systematic mechanism was identified for routing maturing Veturi projects into Business Finland's other services or Team Finland's internationalisation services.
- Veturis are operationally dependent on the co-innovation instrument, whose long decision-making cycles have partly affected the implementation of the Veturi projects.
- Beyond Business Finland's own portfolio, coherence is weak with the instruments and policies that determine whether R&D turns into investment and production in Finland: later-stage financing and collaboration with other funding agencies (Tesi, Finnvera, the European Investment Bank group), regulation, public procurement and other demand-side tools, and the ecosystem work of cities and regions.

3.3.2 Efficiency and quality of implementation

Feedback on the Veturi initiative implementation in ecosystem project documents

Figure 20 shows the reported performance feedback on funding model, improvement needs, administrative burden, the role of BF and the competition and selection process. These instrument performance dimensions are only reported on in a limited capacity by the companies with only 4% to 13% of companies reporting on them. As a result, the findings should be interpreted with caution, as they reflect the perceptions of a relatively small subset of participants rather than the experiences of all ecosystem projects. The results therefore provide indicative insights into how companies perceive these aspects of the Veturi initiative, rather than a comprehensive assessment of instrument performance.

Feedback on the **funding model** is reported on in 82 of the 622 projects (13%), mostly positive or neutral, with some negative comments. Positive remarks emphasise that BF funding enables R&D

