

*Seminar on Innovations in Official Statistics
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Innovations and official statistics

1. Introduction

Back in the mid-1990s, Peter Drucker, one of the most quoted management consultants, already wrote that "every organization - not just businesses - needs one core competence: Innovation. And every organization needs a way to record and appraise its innovative performance."

Besides businesses, the public sector is also pressured for innovation. Changes in the operating environment impose new demands on statistical offices, too. The describing of increasingly complex economies and societies in a relevant manner requires continuous reviewing of statistics. The response burden of data providers must be reduced, statistics must be made available to the users more and more quickly and in user-friendlier form, total quality of activity must be ensured, and all this should be achieved ever more cost-effectively and with reduced resources.

The reasons for the pressure for new innovations and renewal are very similar in the field of statistics as in the business world: shifts in demand, rapid technological development, changes in legislation and the operating environment, new political emphases, and expectation of increased productivity and efficiency. Official statistics also face a growing competitive challenge as the supply of information increases.

Lately, globalisation and accelerated technological development have added to the need for renewal and innovation. At the same time, innovativeness has increased in official statistics as the IT development has opened new possibilities for developing and disseminating our products and services.

The challenge for continuous change and renewal is here to stay. The strategic goal of a growing number of statistical offices is achievement of an operating culture aimed at the rationalisation of production, improvement of service, continuous development of products and processes, and nurturing of innovativeness and creativity among the personnel.

Information and its open flow in economy form the core of modern innovation activity. This is why statistical community - as provider of information - can play an important role in facilitating of innovations both on a national and international level.

This presentation largely reflects the innovation activity of national statistical offices against the knowledge about the business sector. Chapter 2 reviews briefly the innovations as a source of economic growth while the main emphasis of this paper lies on innovations looked from the organisational point of view as a source of excellence. Chapter 3 summarises some current trends of firms' innovation activity and Chapter 4 goes more into the reality of official statistics and NSI's. In Chapter 5 the focus is on the role of international statistical co-operation and global networks. Finally, concluding remarks are presented in Chapter 6.

2. Innovation as a source of economic growth

Many industrial countries and their organisations have adopted strategies, roadmaps and action plans to foster innovation and enhance its economic impact. The OECD's Council at Ministerial level in 2007 decided to develop a broad-ranging Innovation Strategy. The background paper to the Ministers stated that "there is a growing awareness among policymakers that innovative activity is the main driver of economic progress and well-being as well as a potential factor in meeting global challenges in domains such as the environment and health." The capability to innovate and to bring innovation successfully to market are seen to be crucial determinants of the global competitiveness of both nations and enterprises.

The word 'innovation' is very widely used today and there is quite a common understanding about its meaning. There is also a growing consensus on the importance of innovations for economic growth and progress. However, in order to give evidence to this and to offer more relevant basis for evidence-based policy making, we need to develop our statistical concepts and systems.

During this decade, efforts have actually been made within the statistical community to develop both the system of national accounts and the measurement of innovation. The work is still in progress. In the United States, the Bureau of Economic Analysis recently published an interesting article "Toward Better Measurement of Innovation and Intangibles" by Ana M. Aizcorbe, Carol E. Moylan and Carol A. Robbins. The authors describe BEA's efforts and plans to develop measuring of intangibles in the national accounts and to improve statistics on innovations. They also present a very informative summary table consisting of different definitions of innovation. For adding understanding of this phenomenon, I copied the summary table as Annex 1.

The authors of the article summarise: "The notion of 'innovation' can be elusive, as seen in the widely different definitions that economists, policy analysts, and business leaders frequently use. Common to these definitions, however, is the realisation of commercial value in the market place from the creation of something that did not previously exist." The writers also recognise that the concept of innovation has broadened during the recent years. While previously, economic studies on innovation were primarily focused on technological innovation, the current emphasis is shifting to include the role of new products, processes, and business models especially in the growing service sector of the economy.

3. Innovations as a source of excellence

As the relationship between innovations and economic growth is one of the most popular subject in the current economic research, the NSI's have also to increase their efforts to improve the respective measurement systems. But this is not the only reason for us to focus more on innovations. Like any business organisation we want to increase the innovation capacity of our organisations to meet better the challenges ahead of us. We also have to look at innovation activity from the organisational and management point of view.

