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Innovation Statistics

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1. Introduction

In 1992 the "OECD Proposed guidelines for collecting and interpreting technological innovation data -- Oslo Manual" was published. As a result the Community Innovation Survey (CIS) was launched by Eurostat and DG XIII of the Commission. In 12 Member States of the European Union and Norway co-ordinated and harmonized surveys based on the Oslo Manual were carried out. This first round of innovation surveys has now been completed.

The aim of the CIS was to collect comparable data on innovation from all countries on the basis of a common questionnaire. As was pointed out by the team of external experts evaluating the implementation of the first innovation survey the lessons from the CIS together with experience from innovation surveys in other countries will make it possible to further develop innovation surveys to become an effective tool for innovation research and contribute to innovation policy making.

In most countries the first innovation surveys were restricted to the manufacturing sector. As the service sector is becoming more and more important general agreement exists that the next innovation surveys should be extended to the service sector. It should be investigated which service industries should be included and which questions should be asked. The current definition of innovation is limited to technological innovation. A modification of this definition or maybe a more substantial revision might be needed to make the concept more suitable for the service sector.

To investigate these questions in some depth Eurostat asked Statistics Netherlands and ZEW in co-operation with Stifterverband in Germany to perform 20 enterprise interviews, 10 in each country. The interviews were performed using a model questionnaire developed by Eurostat together with the contractors. The pilot project also included a second part with emphasis on the measurement of innovation expenditure and innovation output in the manufacturing sectors.

In all interviews an attempt was made to collect examples of innovations introduced. Some of these examples might be used in the instructions to facilitate companies' reporting. This report will serve as a first Eurostat input to the process of revising the Oslo Manual. The report will especially contribute to the work in the group on service sector and innovation expenditure, but will also discuss some issues of interest for the group on conceptual issues.

2. Concept of innovation

The concept of innovation as proposed in the model questionnaire for the service sector seems to be understandable for firms (see Annex for the questionnaire). In this concept, the definition of innovation in the Oslo Manual was slightly modified to also consider other substantial investments in new knowledge as qualifying criteria for innovation. The interviews confirmed that this extension was necessary to make the concept feasible. In many cases the distinction between product and process innovation was extremely difficult to apply. Innovative activities in service sectors often have the aim of improving processes involved in providing services rather than services themselves. Service innovations are in many cases the results of process innovations. Should the distinction between product(service) innovations and process innovations still be maintained, one might consider a broader definition of service innovations to also include results of new or improved processes in providing services in the concept of service innovation. This topic may need some further investigation.

The borderline between product differentiation and product (service) innovation is very difficult to draw in the service sector. Some innovations reported in the interviews (development of new funds, derivatives, insurances, tickets etc.) may first seem to be product differentiation, but if the general criteria for innovation (application of new technology or investments in new knowledge) are fulfilled may be considered as innovations as well. It might be necessary to develop some additional industry specific criteria or examples in order to be able to make this distinction properly. It is very important to avoid that everything that improves the productivity of the firm is counted as innovations.

There are activities, which could be considered R&D in the service sectors. Some are recorded in R&D surveys, some are not. In any case R&D in the service sector is less formalized than in the manufacturing sector. Therefore information on R&D is not very easily available. Different kinds of informal working groups for specific defined development and strategic planning projects (classified as R&D or not) have a great importance in the service sector as contributors to innovation. The activities of these groups should be reflected in the measurement of innovative activities.

In the service sector, the problem of identifying innovative activities connected with customized production might be even more difficult than in the manufacturing sector. There is some element of novelty in every new service (product). It is very hard to distinguish innovative activities from non innovative activities. Users are more or less involved in the innovative (and non innovative) activities leading to the new services (products). The guidelines for dealing with these cases should be improved.

3. Innovation expenditures

Some elements of innovation expenditure may be possible to estimate in the service sector, such as some training expenditure, some earmarked R&D funds (total R&D budgets are difficult to estimate as they have to be compiled from many different sources), expenditure for marketing or market research, investments in information technology etc. The concept of investments in new knowledge in the general definition of

innovation should be covered in the innovation expenditure. Should salaries of highly qualified people for a specific purpose be included?

Information on total innovation expenditure according to Oslo definitions are therefore generally not directly available. Difficulties to get this information seem to be bigger than in the manufacturing sector. In order to get at least some information on innovation input it might be necessary to develop some proxy measures derivable from company accounts, such as total budgets for marketing or market research, R&D, total investments in information technology. This should also be a topic for further investigation.

