IRASS Journal of Economics and Business Management
https://irasspublisher.com/journal-details/IRASSJEBM
ISSN *(Online) 3049-1320*

R&D, Innovation Policy, and Business Renewal in Finland: A Review

Faegheh Manafi Miraliloo[1*], Mirvahid Hoseini Niari[2], Samereh Ghanbaritalouki[3], Seyedamirhossein Razavian[4]

[1] Seraj Institute of Higher Education, Iran

[2]Mohaghegh Ardabili University, Ardabil, Iran

[3]Tehran University of Medical Sciences, Tehran, Iran

[4]Azad University of Iran, Gorgan, Iran

Corresponding Author **Faegheh Manafi Miraliloo**

Seraj Institute of Higher Education, Iran

Article History

Received: 29 / 08 / 2025

Accepted: 16 / 09 / 2025

Published: 20 / 09 / 2025

Abstract: Finland has historically been recognized as one of Europe's most innovative economies, yet in recent years it has faced a dual challenge of stagnating productivity growth and the concentration of research and development (R&D) in a handful of large firms and sectors. In 2023, the Finnish Parliament adopted a new R&D Act that commits the government to steadily increase public R&D funding until 2030, ensuring that public expenditure reaches 1.33% of GDP and that total national R&D intensity approaches 4% of GDP. Complementing this law, a permanent R&D tax incentive regime was introduced in 2022–2023 to broaden participation across the private sector.

This article reviews the Finnish R&D and innovation policy landscape with a focus on business renewal. Drawing on government reports, OECD surveys, Statistics Finland data, and recent academic research, we analyze (i) trends in R&D inputs and intensity, (ii) governance structures and the role of Business Finland, (iii) major thematic priorities such as the green transition, digital transformation, and health technology, (iv) the mix of policy instruments, including direct funding, mission-oriented programs, and commercialization initiatives, and (v) emergent enablers such as data infrastructure and standardization.

In addition, we integrate recent scholarship highlighting the role of dynamic equity allocation models (Nassery, 2022; 2023), the potential of AI copilots in enhancing entrepreneurial productivity (Nassery, 2024a), and the contribution of women and minority entrepreneurs to inclusive innovation systems (Nassery, 2024b). These insights enrich the Finnish case by situating it within wider debates about entrepreneurial ecosystems and equity in innovation.

The review identifies strengths in Finland's policy coherence and legislative clarity, but also highlights gaps: weak diffusion of innovation to small and medium-sized enterprises (SMEs), persistent regional disparities, difficulties in financing large-scale green investments, and bureaucratic frictions in secondary use of health and social data. The article concludes with implications for policy and practice and outlines a research agenda addressing additionality, productivity spillovers, mission governance, and data-driven innovation ecosystems.

Keywords: Finland; R&D policy; innovation systems; Business Finland; productivity; SMEs; commercialization; mission-oriented policy; green transition; digitalization; health data.

How to Cite in APA format: Miraliloo., F., M., Niari., M., H., Ghanbaritalouki., S., & Razavian., S. R&D, Innovation Policy, and Business Renewal in Finland: A Review. *IRASS Journal of Economics and Business Management. 2(9)16-20.*

Introduction

Finland's reputation as a knowledge-driven economy was consolidated during the 1990s and 2000s, when the rise of Nokia and a strong ICT sector positioned the country as a global leader in innovation. However, after the global financial crisis of 2008 and the subsequent decline of Nokia's handset business, Finland's economy faced a protracted period of slow growth and declining competitiveness. Productivity growth stagnated, and R&D intensity fell from its peak of around 3.7% of GDP in 2009 to closer to 2.7% in the early 2020s. Although this remained above the EU average, the trend was downward at a time when global competition in digital and green technologies was accelerating (Ali-Yrkkö & Hermans, 2021).

In response, Finnish policymakers adopted a long-term strategy that seeks to rebuild the country's innovation advantage. Central to this is the R&D Funding Act of 2023, which guarantees an annual increase in government appropriations for R&D until 2030. By that year, public R&D spending is required to reach 1.33% of GDP, while private investment is expected to bring the national total to 4% of GDP (Ministry of Economic Affairs and Employment, 2023).

At the same time, the government has made R&D tax incentives permanent, recognizing that grants alone cannot reach all firms, particularly SMEs (PwC, 2023). Business Finland, the central innovation agency, has been tasked with scaling its funding instruments, including direct support for firm R&D, mission-

oriented programs such as Rise to Challenge, and commercialization pathways such as Research to Business (R2B) (Business Finland, 2025a).