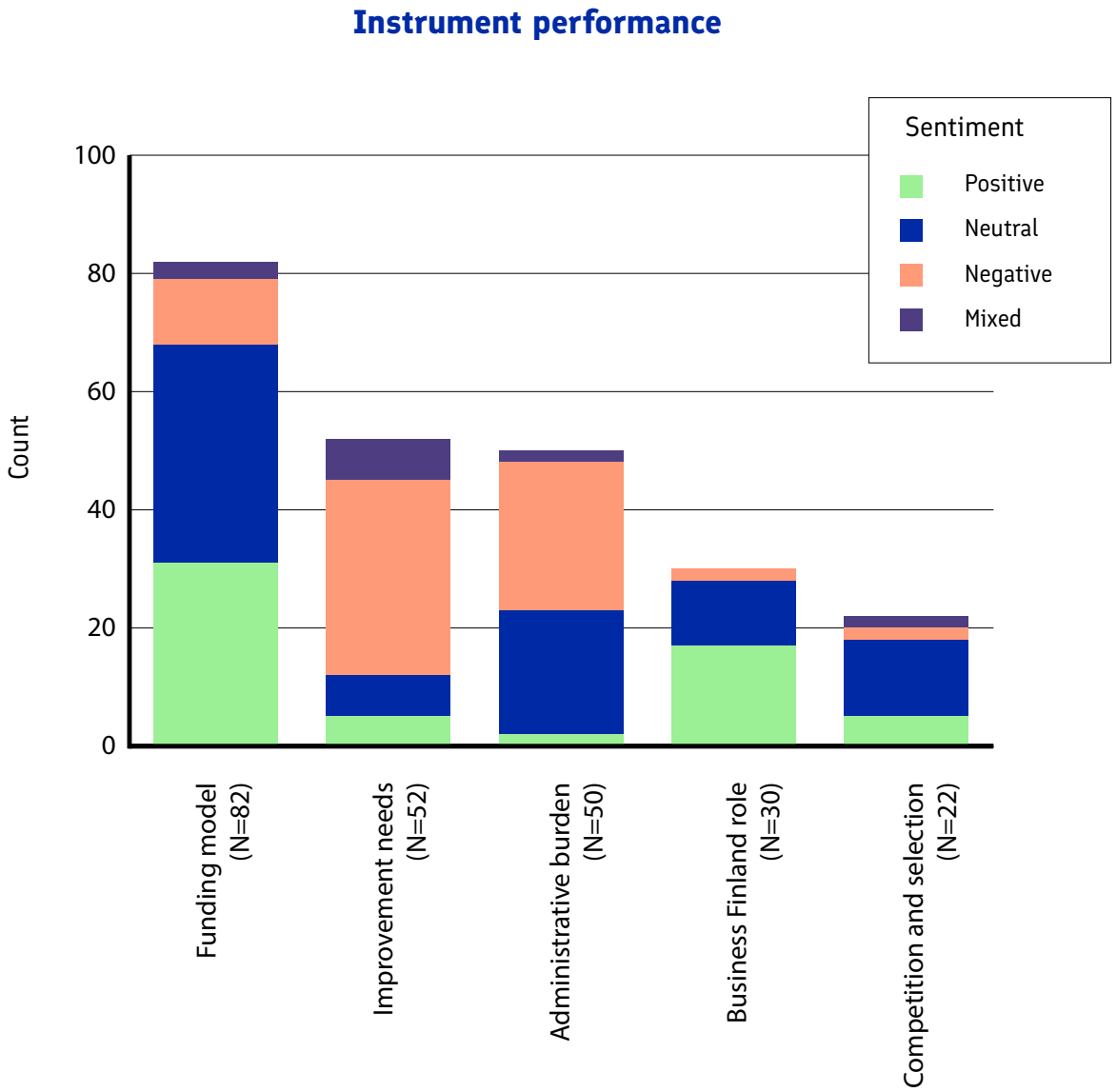


Figure 20. Reported feedback on Veturi initiative. Source: Technopolis based on textual analysis and classification of internal BF project reporting data (2026).

and supports projects within the Veturi ecosystem. Neutral comments tend to describe the instrument without explicit judgement or evaluation. Negative remarks mainly concern co-financing issues rather than the Veturi instrument as a whole. In three cases, delays in the funding decision process were explicitly linked to project delays. Improvements were mostly reflected upon for their own project work, not in terms of processes for BF.

Administrative burdens are only reported upon in 50 of the 622 projects (8%) and are generally described negatively, mainly in relation to recruitment delays and additional workload, rather than reporting requirements to Business Finland. In one case, for example, the recruitment delay was caused by the long visa application process.

Competition and selection was only mentioned in 22 of 622 projects (4%). References are mainly focused on the application and project selection process, including eligibility assessments, funding decisions, compliance with project criteria and formal evaluations conducted by Business Finland. Only a small number of projects discussed challenges in the selection process, such as delays in funding decisions or issues in application handling.

To sum up, **feedback on the Veturi initiative is generally positive**, with criticism focused on practical implementation challenges. Reports commonly highlight the importance of Business Finland funding for enabling R&D activities, while negative feedback mainly concerns co-financing challenges, funding decision delays, recruitment difficulties and administrative burdens rather than the instrument itself.

Findings on implementation from Veturi interviews

Implementation friction was a real and recurring theme in the Veturi company interviews, independently raised by more than one company. The issues most frequently cited were the processing times of ecosystem sub-projects (typically six to nine months and difficult to predict), the absence of a standard consortium and IPR agreement template especially for multi-party ecosystems, and inconsistent feedback from Business Finland ecosystem project evaluators. In fast-moving technology fields, lengthy processing can outlast the technical or competitive relevance of the planned work, and contract negotiations with research organisations were reported in some cases to extend beyond the duration of the underlying project itself.

A second recurring theme concerned the definition and reporting of R&D expenditure. Companies operating through several legal entities or business areas in particular had to build internal processes to consolidate and report their R&D expenditure, and there were calls for Business Finland to codify and disseminate a common approach to multi-entity reporting rather than leaving each company to develop its own solution. At least five cases required baseline or cost-definition corrections during implementation, for example, because pilot, demonstration and innovation-stage costs had not been captured in the original definitions. The overall lesson on implementation is therefore that upfront, written guidance on R&D&I cost definitions and reporting, tested during contracting, would meaningfully reduce both administrative burden and the risk of inconsistent reporting across the portfolio.

The Veturivarikko peer forum and Business Finland's operational contacts were consistently valued by the companies. The interviews did, however, point to two forward-looking concerns. First, the current model works well for measuring and leveraging R&D expenditure, but companies are more interested in the broader impacts of their projects, which are not currently measured. Second, expected savings in Business Finland's own resources may constrain its capacity to activate and support ecosystems.



Key findings on the implementation of the Veturi initiative

- Feedback on the Veturi initiative in the ecosystem project reports is generally positive, with criticism focused on practical issues such as co-financing and funding decision delays. The implementation friction most frequently raised in the company interviews concerns the processing times of ecosystem sub-projects (typically six to nine months and difficult to predict), the absence of a standard consortium and IPR agreement template for multi-party ecosystems, and inconsistent feedback from Business Finland ecosystem project evaluators. The long processing times are partly also explained by insufficiently prepared applications, which also calls for a stronger role of the lead companies in preparing the ecosystem projects.
- Defining and reporting R&D expenditure (i.e. what is calculated as R&D for the payment indicators) was a recurring problem. Written guidance on R&D&I cost definitions and reporting, tested at the contracting stage, would reduce both administrative burden and the risk of inconsistent reporting across the portfolio.
- Business Finland's own contribution to implementation is valued: the Veturivarikko peer forum and the operational contact persons received consistently positive feedback from the companies.
- The current model measures and leverages R&D expenditure well but does not capture the broader impacts that the companies themselves consider most relevant.
- Expected savings in Business Finland's own resources may constrain its capacity to activate and support ecosystems.



