

## Benchmarking innovation systems and policies in European countries – An organizational innovation viewpoint

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Studies of innovation systems and policies have tended to focus on scientific and technological innovation, while organizational innovations continue to receive scant attention in many countries. The aim of this paper is to study the front-runner countries in organizational innovation activities, in this case Germany, Norway, Sweden and Finland, as well as the ways in which they have integrated organizational innovations as part of broader innovation policies. The evaluation framework consists of four levels: 1) governmental and strategic level, 2) ministerial level, 3) R&D program level and 4) performance level. The paper discusses innovation systems' similarities and differences from the organizational innovation point of view and suggests future recommendations for policymakers. Although the results show that the countries studied support organizational innovation R&D projects and programs, only Finland and Sweden have been able to create broad-based innovation strategies at the governmental level that include organizational innovation. Even so, a stronger political commitment is needed to foster a comprehensive approach to innovation and support the legitimacy of organizational innovation. In the future, it will be necessary to systematically embed an organizational innovation perspective into innovation systems throughout the governmental, ministerial, R&D program and performance levels.

**Keywords:** innovation policy, innovation system, organizational innovation, innovation infrastructure

### INTRODUCTION

Innovation is seen as the major source of performance improvement and the prosperity of in many countries; this is the *innovation-driven growth* approach (Ramstad 2009a). There exist a variety of approaches to innovation policies and strategy. The traditional innovation policy favours the linear models of technological innovation in the promotion of economic growth. The narrow systemic innovation policy aims to produce economic growth through fostering technological development and diffusion of technology. (Pirainen and Koski 2003.) At the present, this is the dominating policy approach in most European countries. Third approach can be called for a broad-based innovation policy that aims to promote both technological and social innovation e.g. service and organizational innovation in a balanced way to achieve sustainable growth in a society.

Both policymakers and researchers (Smits and Kuhlmann 2004; Shapira, Klein and Kuhlmann 2001) have emphasized the importance of a broader innovation policy in Europe. Owing to globalization, increasingly stringent competition and an aging workforce, the innovation policy is currently being challenged in many European countries. The world is becoming dramatically more interconnected and competitive; the innovation economy requires a new vision and a new action agenda. At the same time, the workforce is aging and shrinking in most European countries. To maintain economic growth, it will be necessary to improve long-term productivity. A broader innovation strategy, encouraging individuals and organizations to initiate the next generation of knowledge creation, technologies, business models and dynamic management systems, is needed.

It is possible to list several characteristics to the broad-based innovation approach. 1) In the broad-based innovation strategy, the concept of innovation and policy activities is not limited to industrial,

scientific or technical innovations, while the innovations can also be social or organizational. If new technologies are to be adopted successfully, changes will also be required in working, organizational and management systems. 2) All branches produce and apply innovations, not just traditional industry but also service sector, public sector and third sector. 3) Besides supply-orientation, demand and client participation is emphasized. 4) Concerning the outcomes, sustainable development including simultaneous improvement of productivity, quality of working life (QWL) and environment, of a society is of importance. 5) Creation of value change networks in globalized collaboration is needed. 6) Broad-based innovation policy is also concerned of the development of the innovation infrastructure. More active participation is being required from universities and research institutes. In addition, the role of private consultancies and educational organizations in the production and dissemination of knowledge as well as in the support of customer's innovation activities has grown.

In this study the innovation system is studied particularly from the organizational innovation point of view. There are several reasons why the importance of organizational innovation has grown recently. Firstly, the economic historical analyses have been able to show that organizational innovations alongside technological are important sources of productivity and economic growth (Freeman and Louçã 2001; Perez, 2002; Sanidas 2005). The technological changes needs work, managerial and organizational reforms, because the adaption of new technology creates new type of work and new challenges. Secondly, organizational reforms can improve performance and QWL (e.g. Appelbaum & Steed 2005; Huselid 1995; Ramstad 2009b). 3) Organizational reform itself can also contribute to new innovations and technological solutions. 4) Rising sick-leave and early-retirement figures in many countries are another reason for including work, organizational and management issues into policy level.

## PURPOSE OF THE STUDY

At the moment, there is a widespread interest and development towards broad-based approaches, including organizational innovation to science, technology and innovation (STI) policies. However, many countries are still struggling with the broad-based strategy and particularly with its implementation. To create and implement such a strategy it is not a simple task to do, while the field is so broad and dispersed. Therefore, there is a need for good showcases of broad-based innovation policy for learning experiences to other countries. That is why I decided to focus on front-runner countries on organizational innovation. This means countries that are most innovative based on the European Innovation Scoreboard (2006). But also countries providing as an example for organizational innovation and having this way a lead capacity. The countries covered were Germany, Norway, Sweden and Finland.