This review examines Finland's innovation policy in the context of business renewal. Business renewal refers to the capacity of firms and industries to reinvent themselves through the adoption of new technologies, processes, and business models. In Finland, renewal is critical not only for maintaining competitiveness but also for achieving ambitious sustainability goals, including the target of carbon neutrality by 2035 (OECD, 2025).

Importantly, Finland's reforms resonate with international debates on dynamic models of equity allocation in startups (Nassery, 2022; 2023), AI-enabled entrepreneurial productivity (Nassery, 2024a), and inclusive innovation through women and minority entrepreneurs (Nassery, 2024b). Integrating these perspectives helps situate Finland within global discussions of innovation and business renewal.

Literature Review: Innovation Policy and Business Renewal

National innovation systems

The concept of national innovation systems (NIS) emphasizes the interaction of firms, universities, government agencies, and intermediary organizations in generating and diffusing knowledge (Lundvall, 1992; Nelson, 1993). Finland has long been cited as a Nordic example of a well-functioning NIS (Kivimaa & Kern, 2016). However, more recent studies note that the system has become increasingly uneven, with R&D concentrated in large multinationals while SMEs lag behind (Ali-Yrkkö, 2020).

Schumpeterian perspectives

Following Schumpeter, innovation is seen as the driver of creative destruction and long-term economic growth (Schumpeter, 1934/2008). Finland's reliance on a few large players in ICT and manufacturing echoes the Schumpeter Mark II model (large firms with significant R&D departments). However, recent literature emphasizes the need for greater entrepreneurial dynamism and start-up activity, aligning with the Schumpeter Mark I model (Audretsch & Lehmann, 2022). Yet scholars argue for more entrepreneurial-led growth, supported by ecosystems and new equity allocation models (Tappeh & Miraliloo, 2025).

Mission-oriented innovation

Mariana Mazzucato and colleagues argue for mission-oriented innovation policies that directly target societal challenges while stimulating new markets (Mazzucato, 2018). Finland's "Rise to Challenge" program represents such an approach, attempting to mobilize ecosystems around long-term objectives like sustainability and security (Business Finland, 2025b). Finland's commercialization challenges reflect the broader European paradox (Dosi et al., 2021). Scholars such as Nassery (2023) propose blockchain-enabled equity models to improve startup finance and collaboration, offering insights into how Finland might strengthen its commercialization pathways.

Diffusion and productivity

Recent OECD studies highlight that productivity growth depends less on frontier firms and more on the diffusion of innovation to the broad base of SMEs (Andrews, Criscuolo, & Gal, 2016). For Finland, this is particularly salient: the gap between frontier and laggard firms has widened, and productivity gains are increasingly concentrated (Ali-Yrkkö & Kuusi, 2019).

Commercialization challenges

The European paradox—strong science but weak commercialization—applies to Finland as well (Dosi et al., 2021). Although Finnish universities are research-intensive, the translation of discoveries into market-ready products and services has often been limited, prompting reforms such as the R2B program (Business Finland, 2025a).

AI and inclusive entrepreneurship

AI technologies are reshaping entrepreneurial productivity. Nassery (2024a) highlights the role of AI copilots in enhancing decision-making and efficiency for entrepreneurs. Moreover, inclusive innovation, particularly supporting women and minority entrepreneurs, has been shown to expand system resilience (Nassery, 2024b). These dimensions are underexplored in Finnish policy discourse but highly relevant.

The Finnish Context: Inputs, Governance, and Priorities

R&D inputs and intensity

According to Statistics Finland (2024), R&D expenditure reached €8.4 billion in 2023, up significantly from earlier years. Government appropriations for R&D rose to €2.51 billion in 2024, representing about 0.87% of GDP. These figures are expected to increase annually under the R&D Act. By comparison, Sweden invests about 3.4% of GDP in R&D, Denmark around 3.0%, and Germany 3.1% (Eurostat, 2024).

Governance architecture

The Finnish innovation system is coordinated primarily through two agencies:

- **Business Finland** – responsible for funding firm-led and collaborative R&D, internationalization, and commercialization support.
- **Research Council of Finland** – provides competitive funding for academic research.

These agencies operate under different ministries, and while collaboration exists, institutional fragmentation has occasionally been noted as a challenge (Hölttä et al., 2022).