4 Conclusions and recommendations

4.1 Conclusions

Highly selective instrument with significant implications for Finnish RDI policy.

Veturi is, by design, an unusually selective and large-scale instrument. The share of Business Finland's targeted R&D funding channelled to Veturi companies and their ecosystems rose from around 30% in 2020 to around 60% in 2024. This raises a legitimate question on whether the systemic and spillover benefits are large enough to justify directing such a significant share of public funding to companies that are generally best placed to fund transformation themselves. Because each Veturi ecosystem is built around a single lead company, its fortunes are also bound up with that company's own performance.

The Veturi instrument responds directly to the national target of raising RDI expenditure to 4% of GDP and it has become Business Finland's principal mechanism for activating company R&D. It means that a substantial part of Finnish R&D funding is now channelled through (early-stage) R&D led by large companies. The initiative is of a magnitude that matters

at national level: the ten evaluated Veturi companies accounted for around 29% of total private R&D expenditure in Finland in 2024, and their combined R&D expenditure has been of the same magnitude as that of all other large Finnish companies together.

Overall, Veturi is best understood not as a classical risk-sharing R&D subsidy, nor as a fully challenge-driven instrument in the sense used elsewhere in Finnish and European policy, but as an **industry-driven, company-led, strategic-scale funding mechanism**. Its most robust value lies in lifting R&D ambition inside a small number of large companies and anchoring part of that activity in Finland. At the same time, it should be recognised that the Veturi instrument is less suitable for sectors where there are no clear leading companies, or where existing R&D definitions are less applicable.

While this evaluation and its conclusions have focused on assessing the Veturi funding against its primary objectives on leveraging Finnish R&D investment, it also raises the need for a broader and open discussion on national innovation policy goals, its strategic priorities and the balance of funding across the whole Finnish innovation ecosystem.

Veturi has successfully leveraged R&D investments in Finland...

On the primary Veturi objective of leveraging additional company R&D investment, the evidence is genuinely positive: eight of the ten evaluated cases met or exceeded their formal R&D-growth target, with a roughly six-fold gross leverage on the Veturi funding. Even when taking into account the critical observations and caveats (see below and discussion in section 3.1.1), the portfolio-level result is still positive. The evaluation's judgement is therefore that **Veturi has been an effective instrument against its primary objective of leveraging additional R&D investments**.

At portfolio level, combined realised R&D growth of approximately EUR 1.5 billion was reached against a combined target of around EUR 841 million, corresponding to an estimated six-fold gross leverage on the Veturi funding committed to the lead companies.

The results, however, vary considerably between companies: target attainment ranged from below 90% to more than four times the target, and the portfolio-level totals are driven to a considerable extent by a small number of strong performers.

...but these headline figures should be interpreted with caution.

While the overall conclusion on the success of the Veturi initiative in leveraging R&D investments is positive, **the headline figures should be interpreted with caution, as they are subject to several important caveats**. First, the six-fold leverage relates the increase in R&D expenditure only to the Veturi funding granted to the lead companies. The Veturi companies have also received other Business Finland funding during the same period, and when the increase is related to their total Business Finland funding, the average leverage falls to around 2.6 euros (ranging from 0.8 to 7.3 euros). It should also be noted that the figures have not been adjusted for inflation and do not take into account other public R&D support such as R&D tax incentives.

Furthermore, defining and measuring R&D is always subject to interpretations and it is often challenging to define what is calculated as R&D or not. These challenges were also reported and

documented in the Veturi projects, where at least five companies required mid-project corrections to their R&D baselines or cost definitions. Interpreting the figures is particularly difficult for global groups operating through many different units in multiple countries. Finally, it should be noted that the figures are based on the companies' own reporting (the same approach used in reporting R&D expenditure to Statistics Finland) and have not been audited.

Further information, evidence and validation are therefore needed in the future to assess the net effect of the Veturi funding on R&D investments more precisely.

Clear contribution to Veturi companies' strategic R&D decisions.