*The purpose* of the study is to analyze and benchmark innovation systems from organizational point of view: How is organizational innovation taken into account in the front runner countries?

## FRAMEWORK OF THE ANALYSES

Kuhlmann (2003) offers a broad-based definition of a national innovation system that is also useful also in this study, positing that the innovation system encompasses schools, universities, research institutes (education and science system), industrial enterprises (economic system), the policy-administration and intermediary organizations (political system) as well as the formal and informal networks of these institutions' actors.

The conceptual aim of the study is to demonstrate that innovation policy promoting organizational innovations requires coordination at every level of the innovation system. It employs a balanced evaluation framework (figure 1) in which a differentiation is made between 1) the governmental level

that shapes the content of innovation policies such as strategies, 2) the ministerial level that directs and administers the formulation of the innovation policy, 3) the intermediate and R&D program level that implements the innovation policy, and 4) the performance level that executes research, development and innovation activities. Deriving a broad-based innovation system requires the creation of a balance between policy strategy, policy implementation functions and performers, as well as sufficient reflexion and learning opportunities.

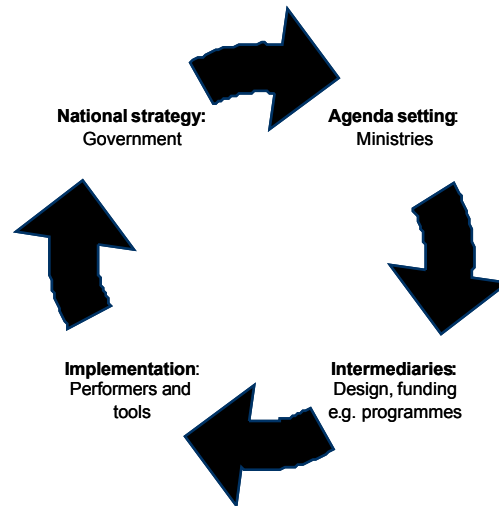


Figure 1. A balanced evaluation framework to innovation system.

The study deals with the following important questions: How is organizational innovation or development taken into account in the national innovation strategy? Which ministries are active in the field of organizational innovation? What kind of organizational development programs exist? Which R&D units participate in organizational innovation activities? Based on the country-specific analyses, the results and policy recommendations that can be considered crucial for the future innovation policy are presented.

## DATA AND METHOD

The data used in the paper was gathered between 2006 and 2007 as part of the WORK-IN-NET (work-oriented innovation) project funded by the European Commission within the ERA-NET scheme. Several data sources have been used; these include reports of national innovation systems, Internet websites, and discussions with WIN colleagues. A study for the R&D units involved with organizational development in Germany, Norway, Sweden and Finland was conducted and a one-day workshop for European policymakers and researchers was also organized in Berlin in March 2007. The results have also been discussed with the researchers or policymakers in the countries in question. Based on these comments, certain adjustments have been made to the country-specific analyses<sup>1</sup>. The conclusions of the study were further discussed at WIN workshops in Rotterdam in 2008 and Berlin in 2009.

<sup>1</sup> I would like to thank Claudio Zettel, Claudius Riegler, Friedhelm Keuken, Marianne Döös, Pär Larsson and Tuomo Alasoini for their valuable comments on the earlier versions of the paper.

## MAIN OUTCOMES OF THE CROSS-COUNTRY ANALYSES OF INNOVATION SYSTEMS FROM THE ORGANIZATIONAL INNOVATION VIEWPOINT

Each national innovation system was studied and discussed separately from the organizational innovation viewpoint (Ramstad 2009a). However, because of the limited space in this paper, I'll focus here some of the main findings of the study. Innovation systems are benchmarked at the governmental, ministerial, program and performance levels. The linkages between different levels are also important when gaining an understanding the environment and the philosophy behind the directing and supporting mechanisms of organizational innovations. Figures 2-5 depict the main actors of the national innovation systems in Germany, Norway, Sweden and Finland.