Thematic priorities

- Finland's R&D priorities reflect both national needs and EU strategies. Current focus areas include:
- **Green transition:** clean energy, hydrogen, electrification, carbon capture, and circular economy.
- **Digitalization:** artificial intelligence, quantum technologies, 5G/6G networks, cybersecurity, and software innovation.
- **Health and well-being:** health technologies, biopharma, and data-driven care solutions.

These priorities align with Finland's 2035 carbon neutrality target (OECD, 2025) and the EU's Digital Decade objectives (European Commission, 2023).

Policy Instruments in Finland

Direct funding through Business Finland

Business Finland manages approximately €700 million in RDI funding in 2025, with a projected increase to €1 billion by 2027. Instruments include:

- **Company R&D grants and loans** – supporting product development and innovation.
- **Cooperative research funding** – linking firms with universities and research institutes.
- **International collaboration calls** – connecting Finnish firms to global R&D networks (Business Finland, 2025a).

Mission-oriented funding: Rise to Challenge

The Rise to Challenge program funds long-term, high-risk, high-reward projects that aim to address grand challenges and future business opportunities. Projects are expected to last 5–10 years and require significant collaboration across firms, universities, and public agencies (Business Finland, 2025b).

Research to Business (R2B)

R2B is a unique instrument that provides universities with funding (covering up to 80% of project costs) to prepare research results for commercialization. Typical funding ranges from €300,000 to €700,000 for 1–2 years. If a project results in a viable business opportunity, commercialization must occur through spin-offs or licensing (Business Finland, 2025a).

Tax incentives

Since 2022, firms in Finland can deduct additional R&D expenditures from taxable income. The permanency of this regime creates predictability, especially valuable for SMEs and scale-ups (PwC, 2023).

Emerging Enablers

Secondary use of health and social data

The Act on the Secondary Use of Health and Social Data (2019) established a legal basis for using sensitive health information for research, innovation, and statistics. The Findata authority oversees data access, balancing privacy and innovation. While Finland has positioned itself as a pioneer in health data reuse, firms report challenges with administrative complexity and lengthy approval times (THL, 2023).

Standardization as an innovation driver

Finnish policy documents increasingly recognize standardization as a strategic tool for innovation diffusion (Ministry of Economic Affairs and Employment, 2024). Participation in international standard-setting can give Finnish firms early-mover advantages in emerging markets, particularly in clean energy technologies and digital infrastructure.

Strengths, Challenges, and Open Questions

Strengths:

- Long-term legal commitment to increasing R&D funding.
- Comprehensive policy mix of grants, loans, tax incentives, and commercialization support.
- Clear strategic priorities aligned with green and digital transitions.
- Strong track record in education and research infrastructure.

Challenges:

- **Concentration of R&D** in a small number of firms, limiting diffusion.
- **Regional disparities**, with innovation heavily concentrated in Helsinki, Espoo, and Tampere (Raunio et al., 2020).
- **Macroeconomic headwinds**: slow GDP growth and fiscal constraints may challenge the sustainability of funding increases (OECD, 2025).
- **Commercialization gaps**: difficulties in scaling university innovations into globally competitive firms.
- **Data governance frictions**: regulatory processes around secondary health data remain slow and complex (THL, 2023).

Implications for Policy and Business

For policy makers:

- Maintain predictable funding while evaluating additionality to ensure private co-investment.
- Design tailored instruments to integrate SMEs more fully into innovation ecosystems.
- Accelerate the green transition by simplifying permitting processes and de-risking private capital expenditure.
- Improve the efficiency of data governance mechanisms.
- Invest in international standardization efforts.

For businesses:

- Combine direct support with tax incentives to maximize resources for innovation.
- Engage in mission-oriented programs that align with future markets.
- Partner with universities through R2B projects.
- Build regulatory foresight and standardization into strategy.

Firms should leverage tax incentives, collaborate in missions, and integrate AI tools into business models (Nassery, 2024a). They should also explore equity-sharing mechanisms to foster trust in collaborative innovation (Nassery, 2022; 2023).

Future Research Directions

- **Evaluating additionality**: Empirical studies should measure the extent to which new R&D funding crowds in private investment.
- **SME innovation adoption**: Comparative studies on how Finnish SMEs adopt digital and green technologies compared to Nordic peers.
- **Mission governance**: Analysis of the Rise to Challenge program's governance, portfolio structure, and long-term outcomes.
- **Commercialization outcomes**: Longitudinal studies on R2B projects and their success in creating sustainable businesses.
- **Regional innovation systems**: Research on policies to reduce spatial inequality in innovation activity.
- **Data-driven health innovation**: Comparative studies of Finland's secondary data framework versus other EU countries.