Unlike in the business sector, innovations of the public sector organisations do not aim at their own growth or commercial success. Our main targets are related to the rationalisation of activity, lowering of costs and to overall growth of productivity. To do more with less. Another important aim of our innovation activity is to increase service capacity, quality and ease of access to statistics and statistical data. Successful innovation activity of the NSI's leads to widened use of statistics and increased overall effectiveness of official statistics which in turn may improve the quality of decision-making at all levels of society.

The need for continuous renewal and innovations is widely taken into account in the different quality management frameworks like the European EFQM Excellence Model or Malcolm Baldrige model in North America. In these frameworks, the broadening of the concept of innovation has kept pace with the development of economic research. Innovation activity is no more seen as a specific responsibility of organisations' R&D departments, but rather as a core question of the management and culture of the whole organisation.

In the development of innovations and innovative performance the private sector is the forerunner. When the activities of national statistical institutes, and those of public organisations in general, are being reviewed it is important to study the trends in the corporate world and sieve out the ideas that seem useful and feasible. In the following, I present four trends which might be of interest to the development of innovation activity within official statistics.

Focus to strategies, management and organisational culture

In successful organisations innovative performance is one of the strategic goals. The development of strategic agility also increases pressure to make an input into innovation activity. A strategy that favours innovativeness forms the underpinnings for consistent development of the activity and operating culture of the organisation.

Active innovating demands from enterprises strategic choices in the areas of customer and demand orientation, brave globalisation, systematic modes of operating, and broad-based development and management culture aimed at structural renewals. Innovation activity also requires taking risks because innovation is typified by complexity and uncertainty about the end result.

According to experiences, the most important factor is the creation of an organisational culture that nurtures innovations. This needs the cultivation of a work community that respects individual creativity and a corporate culture

that encourages everyone to work together. In order to make full use of the innovation potential of all employees, organisations encourage innovation and develop rewarding systems. In the end, intangible capital determines the capacity to generate and apply innovations. There must be people who are trained to see the opportunities where the better, faster and cheaper can be realised.

Successful innovation activity also requires open flow of information at all levels of the organisation and the development of various systems of knowledge management. Information accumulated into diversified experiences and common systems serves as raw material for innovations. Interdisciplinary teams stimulate innovativeness and well-established project management gives the necessary framework for the implementation of innovations.

User-orientation instead of technology-drivenness

Firms have moved from supply and technology centred development to demand and customer centred innovation activity. Value chains flow from customers and consumers towards producers and developers, not vice versa. Many firms have involved consumers in their product development by analysing and processing previously unidentified needs together with them and in that way influencing actively the emergence of new markets.

In addition to the application of technology, innovations can be founded on new service and business models, working and operating methods, or the management of product concepts and brands. An innovation can emerge as a combination of many competencies. A broad-based innovation policy creates the preconditions for operating models combining the needs of users, consumers and citizens, alongside knowledge, creativity and competence.

Towards open innovation activity

According to Eurostat's latest Innovation Survey, 40 to 60 per cent of enterprises in the developed EU countries engage in some degree of innovation activity. The forms of innovation activity vary. Some enterprises continue to mainly base their innovation activity on their own R&D while others rely on forms of so-called open innovation activity. Some enterprises do the work within strictly specified innovation projects while in others the operational culture is aimed at continuous development of products and processes.

Enterprises are increasingly engaging in forms of dispersed and open innovation activity instead of so-called closed innovation activity within themselves. Firms combine and utilise information and ideas obtained from various partners, like customers, stakeholders, research institutes and competitors, in their own innovation activity.

Towards global networks

More and more of the innovation activity of large companies takes place in international networks, which creates global competence and innovation communities. These knowledge networks link different actors into global value chains.

Especially the middle ground between different fields has proven fertile for enterprises' innovations. People's mobility, merging of disciplines and grown computer capacities have increased the potential of these middle grounds to produce 'innovation bursts'. It has been noted that a multicultural and unprejudiced operating environment provides a fruitful foundation for successful innovation activity.

