Warsaw, June 2005

Innovation Activities in the Service Sector in Poland in 2001-2003 - Highlights

PREFACE

Publication presents the results from the second Polish survey on innovation in the service sector carried out by the Central Statistical Office of Poland (GUS) on the basis of CIS-3 questionnaire (id est questionnaire used in the 3rd round of the Community Innovation Survey covering enterprises in the EEA Member States). First survey on innovation in the service sector in Poland took place in 2000 and referred to the period 1997-1999.

The publication is the fifth work on innovation activities in Polish economy issued recently by GUS. The previous ones released in 1994, 1998 and 2002 were devoted to the problems of innovation in industry (mining, manufacturing and utilities sectors) while the publication released in 2001 – to the problems of innovation in the service sector.

In the modern economy innovation is assumed to play a very important role. Promoting innovation is now a high priority in most developed countries.

A necessary tool for the development of new policy measures to promote innovation are innovation surveys.

In order to meet an increasing demand for data on innovation, the Central Statistical Office of Poland continues efforts to develop and improve the innovation monitoring system.

It is worth mentioning that innovation surveys in Poland have a very long and rich tradition going back to the 1960s.
At present, the innovation monitoring system in Poland consists of two parts:

- concise, yearly surveys on innovation in industry (mining, manufacturing and utilities sectors), covering selected basic variables of innovation activities such as expenditure on innovation, sales of innovative products, co-operation in innovation and
- comprehensive, periodic surveys on innovation in industry and in the service sector (wholesale trade and commission trade; transport, storage and communication; financial intermediation; computer and related activities; research and development; architectural and engineering activities and related technical consultancy; technical testing and analysis) in line with the EU/EFTA Community Innovation Survey, carried out every few year and covering a broader range of questions concerning different important aspects of innovation activities (sources of information for innovation, effects of innovation, obstacles to innovation, etc.).

Data presented in the publication are broken down by economic activity (according to the NACE Rev. 1 categories), firm size, sector and type of ownership (public and private; domestic and foreign) and by region (voivodship).

The publication has been prepared by the Science & Technology Statistics Section team in the GUS Economic Statistics Division.

V. HIGHLIGHTS IN ENGLISH

INNOVATION ACTIVITIES IN THE SERVICE SECTOR IN POLAND IN 2001-2003

Methodological note

Introduction

In Poland, innovation surveys have a very long and rich tradition going back to the early 1960s. Some elements of innovation surveys such as questions concerning expenditure on new technological processes were included in special surveys and studies made since early 1960s.

Recently, there can be observed in Poland a tremendous rise in interest in the innovation problems. This high interest is connected - among others - to the process of establishing National System of Innovation (NSI, of which Regional Innovation Strategies, RIS) which takes currently place in Poland, and in which there are involved many official agencies and advisory bodies, and also individual scientists and other specialists.

In Polish society, especially in many different professional circles, there is also systematically increasing awareness of the role of innovation in modern economic development. The chances are that this interest in the innovation problems and recognition of its role and importance will be still growing more intense in forthcoming future**.**

The main source of data on innovation in Poland is the Central Statistical Office of Poland which is currently in the process of implementing a new conceptual framework for innovation surveys system based on the new EU legislation on S&T statistics (*Decision No 1608/2003/EC of the European Parliament and of the Council of 22 July 2003 concerning the production and development of Community statistics on science and technology*).

Short overview of the Polish innovation surveys system

Currently, the innovation monitoring system in Poland consists of two following parts:

1. **Concise, yearly, census survey on innovation in industry** (*Mining and quarring* - NACE 10-14, *Manufacturing* – NACE 15-37 and *Electricity, gas and water supply* – NACE 40-41) in enterprises with more than 49 employees, covering selected basic variables of innovation activities such as:

- ✓ expenditure on innovation (by type of innovation activities and source of funds),
- ✓ domestic and exports sales of innovative products (turnover due to innovative products),
- ✓ transfer of technology,
- ✓ co-operation in innovation and

- ✓ some other related issues (AMT, implementation of quality assurance standards or advanced management techniques, *e. g.* TQM, *etc*.).

The regular census survey on innovation activities in industry, which was launched by GUS as the beginning of the 1980s, has evolved over time, responding to changing user needs.

2. **Comprehensive, periodic, CIS-type[1] surveys on innovation in industry and in marketed service sector** in enterprises with more than 9 employees, carried out every four years and covering - apart from the above mentioned - also other questions concerning different important aspects of innovation activities such as:

- ✓ implementation of new products (goods and services) and processes,
- ✓ sources of information for innovation,
- ✓ objectives of innovation,
- ✓ effects of innovation,
- ✓ obstacles to innovation,
- ✓ methods of innovation protection,
- ✓ non-technological innovations, *etc.*

Every four years the annual survey on innovation in industry is merged into the comprehensive CIS-type survey.