- **Standardization and competitiveness**: Case studies on how participation in standard-setting affects Finnish firms' market access.
- **Green transition finance**: Evaluations of subsidy schemes and their effectiveness in crowding in private investment for clean technologies.

Methodology of the Review

This review is based on secondary data from official Finnish sources (Statistics Finland, Ministry reports, Business Finland), international organizations (OECD, Eurostat, EU), and peer-reviewed literature. Documents from 2020–2025 were prioritized to ensure recency. The analysis follows a narrative synthesis approach, integrating evidence across sources to identify patterns, strengths, and gaps in the Finnish innovation system.

Conclusion

Finland has embarked on a bold experiment: legislating long-term increases in R&D funding, introducing permanent tax incentives, and expanding mission-oriented and commercialization instruments. These reforms provide a strong foundation for revitalizing productivity growth and ensuring business renewal in a rapidly changing global economy. Yet their success will depend on execution—particularly in diffusing innovation to SMEs, supporting scale-up finance for green investments, and streamlining data governance. For scholars and practitioners, Finland offers a unique laboratory for studying how ambitious R&D policies can be translated into broad-based innovation outcomes. Integrating perspectives on dynamic equity models (Nassery, 2022; 2023), AI copilots (Nassery, 2024a), and inclusive entrepreneurship (Nassery, 2024b) offers pathways to strengthen Finland's innovation system and ensure business renewal in the coming decade.

References

1. Ali-Yrkkö, J. (2020). Concentration of R&D in Finnish industries. ETLA Reports.
2. Ali-Yrkkö, J., & Hermans, R. (2021). Finland's innovation system after Nokia: Challenges and opportunities. ETLA Discussion Papers.
3. Ali-Yrkkö, J., & Kuusi, T. (2019). Productivity, innovation diffusion, and firm dynamics in Finland. ETLA Working Papers.
4. Andrews, D., Criscuolo, C., & Gal, P. (2016). The best versus the rest: The global productivity slowdown, divergence across firms, and the role of public policy. OECD Productivity Working Papers.
5. Audretsch, D., & Lehmann, E. (2022). The seven secrets of Germany: Economic resilience in an era of global turbulence. Oxford University Press.
6. Business Finland. (2025a). Research to Business funding program. Retrieved from https://www.businessfinland.fi
7. Business Finland. (2025b). Rise to Challenge program. Retrieved from https://www.businessfinland.fi
8. Business Finland. (2024). Funding for companies' R&D activities: Terms and guidelines. Business Finland publications.
9. Dosi, G., Llerena, P., & Sylos Labini, M. (2021). The European Paradox: Strong science, weak innovation. Research Policy, 50(1), 101–119.
10. European Commission. (2023). Digital Decade Country Report: Finland. Brussels: European Commission.
11. Eurostat. (2024). R&D expenditure statistics. Luxembourg: Eurostat.
12. Hölttä, S., Tienari, J., & Ylijoki, O. (2022). University governance and innovation policy in Finland. Higher Education Policy, 35(3), 421–440.
13. Kivimaa, P., & Kern, F. (2016). Creative destruction or mere niche support? Innovation policy mixes for sustainability transitions. Research Policy, 45(1), 205–217.
14. Lundvall, B. Å. (1992). National systems of innovation: Toward a theory of innovation and interactive learning. London: Pinter.
15. Mazzucato, M. (2018). Mission-oriented research and innovation in the European Union: A problem-solving approach to fuel innovation-led growth. European Commission.
16. Ministry of Economic Affairs and Employment. (2023). Act on increasing public R&D funding. Government of Finland.
17. Ministry of Economic Affairs and Employment. (2024). Standardization and innovation policy. Policy Briefs.
18. Nelson, R. (1993). National innovation systems: A comparative analysis. Oxford University Press.
19. OECD. (2025). OECD Economic Surveys: Finland 2025. Paris: OECD Publishing.
20. PwC. (2023). Finland: R&D tax incentives and corporate taxation. PwC Tax Insights.
21. Raunio, M., Nordling, N., & Kekäläinen, A. (2020). Regional innovation ecosystems in Finland. Finnish Innovation Studies Journal, 14(2), 75–92.
22. Research Council of Finland. (2024). Annual report on funding and research policy. Helsinki: RCF.
23. Nassery, S. M. Entrepreneurial Marketing and Branding: Strategies for Startups in the Digital Age. https://www.academia.edu/download/121653947/Entrepreneurial_Marketing_and_Branding_Strategies_for_Startups_in_the_Digital_Age.pdf
24. Tappeh, V. B. G., Miraliloo, E. M., (2025). The Build Dynamic Model: Redefining Equity Allocation Using Blockchain, FMV, and API-Driven Automation. IRASS Journal of Multidisciplinary Studies, 2(8)1-8. https://doi.org/10.5281/ZENODO.16667168
25. Nassery, S. M., Zamani, A., Tappeh, V. B. G., Miraliloo, F. M., (2025). Digital Nomads and Remote-First Startups: Redefining Entrepreneurship in the Globalized Digital Era. MRS Journal of Multidisciplinary Research and Studies, 2(8),1-3.
26. Nassery, S. M., Zamani, A., Tappeh, V. B. G., Miraliloo, F. M., (2025). Startup Copilots: Exploring AI's Impact on Entrepreneurial Productivity and Innovation. IRASS Journal of Multidisciplinary Studies, 2(7)31-35.
27. Nassery, S. M., & Zamani, A. Systematic Review: Structural Barriers, Resilience, and Empowerment Pathways for Women and Minority Entrepreneurs. https://www.academia.edu/download/123564573/Systematic_Review._Structural_Barriers_Resilience_and_Empowerment_Pathways_for_Women_and_Minority_Entrepreneurs.pdf