4. Innovation activity - essential to national statistical institutes

In the field of official statistics the general understanding is that to succeed we must be more innovative. It is interesting to consider the options statistical offices have for promoting innovativeness and successful innovation activity. Three trends mentioned in the previous chapter are discussed here in the light of experiences gained so far within the official statistics. The fourth trend - towards global networks - is handled more in detail in chapter 5. Before going to these trends, I present some remarks on governance as it creates the framework within which we operate.

About the governance and innovations

The fundamental principles of official statistics form the basis for all our work. In case these principles are implemented in practice, the NSI has a good foundation to its activities, including innovation activity. Independence and self-governance of the NSI's function well in some regions, but in others, the political reality does not necessarily support this kind of development. Even in the difficult conditions, the strong will of NSI's seems to be to strengthen their positions as an independent statistical authority and in doing so, to find innovative solutions to the governance questions.

Today we have few interesting papers discussing the governance issues in terms of innovative capacity of the NSI's. For example the paper of Bangladesh Bureau of Statistics gives a comprehensive picture of the country's situation and presents the office's initiatives and innovative solutions for improvement. The major challenges are relating to the proper statistical legislation, inadequate material and intellectual resources, lack of statistical training and poor opportunities to co-operate with major stakeholders.

The Bangladesh paper makes an important remark by saying that "the governance issues are crucial because without proper administrative measures the improvement and innovation in the area of data collection and dissemination is not possible."

Focus to strategies, management and organisational culture

At many statistical offices innovative activity is developed side by side with the total quality of activity. The development and maintenance of quality systems form a good foundation for the strengthening of management and activity that favour innovativeness. As referred earlier, a TQM framework, such as the EFQM model, defines continuous learning, innovation and improvement as the fundamental concepts of organisational excellence. Applying total quality management means automatically that innovativeness is embedded as a target of the organisation and the management system supports all efforts towards this target.

There are actually no statistics or overall review on how many of the NSI's do have strategies or management systems supporting and encouraging innovative culture. However, we know that more and more NSI's are giving greater attention to systematic development of human resource management. Joint HRM seminars and forums, like the one organised by the Conference of European Statisticians last year in Skopje, are extremely important from this point of view. Sharing experience and good practices via web can be of great benefit to all NSI's.

Relationship between standardisation and innovations is an interesting question in terms of organisational culture. It is quite often said that standardisation kills creativity. However, in terms of efficiency, standardisation of methods and processes is a must. Actually, well-functioning processes and extensive use of standardised methods and tools release creative resources for innovation in other areas. This has been noted in the growing amount of NSI's and at the moment, many statistical offices are progressing fast in systematic development of processes and transition to process management.

User orientation instead of technology-drivenness

The field of official statistics is typically technology-intensive. The potential of ICT to enhance productivity is clearly obvious. Progress in ICT has also facilitated many of the statistical innovations of the past few years. The best of these are widely utilised in the statistical community. We are all familiar with the BLAISE data collection software developed by Statistics Netherlands, and the PC-Axis software developed originally by Statistics Sweden. It is, however, worth noting that investment in ICT is not enough to produce any productivity gains. As many of the presentations made at this seminar also show, innovations based on ICT produce more sustainable benefits to a statistical office if it develops its strategy, processes, organisation and competence of human resources at the same time.

In the field of data collection, and especially in business data collection, the NSI's have been quite successful in developing new and more efficient collection tools and systems. Use of administrative data, development of web-based questionnaires, automatic retrieval of data from the firms' own data systems, change-over to the new collection architecture of combined sources as well as applying customer relations management in the field of business data collection represent some of the latest useful innovations. In this area NSI's really have to work together with data providers in order to get any 'raw-material' for statistics compilations. For great benefit to development, the business sector is very demanding provider of data helping us at the same time in finding new innovative solutions.

The same is not necessarily true as regards dissemination of statistics. The 'natural' connections between NSI's and different user groups are often very loose and instead of demanding us to improve our services, the users might 'vote by their computers'. Users take their information from the source which gives best value added to their needs. Useful data and statistics, even though produced by the NSI's, are more and more easier available on web sites of other service providers. There is a risk that the NSI's are losing little by little their control and monopoly to disseminate their own products. With the help of links and portals, wiki's and blog's, commercial and other data banks and services, our statistics are spreading to the ever widening

audience. In this competitive situation we should be able to prove the real value of our work.