The **additionality of Veturi funding for the leading companies' strategic R&D decisions is well evidenced** in the ten case studies conducted as part of this evaluation, particularly in raising the strategic level of R&D investment and in anchoring or restarting R&D activity in Finland.

In one of the cases the Veturi company rebuilt its R&D function from a near-zero base and in another case the Veturi company undertook its first major R&D project in around 20 years. Another Veturi company highlighted that the Veturi funding helped the company to maintain and strengthen its R&D activities in Finland, instead of investing in R&D units in other countries. The case evidence suggests that an important additionality of the Veturi funding is related to the status and mandate that helps the Veturi R&D agendas win internal competition for resources within globally operating groups, lifting them from project to strategic level.

Novelty compared with other and earlier funding instruments.

The instrument's **strategic scale** is its most clearly documented added value and distinguishes Veturi funding from other R&D funding instruments: it has enabled ambitious, business-driven R&D agendas, in contrast to smaller projects, which tend to result in more incremental R&D. A distinct added value of the Veturi funding has been its ability to lift R&D agendas from project level to strategic level inside the companies. In several cases the Veturi mandate was used to win internal competition for R&D resources within globally operating groups. These benefits are not achievable with smaller and hence less strategic projects.

As a result, Veturi funding enabled higher-risk, more exploratory R&D than the companies would have pursued on their own. Several Veturi companies each independently estimated that their projects would have advanced at roughly half the pace without it. High-risk technology lines were discontinued or descoped in several cases, which should be read as a sign of the ambitious and radical R&D intended by the instrument, rather than as a shortfall in delivery.

Another novelty in Veturi funding has been its results-based funding, tied to company-level R&D growth targets. This has proved an effective incentive for increasing the R&D investments, although there have been some challenges and lessons in implementing this approach in practice (see above and discussion in section 3.1.1). This approach also concentrates the instrument's measurement on R&D expenditure alone and may lead to situations where existing activities are relabelled or calculated as R&D (rather than purely increasing R&D).

Leading company coordination required companies to develop a genuinely new organisational capability, another specific novelty of the Veturi funding. Several described systematic ecosystem-building as something they had to learn from scratch, and several built institutional capacities intended to outlive the funding period, including new group-level R&D units, university PhD schools and knowledge centres, and strategic platforms opened to external partners. The Veturi companies differ considerably, however, in how they have taken on this role, and the evidence suggests that in some cases a stronger and more active leadership would have been expected from the lead company. Many companies had to practise and build these capabilities during the project itself, and the commitment and experience of the Veturi team have been important for the success of the ecosystems.

Concrete innovation outputs, but broader economic impacts remain uncertain.

While most cases produced examples of market- or investment-ready outputs, **the Veturi projects are nevertheless generally early-stage R&D**, and most companies describe commercial and revenue impact as still uncertain or emerging, with a five-year-plus horizon the norm. Many companies also emphasise the need to focus more on commercialisation and broader impacts, not only increasing the R&D volume, as the latter is not necessarily a priority for the companies themselves.

In some cases, regulatory challenges and uncertainties hinder market uptake and the commercialisation of the innovations. A more system-level approach, combining funding with regulatory and demand-side measures, would therefore be needed to secure the broader economic impact of the R&D.

Ecosystems are well connected, but differ in structure and role of leading company.

Network analysis shows relatively dense ecosystems: 95% of ecosystem members have at least one identified tie, and between 22% and 46% of all theoretically possible relationships are realised. Universities and VTT are consistently among the best-connected actors, which also reflects the early-stage nature of most of the R&D.

It should be noted that particularly for some ecosystems, there is significant (more than 50%) overlap/synergies with participating organisations. This can be seen as a further argument not to increase the number of Veturi companies but rather develop and utilise alternative funding instruments and increase collaboration across the Veturi ecosystems.

Ecosystem leadership is not a single model. The Veturi companies range from internal anchors (Meyer Turku, Nokia) to outward-facing connectors (Neste, Sandvik, Borealis) and boundary spanners combining both. Their contribution should therefore be assessed through internal reach, external orientation and brokerage role rather than by the number of connections alone.

The ecosystems attracted a significant number of members, but evidence suggests that in at least some of the ecosystems, the role of these members has been very limited and not essential to the ecosystem. **Connectivity could still be strengthened** by engaging well-connected organisations able to bridge to other ecosystems.