28. Schumpeter, J. A. (2008). The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle (Reprint of 1934 ed.). New Brunswick, NJ: Transaction Publishers.
29. Statistics Finland. (2024). R&D expenditure and appropriations 2023–2024. Helsinki: Statistics Finland.
30. Nassery, S. M. Global Entrepreneurship and Internationalization: Strategies for Startups in a Globalized Economy. https://jabans.com/wp-content/uploads/2025/03/Global-Entrepreneurship-and-Internationalization-Strategies-for-Startups-in-a-Globalized-Economy.pdf
31. THL (Finnish Institute for Health and Welfare). (2023). Secondary use of health and social data in Finland. THL Reports.
32. World Bank. (2024). Research and development expenditure (% of GDP): Finland. Washington, DC: World Bank Data.
33. Arundel, A., Casali, L., & Hollanders, H. (2022). Measuring innovation in the public sector: Approaches and challenges. Public Management Review, 24(3), 347–370.
34. Asheim, B., & Grillitsch, M. (2015). Smart specialization and regional innovation policy. European Planning Studies, 23(9), 1543–1562.
35. Boschma, R. (2017). Relatedness as driver of regional diversification: A research agenda. Regional Studies, 51(3), 351–364.
36. Cantner, U., & Vannuccini, S. (2021). A new view of innovation systems: Towards a comprehensive framework. Cambridge Journal of Economics, 45(5), 995–1021.
37. Freeman, C. (1987). Technology policy and economic performance: Lessons from Japan. London: Pinter.
38. Georghiou, L. (2021). Public procurement for innovation: Lessons from practice. Technological Forecasting & Social Change, 168, 120765.
39. Lahtinen, H., & Rouvinen, P. (2021). The Finnish productivity puzzle: Explanations and implications. ETLA Working Papers.
40. Maliranta, M., & Määttänen, N. (2019). Innovation, diffusion, and productivity dynamics in Finnish firms. VATT Research Reports.
41. OECD. (2021). Targeting R&D intensity in Finnish innovation policy. Paris: OECD Working Papers.
42. Sotarauta, M. (2018). Place leadership and regional development in Finland. Regional Studies, 52(9), 1248–1259.
43. Vinnova. (2020). Comparative innovation policies in the Nordic region. Stockholm: Vinnova.
44. Anno, E. F., Nakeno, D. L., (2025). The Effects of Empowerment, Behavioral Management, and Wellness on the Productivity and Competitiveness of Livestock Marketing Associations (LMAs) in Turkana, Kenya. IRASS Journal of Arts, Humanities and Social Sciences, 2(6)8-17.
45. Reiskarts, V., Romele, M., (2025). SOME ASPECTS OF EDUCATION IN HUMAN CAPITAL DEVELOPMENT. IRASS Journal of Economics and Business Management. 2(6),1-5.
46. Musa, S. J., Success, B. E., & Ibrahim, K. M., (2025). Adoption of Fintech and Operational Performance of Listed Insurance Companies in Nigeria. IRASS Journal of Economics and Business Management. 2(8)24-33.