This risk is recognised as can be seen from many presentations of this seminar. The NSI's and international organisations are working very hard and they have been able to find new innovative solutions to disseminate their data in a more coherent, cost-effective and user-friendlier way by applying widely the possibilities of the latest IT technology. As a good example I would like to refer here to the recently opened UNSD web service called UNdata which helps users to get easy access to statistics of different statistical areas on a country level. These statistical data, together with metadata, come not only from UNSD data bases but also from around ten other UN organisations. The coverage of this service is impressive measured both by number of the countries and of indicators.

These days, close collaboration with stakeholders, and customer orientation are characteristic of many statistical offices. Systems for collecting and disseminating data are developed in continuous interaction with the providers and users of the data. Still, we should be better in recognising also the 'weak signals', to create useful networks and strategic partnerships. Shifting from technology-driven activity to user oriented approach in our development work and inclusion of users in the innovation activity also means that the statistical office gains additional resources for this work.

As regards our innovation potential, one area where we might need to do more progress, is our partnerships with universities and researchers. Risto Lehtonen and Carl-Erik Särndal studied the scientific co-operation with universities of 41 developed countries' NSI's originally in 1999/2000. According to the results of an empirical follow-up study of 2006, the most frequently implemented form of co-operation was the use of university expertise in methods R&D or as consultants. The second common form was launching of joint research projects, implemented in 25 out of 44 NSI's. Even though the common situation has improved to some extent during this decade, the exploitation of the potential of scientific collaboration is still too rare. Quite often universities and researchers are only seen as users of statistical data, whom statistical offices are trying to serve ever more diversely. The creation of well-functioning co-operative networks with the academic world would boost the innovation activity of statistical offices.

Towards open innovation activity

The diffusion of innovations between statistical offices is an interesting issue. Competitive advantage is usually not an obstacle to open innovation activity or to the diffusion of innovations in the field of statistics. There is world wide web available and there are also plenty of suitable forums, like this seminar, for instance, for the sharing of experiences. New innovations are equally important as applying the old ones developed by others. The idea lying behind innovation or innovative solution of one statistical office can usually be applied by others. Exploration of the feasibility, and creative application of different ideas usually have the tendency to produce progress.

As an positive example I would like to refer to the innovative idea of exploitation of administrative records as basic data for statistics. In 1980, Statistics Denmark drew the very first register-based population census in the world. The idea suited Statistics Finland very well and we were able to

do the same in 1990. The rest of the Nordic countries followed soon and today an ever growing number of countries have already adopted this idea. At the same time the utilisation of administrative data sources has also become widespread in economic, social and environmental statistics, even though there still is untapped potential in this.

The sustainability and utility of innovations can largely be assessed on the basis of how widely the new idea is adopted and applied in practice. There are ever growing numbers of examples of this kind of diffusion of useful ideas and innovations in the areas of data collecting, processing and dissemination alike. Exactly as in the same way, ideas for the development of governance, strategy, organisation, quality or personnel also spread from one NSI to another.

5. Towards global networks

From the point of global entity of official statistics, the co-operation that is done jointly by national statistical institutes and international statistical bodies is of crucial importance. Active international co-operation and codes of professional ethics have created a stable foundation for statistical innovations and development in general.

The amount of international statistical bodies is quite big and the number of meetings may be several hundreds. But at the same time, there have been some gaps which have hindered a part of NSI's to work effectively together and to create innovative networks. However, this situation has now improved remarkably, when the Committee on Statistics of UN-ESCAP held its first resumed session this month after a lapse of several years. Now all five UN regions have their own statistical bodies dealing with regional statistical development and giving boost for further networking and knowledge sharing.

Diverse international networks are becoming more and more important in our work. At best, these networks facilitate the production of widely applicable new solutions. For instance, the aforementioned systematic process development at different statistical offices has greatly benefited from the innovative work that has been done within the Joint UNECE-OECD-Eurostat Groups of MSIS (Experts on Management of Statistical Information Systems) and METIS (Statistical Metadata). Using the work of Statistics New Zealand as a basis, they have developed the Generic Statistical Business Process Model which has been tested and currently applied in a growing number of statistical offices.