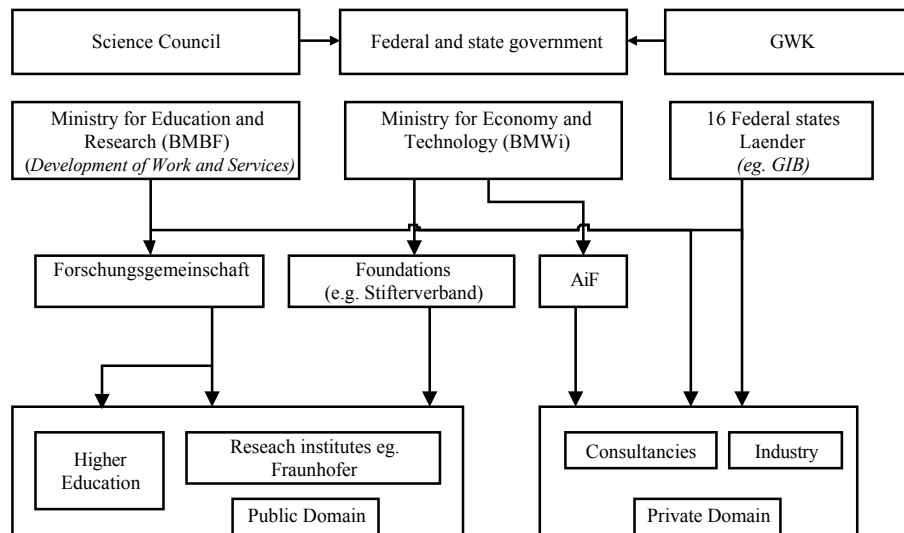


Figure 2. German innovation system from organizational innovation point of view.

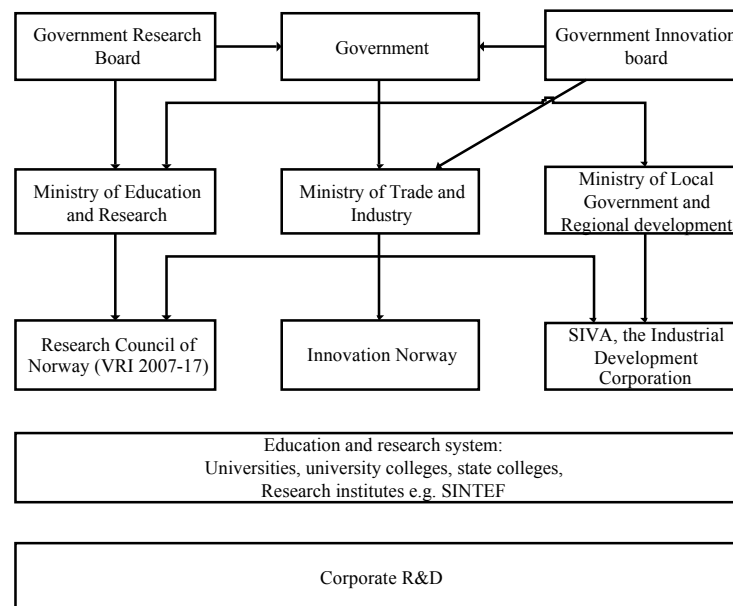


Figure 3. Norwegian innovation system from organizational innovation viewpoint.

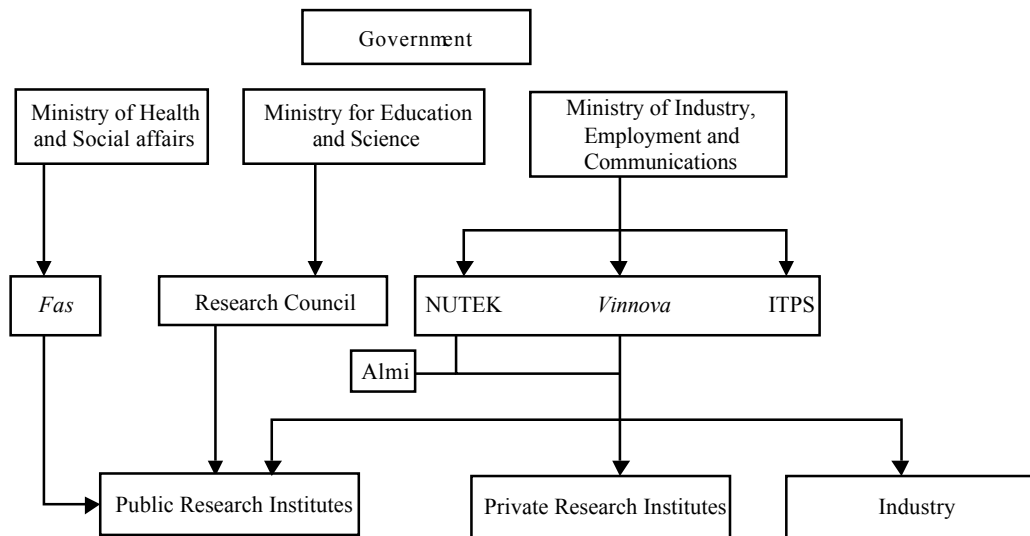


Figure 4. Swedish innovation system from organizational innovation viewpoint.