The role of SMEs running their own Business Finland funded co-innovation project has remained at a reasonably low level, partly explained by the focus on ambitious early-stage R&D that is attainable only for a few SMEs, and their contribution to the growth in R&D investment is in any case limited compared with the Veturi companies. SMEs were, however, engaged on a considerably broader scale through procurement. Although the Veturi ecosystem projects were generally research-organisation oriented when measured by the volume of Business Finland funding, a significant amount (EUR 140 million) was procured from SMEs by the Veturis. **Procurement (rather than co-innovation projects or partnerships) thus brought a wider group of SMEs into the Veturi ecosystems.**

Continuation beyond the funding period is uneven and largely undesigned.

Given that the evaluated Veturis have only recently ended, the evaluation found no strong evidence on what happens to the ecosystems once funding stops. However, only 11% of the ecosystem project reports mention collaboration sustained beyond the funded period. Several ecosystems were formally wound down or left with open sustainability questions despite genuine partner interest in continuing.

There is no dedicated mechanism for ecosystem continuation. Where continuation occurred, it typically took the form of the lead company self-funding a bridging period of around one year, and the main observed continuation route is the lead company applying for a further Veturi project, which sustains its own R&D trajectory but does not by itself secure the continuity of the wider ecosystem. This can be read either as evidence that the instrument keeps catalysing valuable transformation that would not otherwise happen at this pace, or as evidence that ecosystem collaboration does not yet stand on its own commercial logic without further public co-funding. According to some views, follow-up Veturi projects tend by nature to build incrementally on earlier work, and such development should therefore be supported through other instruments than Veturi, which is intended for more disruptive R&D. The follow-up Veturi projects were not, however, covered by this evaluation, and it is important to monitor this question in the future.

Coherence and alignment with other policy initiatives needs strengthening.

While Veturi is closely aligned to the national R&D investment target, its links to commercialisation, exports or productivity growth are significantly weaker. Beyond Business Finland, the instrument is only **weakly connected to other policy initiatives** (Tesi, Finnvera), regulatory policies – regulation being an important concrete external bottleneck to commercialisation in many cases – public procurement, and the ecosystem work of cities and regions. In other words, the broader societal impact of the Veturi companies could be further leveraged by aligning the Veturis more closely with other innovation ecosystem actors.



Regarding policy coherence, it should also be noted that the expected EU state-aid regulation reform (General Block Exemption Regulation, GBER) and planned changes in the Finnish R&D law may affect the policy and R&D funding landscape and provide opportunities for Business Finland to develop its R&D funding instruments.

The concept has evolved, but some implementation issues remain.

The Veturi concept and its implementation have evolved over time, enabling it to adjust and develop improved practices and lessons on managing the ecosystems and Veturi projects. For example, **the orchestration of Veturi ecosystems has been demanding** in several cases, and many companies needed considerable time and resources to learn to manage the funding, projects and partnerships efficiently. New collaboration structures emerged that broaden the routes to partner growth, including a jointly led ecosystem (Fortum and Metsä Group), coordination between parallel ecosystems (Wärtsilä and Meyer Turku) and a cross-sector pairing between two Veturi companies (Sandvik and Nokia).

Compared with other funding instruments, **Veturi is generally considered more flexible and less bureaucratic**, and it has in some cases served as a springboard to EU funding. However, several implementation issues can be identified based on the evaluation findings. These include especially the **long processing times for ecosystem projects** (6–9 months), the absence of a standard consortium and IPR agreement template, and inconsistent feedback from Business Finland in evaluating project applications.

As discussed above, the **definition and reporting of R&D expenditure** also proved an implementation challenge, and companies operating through several legal entities or business areas called for Business Finland to provide common guidance on multi-entity R&D reporting.

The **Veturivarikko** peer forum and Business Finland's operational contacts are consistently valued. At the same time, expected savings in Business Finland's own resources may constrain its capacity to activate and support ecosystems.