Extremely valuable is also the work done by the networks-like City Groups and the European ESSNet's for the development of new statistics and statistical methods. International Statistical Institute and its Sections have also created useful innovative solutions to serve official statistics. One recent example is the ongoing international statistical literacy competition for 10-18 years old students. It is a part of IASE's (International Association for Statistics Education) international statistical literacy project.

Statistical classifications and other standards are developed together with NSIs under the leadership of international statistical organisations. This introduction of international standardisation in statistics can as such be regarded as a significant innovation of its time. The example that has already

gained classic status as one of the most noteworthy statistical innovations is the system of national accounts, which has retained its importance right up to today.

However, the world is changing around us and so must statistics be developed as well. We face major challenges as regards our economic, social and environmental statistics, and even more so from the integration of different statistical systems. New initiatives, like 'Beyond the GDP', integrated economic and environmental accounting or the framework for social statistics may demand more and more of our attention and resources in future. They call for strengthened innovative efforts, co-operation and networking from the whole statistical community.

In the building of new statistical systems and revision of old ones innovativeness also encounters many obstacles. The development of new statistics and frameworks can only proceed in pace with the scientific community's ability to define and analyse new phenomena. Competence of the staff of the NSI's and its ability of learning new things are also challenges to be met. The value attached to continuity and long time series adds to the conservatism of statistics. As regards financial resources, official statistics are dependent on the public sector's general financial situation, which does not look overly bright for the immediate future years. Overcoming of these obstacles, too, requires broadening and intensifying of collaboration, setting of realistic common goals, and good co-ordination.

6. Concluding remarks

Examples of innovativeness in the field of statistics would make an impressive list, which today's presentations would make even longer. Thanks to successful innovation activity we have been able to lower the response burden and to promote the utilisation of administrative data. Our data acquisition has become modernised. We have introduced new statistical methods and our data dissemination channels have diversified. The organisational and governance structures in the field of statistics have been reviewed, both nationally and internationally. Productivity has reached a new level. Networks fostering innovation are being integrated into international statistical co-operation.

Despite many fine achievements we still have plenty of work ahead of us. To sustain and strengthen the status of official statistics in society, we must invest continuous efforts in strengthening the governance and legislative base of our offices. The need for new statistics is endless and the way we disseminate our products and services needs our continuous attention. It is vital that management systems and strategic competence are developed. We must focus our efforts on the competence and motivation of personnel, and on continuous development of processes. The management of relationships with partners is vital in a networked operating environment. Cost-effectiveness of activity must also receive our attention.

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Annex 1: What is innovation

(Copied, by permission, from an Article "Toward Better Measurement of Innovation and Intangibles by Ana M. Aizcorbe, Carol E. Moylan, and Carol A. Robbins, BEA Briefing, January 2009, page 14. The exact sources of quotations are presented in the Reference list of the Article in question.)

The following definitions of innovation vary, but the common thread is the extraction of economic value from novel activities (Innovation Vital Signs Project 2007).

Innovation is "the commercial or industrial application of something new - a new product, process or method of production; a new market or sources of supply; a new form of commercial business or financial organisation."
Schumpeter 1983

Innovation is the "intersection of invention and insight, leading to the creation of social and economic value."
Council on Competitiveness 2005

Innovation covers a wide range of activities to improve firm performance, including the implementation of a new or significantly improved product, service, distribution process, manufacturing process, marketing method or organizational method.
European Commission 2004

Innovation - the blend of invention, insight and entrepreneurship that launches growth industries, generates new value and creates high value jobs.
Business Council of New York State 2006

The design, invention, development and/or implementation of new or altered products, services, processes, systems, organizational models for the purpose of creating new value for customers and financial returns for the firm.
Advisory Committee on Measuring Innovation in the 21st Century Economy, Department of Commerce 2008

An innovation is the implementation of a new or a significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations. Innovation activities are all scientific, technological, organizational, financial and commercial steps which actually, or are intended to, lead to the implementation of innovations.
OECD 2005

Innovation success is the degree to which value is created for customers through enterprises that transform new knowledge and technologies into profitable products and services for national and global markets. A high rate of innovation in turn contributes to more market creation, economic growth, job creation, wealth and a higher standard of living.
Innovation Vital Signs Project 2007