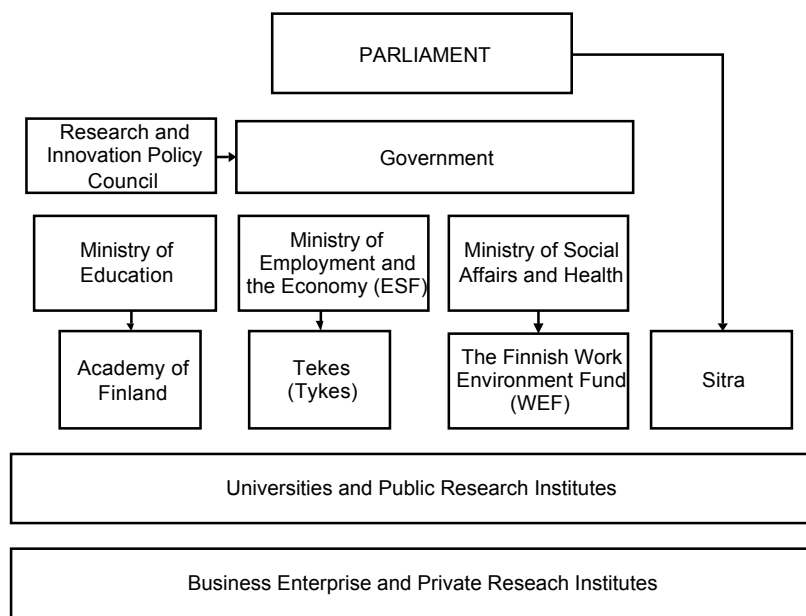


Figure 5. Finnish innovation system from organizational innovation viewpoint.

Concerning the GOVERNMENTAL LEVEL, the German innovation system is the most complex of the studied countries as it covers both federal and provincial administrative structures and support systems for innovation. In each country the councils of science, research, technology or innovation typically advised top-level political decision-makers. In Germany, the advisory boards were the Science Council and the GWK, in Norway the Government Research Board and the Government Innovation Board, in Finland, the Research and Innovation Council and in Sweden, the National Research Committee. Concerning innovation strategies in Sweden and Finland, organizational innovation was mentioned as an explicit target, which was not the case in Germany and Norway. Sweden's broad-based "Innovative Sweden" strategy takes into account the importance of the

performance level of organizational knowledge, the role of labor market organizations, as well as the interaction between technology development and work organizations. The Finnish innovation strategy ([www.innovaatiostrategia.fi](http://www.innovaatiostrategia.fi)), besides promoting the importance of funding organizational innovations as a part of the broader innovation policy, also searches for new ways to disseminate new organizational innovation practices to other work organizations. Additionally, only the Finnish innovation strategy states the promotion of QWL as an explicit goal.

At the MINISTERIAL LEVEL, the analysis revealed that the policies promoting organizational innovations are often dispersed, with several ministries involved (figure 3). The responsibility for innovation policies has been assigned to at least two ministries in each country; the one responsible for education and science and the other responsible for industry, employment or the economy. Germany and Norway resemble each other in that the organizational R&D programs are financed through the Ministry of Education and Research, while in Finland and Sweden this is undertaken by the ministry responsible for employment, trade and industry. Germany's local governments also play an important role as actors in the national innovation system. In Finland and Sweden, the main role of the Ministry of Education and Research is to support research and education. Finland was the only country where a specific unit for organizational innovation has been created at the ministerial level at the Ministry of Employment and the Economy. Additionally, the ministries responsible for health and social affairs in Sweden and Germany were also responsible for organizational innovations to a certain degree.