4.2 Recommendations

Recommendations to develop Veturi as a concept

1. **Continue the Veturi instrument for leveraging business R&D investment** – the evidence indicates that, despite the reported caveats, it has worked for that goal. Its design and KPIs are, however, built strongly around the national priority of increasing R&D investments in Finland. If that target or policy priorities change, the scope and magnitude of the Veturi funding compared to other instruments should be reconsidered.
2. **Avoid diluting the Veturi concept.** Adhere to the core mission of driving large-scale, ecosystem-led industrial transformation. Expansion driven by available budget rather than by pipeline quality weakens results. Support instead the planned diversification, including development of "Challenger Veturi" models. Recognise also that Veturi is not suited to all purposes: for fields without strong lead companies, other or new types of concepts should be considered. In other words, Veturi should not be seen as a tool for all purposes, but rather as a specific instrument for leveraging strategic-level R&D of the leading companies.
3. **Design continuation around company incentives and test a lighter "bridging" instrument** for ecosystems between formal Veturi cycles: small-scale, 1–2 years, light application and reporting, funding ecosystem coordination and roadmap work rather than new R&D content. The EU state-aid ceiling increase to EUR 35 million addresses company-level, not ecosystem-level, continuity. Follow-up Veturi projects that mainly build incrementally on earlier work should be assessed critically against the disruptive aim of the instrument, and their development should be monitored, as they were not covered by this evaluation.
4. **Build a progression path from early-stage R&D to market within Veturi itself.** Veturi's ecosystem funding should support the deliberate next step when early-stage research succeeds (piloting, scaling-up) tied to each company's own staged business plan, rather than treating every new work package as another early-stage start (see also Implementation recommendation 2).
5. **Support market uptake and spill-over impacts of the Veturi funding** by strengthening the linkages with other innovation ecosystem actors (including cities, regional ecosystems and regulators) and by disseminating lessons and information on Veturi projects.
6. **Strengthen the assessment of the broader impacts and role of Veturi.** Given the size and policy significance of the instrument, its broader economic and societal impacts should be assessed systematically and extensively. This requires not only policy discussion but also further research and evaluation, including of the subsequent and follow-up Veturi projects.

Recommendations for implementation at Business Finland

1. **Clarify R&D cost reporting** by (i) developing upfront written guidance on R&D cost definitions and reporting (i.e. what is calculated as R&D for payment indicators), ideally tested during contracting; (ii) defining a standard reporting approach for multi-entity or multi-business-line companies; (iii) including R&D reporting in the project audit.
2. **Align payment indicators with the progression of the companies' R&D agendas.** Payment indicators and their weighting should better reflect companies' own progression logic: reward moving a successful early-stage line to development or market-validation stage, while continuing to treat further early-stage exploration as a legitimate, non-penalised outcome when initial work does not succeed, consistent with Veturi's high-risk design. As Veturi funding is R&D funding, the indicators should reflect the progression of R&D towards application rather than business-plan targets as such. In addition, quantitative payment indicators should be complemented with qualitative targets, making high quality a necessary condition for funding and building on earlier experience of qualitative criteria in Business Finland funding.
3. **Speed up ecosystem co-innovation projects' processing times** and follow them as a KPI. This could be addressed through internal prioritisations or for example by better communicating the application and partner requirements to applicants. Lead companies should also be better tasked to take a stronger role in ensuring that ecosystem project applications are well prepared and meet the requirements.
4. **Continue developing shared principles and templates for consortium and IPR agreements** in ecosystem projects, building on the ongoing work and IPR principles already proposed by the Veturis, and consider requiring a consortium agreement as a funding condition.



5. **Direct startup and SME participation towards development-stage work.** Early-stage, high-risk research is generally not well suited to SMEs or startups, who typically need faster results. The more promising route is to involve SMEs and startups in development, piloting or supply-chain roles at later stages. This can extend the instrument's economic impact beyond the lead company and help anchor supply chains in Finland. Encourage lead companies to earmark part of their existing ecosystem funding for this kind of SME and startup engagement, assessed as a criterion in roadmap and continuation reviews. SME and startup participation should also be tracked separately in the ecosystem KPIs. In addition, Business Finland should emphasise flexibility in the requirements for company-to-company co-innovation projects and the important role of procurements to enhance the participation of SMEs and startups in Veturi ecosystem projects.
6. **Make informal funding rules explicit, and document them.** Some of Business Finland's funding rule details and practices are unwritten, which causes unnecessary work particularly to new applicants. To smooth the process, guidance should be transparent, applied consistently across funding experts, updated regularly and communicated systematically.
7. **Strengthen the efforts to document and disseminate good practices (e.g. Veturivarikko) across Veturi companies.** Peer-to-peer collaboration and exchange of experience is highly valued among the Veturi companies. As the number of Veturi companies grows, so does the potential for peer learning, especially between experienced and newer Veturis. Business Finland should continue and expand this work by systematically documenting proven practices, and by making them easily available to all Veturi companies. Thematic peer-learning sessions and structured onboarding for new Veturi companies could help spread these lessons faster. Business Finland could also feed insights from roadmap and continuation reviews into the shared knowledge base, so that learning from individual cases benefits the whole programme.

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