

# Empowered by the Norwegian Model: Advancing Free and Open Research in Computer Science and Mathematics

Ole Kristian Aamot  
Aamot Research  
`ole.kristian.aamot@gmail.com`

2025

## Abstract

This article explores how the Norwegian Model of social democracy, with its emphasis on equitable access to education, strong public institutions, and state-supported research initiatives, enables impactful, independent, and open-source research in Computer Science and Mathematics. Drawing upon examples from recent research initiatives, the work underscores how publicly funded, accessible infrastructure can empower individual researchers and small teams to pursue breakthroughs in theoretical and applied disciplines. We argue that Norway's inclusive academic culture and economic framework serve as a replicable model for global research ecosystems.

## 1. Introduction

The landscape of global research is undergoing a transformation. While some countries have moved toward privatization and commercialization of knowledge production, Norway has preserved and strengthened a research culture based on egalitarianism, public funding, and openness. This "Norwegian Model" offers a distinctive foundation for innovation, particularly in fields like Computer Science and Mathematics, where independent researchers can produce meaningful contributions with the right tools and institutional support. This paper analyzes how the Norwegian Model fosters free and open research in these disciplines, and examines the global relevance of this approach.

## 2. The Norwegian Model: An Overview

The Norwegian Model is a form of Nordic social democracy characterized by strong welfare systems, state involvement in key sectors, and universal access to healthcare, education, and digital infrastructure. Crucially, this model integrates:

Tuition-free higher education

State-funded research councils (e.g., Norges forskningsråd)

National libraries and digital repositories

Open access mandates for publicly funded research

Integration of academic, governmental, and industrial research

These characteristics create a robust research ecosystem where economic barriers to participation are minimized, enabling broader engagement in advanced studies and experimentation.

### **3. Open-Source Paradigms in Computer Science and Mathematics**

Norway has long supported open-source software and open-access publishing, aligning with principles of transparency and public ownership. Researchers in Computer Science benefit from platforms like GitHub, GitLab, and governmental support for initiatives that use open licenses. In Mathematics, open-access journals and institutional repositories ensure that proofs, theorems, and teaching materials are shared freely.

Norwegian universities and institutes have increasingly encouraged students and scholars to contribute to collaborative projects. Initiatives like the Friprog movement and the widespread adoption of Linux in public services exemplify the synergy between state support and free software principles.

### **4. Case Study: Independent Research Enabled by State Support**

A recent example involves a sole proprietorship in Norway developing an open-source location-based search engine and tools for geospatial data integration, grounded in academic research and published under permissive licenses. Enabled by public stipends, access to university libraries, and collaboration with academic advisors, the researcher was able to work independently without reliance on private venture capital or restrictive IP frameworks.

This demonstrates how state support, institutional freedom, and transparent digital infrastructures can elevate grassroots innovation to internationally relevant research.

### **5. Challenges and Future Directions**

While the Norwegian Model provides a strong framework, challenges remain:

Bureaucratic barriers in research funding

Limited international visibility for Norwegian-language or locally focused research

Underutilization of international collaborations outside Europe

Future policy can build on current strengths by streamlining grant processes, investing further in global partnerships, and enhancing multilingual dissemination of research outputs.

## 6. Conclusion

The Norwegian Model offers a powerful template for fostering open, independent, and socially beneficial research in Computer Science and Mathematics. By ensuring universal access to education, digital tools, and academic networks, it empowers individuals and small teams to contribute meaningfully to global knowledge. As the world searches for sustainable and inclusive research paradigms, Norway’s experience offers both inspiration and instruction.

## References

1. Norwegian Research Council (Norges forskningsråd). Reports and policy documents.
2. University of Oslo & NTNU: Open Access repositories and institutional frameworks.
3. Friprog Foundation. <https://friprog.no>
4. OECD (2023). “Research and Innovation Policies in the Nordic Countries.”
5. OpenAIRE. Norway Country Page: <https://www.openaire.eu/norway>
6. Aamot, O. (2025). “Development of a Location-Based Search Engine: A Study on Geospatial Data Integration, Privacy, and User Personalization.”
7. European Commission (2024). Digital Economy and Society Index (DESI).

## Author Biography

Ole Kristian Aamot is an independent researcher in Computer Science and Mathematics, educated at NTNU, with a focus on open-source geospatial technologies, secure communication systems, and freedom of expression online. He is the founder of Aamot Research, dedicated to ethical, accessible, and innovative software development rooted in the Nordic model of research and education.