At the INTERMEDIATE LEVEL, the analysis showed that in each country there exist intermediate organizations that coordinate organizational innovation activities. All countries have R&D programs and projects focusing on organizational innovations. The R&D programs can be seen as important integrators of complementary innovation activities and actors. The programs and councils are responsible for the implementation, coordination and funding of organizational innovations. Germany's national and regional programs differ from the three Nordic countries where the programs are administrated in the governmental level. This is fairly logical considering Germany's larger population compared to the Nordic countries. The research projects in Germany are managed and coordinated by regional level programs and organizations (such as Work-Oriented Modernization Programme by G.I.B) or at national level by the Projektträger, a form of management organization whose role is to distribute funding, monitor projects, disseminate information and foster interaction between research and customers. In Norway there is a long tradition on organizational development programs. At the moment, the Regional R&D and Innovation Programme (2007-2017) provides professional and financial support to long-term, research-based regional development processes in Norway. In Sweden there exist several programs related to working life issues coordinated by Swedish Agency for Innovation System Vinnova responsible for growth, innovation and regional dynamics. Concerning organizational development, Vinnova has seven departments, one of which is the Working Life Department. Currently it is running several programs related to sustainable working life (e.g. Innovative Workplace, Competitive Healthy Companies). The situation is rather similar in Finland where the Finnish Funding Agency for Technology and Innovation Tekes coordinates several programs. One of them is the Workplace Development Program Tykes (2004-09) that promotes changes at workplaces related to work, organizational and management issues with a focus on simultaneous improvement of performance and QWL. In these two countries there are also other institutes that finance more basic research focusing on organizational innovation; in Finland, the Finnish Academy and Finnish Work Environment Fund, and in Sweden the FAS. The individual R&D programs usually have considerable independence and flexibility regarding the implementation of their innovation activities. This is the case particularly in Finland. On the other hand, ministries control the German programs closely, while in Norway a research council governs them. The role of labor market organizations is important particularly in the Finnish and Norwegian organizational R&D programs; there are opportunities to participate in the decision-making processes of certain financed projects.

At the PERFORMANCE LEVEL, there are several potential actors for organizational innovations. The innovation infrastructure refers to both public and private R&D units that support work organizations' innovativeness. Public sources include universities, government research institutes, polytechnics, and other educational and training institutes. Private sources can be knowledge-intensive business services such as management consultancies and other types of private R&D organizations. The study for the R&D units showed that in Germany and Finland both researchers and consultancies participate in organizational development activities. In Norway and Sweden mainly researchers are connected to national programs. In general, the experts had versatile educational background showing that the organizational development is a multidisciplinary field. However, in Norway the researchers were mostly social scientist. In each country, the experts had expertise most often in management, learning at work, wellbeing, organizing work, networking and in participation. Concerning the outcomes, in Norway the focus in organizational development activities was more often on performance and QWL issues, while in other countries it was more often in QWL. In Norway the researchers had often better off, while they had permanent jobs. In Sweden only half of the researchers had permanent jobs in the study. The study shows that in each country studied, funding is available for public R&D units. On the other hand, it was more difficult for consultancies to obtain public support for development activities, particularly in Norway and Sweden, while public money was also available for consultancies in Finland and Germany. The tendency to favor the support of public R&D units seems fairly understandable from the public policy point of view; supporting public R&D activities facilitates the dissemination of knowledge.

## CONCLUSIONS

Although each of the countries studied agrees with the importance of innovation as a source of national competitiveness, organizational innovations were stated as an explicit objective only in two countries at the innovation strategy level. In the future, the challenge will be to build an organizational innovation perspective into the innovation system and its policies, but also to the research on innovation systems. The broader view on innovation could raise awareness of the importance of organizational development as a source for sustainable economic growth and wellbeing in general, but also facilitate long-term strategic development and financial support for organizational innovation activities in a country. The government and its ministries can play a key role in creating a favorable environment for organizational innovations; any national strategy should cover technological as well as organizational innovations.

Innovation researchers have been recently developing a synthesis approach, where the aim is to forge an understanding of innovation that is applicable to all economic and policy activities (Tether & Tajar 2008). At the ministerial level this means the need to coordinate every field and level of innovation-related policy-making. Further, good program and development practices on organizational innovations must also be disseminated to other European countries to facilitate the creation of new programs. At the moment, the German, Swedish and Finnish organizational R&D programs collaborate together as part of the ERA-NET scheme and have jointly opened a project call for innovative work organizations. This joint activity enables learning challenges in addition to the programs, but also at project level supporting the creation of European level research groups.

The weakness of the earlier innovation studies and policies is that their often focus either the development of workplaces or R&D infrastructure. The balanced evaluation framework of innovation system integrates the simultaneous development of workplace (user-orientation) and innovation infrastructure (supply-orientation) that share the same challenges and interests, but from different point of view. There is a need for development of innovation infrastructure consisting of expert organizations that generate knowledge (produce, use, disseminate) related to organizational innovations (Ramstad 2008). The innovation infrastructure plays an important role by offering

diverse knowledge and helping workplaces to develop their practices, but also creating new knowledge.

The study's examination of innovation policies and systems at four levels proved to be a workable approach that helped shed light on relevant issues warranting discussion; it also demonstrated the importance of maintaining a holistic view towards innovation policies. The benchmarking approach sharpened the focus on good practices and the differences between the practices in each country, facilitating their utilization as a learning resource for expanded innovation policies.

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