Information on innovation output in terms of proportion of sales due to innovative products has been a question, which has worked relatively well in the manufacturing industries. In the service sector this proportion seems to be impossible to estimate reliably in many enterprises. One reason is the process related nature of many service innovations. Would it be desirable to develop at least some measure of the output of innovation for further testing? Cost reductions due to service innovations as for process innovations in the manufacturing sector might be one possibility, which could be considered for further testing.

4. Conclusions

The main conclusion seems to be that if the service sectors are going to be included in future innovation surveys, it is not possible to directly use the concepts, definitions and questions developed for the manufacturing sectors. Innovations in the service sectors are mostly intangible goods, which are more difficult to define clearly than new or improved products (innovations) in the manufacturing sectors. The concepts and definitions need some modifications according to the specific characteristics of innovation in the service sectors. It is therefore not feasible to fully integrate the service sectors into the next revision of the Oslo Manual. It is however suggested that a special chapter should be devoted to the applications of the innovation survey concepts and questions in the service sector. This report will present some ideas, on which such a chapter could be based. As the report is only based on 20 interviews, the conclusions are rather preliminary. Further pilot actions are necessary to get a more complete picture about possibilities to have data on innovation in the service sector. Although it seemed that in some sectors with close links to manufacturing industries, less problems arised in the application of the concepts in the Oslo Manual, it seems to be feasible to include all service sectors in future pilot actions.

Annex

MODEL QUESTIONNAIRE (interview guide) FOR FIRMS IN THE SERVICE SECTOR

The aim of this questionnaire is to get more knowledge of how firms in the service sector understand the concept of innovation, test some draft definitions of innovation in order to be able to develop an useful definition for possible future surveys. For that purpose some real practical examples of innovations introduced are collected. Information is also needed on which possibilities firms have to estimate certain key variables on innovation, such as innovation expenditure and the share of sales due to new products. The intention is to be able to develop feasible questions for possible future surveys.

GENERAL INFORMATION ON THE FIRM

Name.....

Industry.....

Number of employees 31.12 1994.....

Address.....

1. THE CONCEPT OF INNOVATION

The following draft definitions have the OECD definitions of innovation in the manufacturing sector as a starting point.

Innovations in the service sectors comprise new services and new ways of producing or delivering services as well as significant changes in services or in their production or delivering. An innovation has been implemented if it has been introduced on the market (product innovation) or used in producing services (process innovation).

Product innovations are services whose intended use or performance characteristics differ significantly from those already produced. Innovations should be results of the use of new or new combinations of technologies or other substantial investments in new knowledge

Process innovations are new or significantly improved ways of producing or delivering services

Using the definitions above please give examples of innovations introduced in your firm 1992-1994

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Please explain the features of novelty in innovations introduced

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The role of technological change and organisational change in innovations introduced

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Problems with the understanding of the concept of innovation in general

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Possibilities to distinguish between different types of innovations; major product innovations, incremental product innovations and process innovations *(has to be explained during interviews)*

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2. INNOVATIVE ACTIVITIES IN SERVICE INDUSTRIES

In manufacturing industries the introduction of innovations is the result of various innovative activities, such as R&D, tooling up and industrial engineering, manufacturing start up, marketing for new products or the acquisition of embodied or disembodied technology.

In service industries, the innovative activities and their relative importance might be different. R&D might be less important and other factors like market research and software application development more important.

R&D comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge and the use of this stock of knowledge to devise new applications

A description of the R&D activity of the firm (if any)

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A description of other innovative activities

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3. INNOVATION EXPENDITURE

Innovation expenditure are all expenditure for innovative activities within the firm in 1994, not only expenditure for innovations introduced in 1994. Innovative activities include R&D and other activities listed above as innovative activities. Expenditure for market research, training and software application development could thus be included.

	current exp.	capital exp.
R&D expenditure	.....	.....
Other innovation expenditure	.....	.....
Total innovation expenditure	.....	.....

Which expenditure items are included in the estimates

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Sources of information for this question (which unit of the firm has the information, are the figures from the accounting or reporting systems of the firm or are they estimates)

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Difficulties to give information for this question

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4. SALES DUE TO NEW PRODUCTS

The following question is based on the question already used in innovation surveys for the manufacturing sector in order to test its feasibility for the service sector.

Share of sales 1994 due to

Innovations 1992-1994 .....**%**
if possible subdivided by
major innovations .....**%**
incremental innovations .....**%**

Unchanged or only slightly changed services 1992-1994 .....**%**

Total sales 1994 **100%**

Have your firm introduced services new for your market in 1992-1994

Yes **No**

If the answer is yes please estimate the sales shares of these products compared with total sales 1994 .....**%**

Sources of information for this question (which unit of the firm has the information, are the figures based on the accounting or reporting system of the firm or estimates)

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Difficulties to give information for this question

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