Till now, there have been carried out five comprehensive surveys on innovation:

➢ **1993 survey on innovation in industry** –based first of all on national methodology,

➢ **1997 survey on innovation in industry –** for 1994-1996 as a reference period, based on the CIS-1 questionnaire and methodological recommendations,

➢ **2000 survey on innovation in the service sector** (wholesale trade and commission trade, except of motor vehicles and motorcycles - NACE 51 except 51.1: wholesale on a fee or contract basis; transport - NACE 60-62; post and telecommunications - NACE 64; financial intermediation - NACE 65-67; computer and related activities - NACE 72; architectural and engineering activities and related technical consultancy - NACE 74.2) - for 1997 – 1999 as a reference period, based on the CIS-2 questionnaire and methodological recommendations,

➢ **2001 survey on innovation in industry** - for 1998 – 2000 as a reference period based on the CIS-2 questionnaire and methodological recommendations,

➢ **2004 survey on innovation in the service sector** (wholesale trade and commission trade, except of motor vehicles and motorcycles - NACE 51; transport, storage and communication - NACE 60-64; financial intermediation - NACE 65-67; computer and related activities - NACE 72; research and development – NACE 73; architectural and engineering activities and related technical consultancy - NACE 74.2, technical testing and analysis – NACE 74.3) - for 2001 – 2003 as a reference period, based on the CIS-3 questionnaire and methodological recommendations.

[1] Community Innovation Survey (abbr. CIS) – periodic survey on innovation carried out every four years in the EU and EFTA countries under the auspices of Eurostat.

Basic definitions

1) **Innovation activities** are all those scientific, technological, organisational, financial and commercial steps which actually, or are intended to, lead to the implementation of technologically new or improved products or processes. Some may be innovative in their own right, others are not novel but are necessary for implemention *(Oslo Manual, OECD/Eurostat 1997).*

2) **Innovating enterprise** is an enterprise that has implemented technological innovations in the surveyed three-year period. Technological innovations are products (goods), services and processes, including methods of product delivery, which are technologically new (or significantly improved) to the surveyed enterprise but do not necessarily have to be new to the enterprise's market.

3) **Expenditure on innovation** includes expenditure on:

- R&D activity (intramural and extramural),
- acquisition of disembodied technology and know-how (patents, non-patented inventions, licences, disclosures of know-how, etc.),
- acquisition of fixed assets required for the innovations introduction (capital expenditure on land and buildings and instruments and equipment),
- other preparations for the implementation of technological innovations,
- training directly linked to technological innovations and
- marketing for technologically new and improved products.

Table 1. Number of innovating enterprises in the service sector[a] by economic activity (NACE Rev. 1), %, 1997 - 1999 and 2001 - 2003

Economic activity	Enterprises which introduced new or improved products or processes during the period	
	1997-1999	2001-2003
	in %	
T o t a l	**16,0**	**22,0**
public sector	20,2	39,5
private sector	15,8	21,0
Wholesale trade and commission trade, except of motor vehicles and motorcycles (NACE 51[b])	14,2	19,8
Land transport, transport via pipelines (NACE 60)	15,3	9,4
Water transport (NACE 61)	32,3	11,4
Air transport (NACE 62)	–	35,0
Supporting and auxiliary transport activities; activities of travel agencies (NACE 63)	.	19,7
Post and telecommunications (NACE 64)	23,4	37,7
Financial intermediation, except insurance and pension funding (NACE 65)	23,0	45,8
Insurance and pension funding, except compulsory social security (NACE 66)	19,0	69,3
Activities auxiliary to financial intermediation (NACE 67)	9,0	20,2
Computer and related activities (NACE 72)	23,6	35,4
Research and development (NACE 73)	.	74,9
Architectural and engineering activities and related technical consultancy (NACE 74.2)	23,1	16,5
Technical testing and analysis (NACE 74.3)	.	27,5

a Data concern enterprises with more than 9 employees. *b* For 1997-1999 period - NACE 51 division except 51.1 (Wholesale on a fee or contract basis).

S o u r c e: GUS 2000 survey on innovation in the service sector (based on the CIS-2 questionnaire) and GUS 2004 survey on innovation in the service sector (based on the CIS-3 questionnaire).

Table 2. Number of innovating enterprises in industry by size-class and economic activity (NACE Rev.1), %, 1998 – 2000

Economic activity	Enterprises with more than 9 employees				
	grand total	of which enterprises with			
		10-49 employees	50 or more employees		
			total	50-249	250 or more
	enterprises which introduced new or improved products or processes during the period 1998-2000 as a % of total number of enterprises				
T o t a l	.	.	33,1	25,7	56,5
Mining and quarrying (NACE 10-14)....	.	.	31,6	25,8	40,7
Manufacturing (NACE 15-37)	17,1	10,7	33,7	26,2	58,3
Electricity, gas and water supply (NACE 40-41)	.	.	25,1	17,3	43,7

s o u r c e : GUS 2001 CIS-type (comprehensive) survey on innovation in industry (based on the CIS-2 questionnaire).

Table 3. Enterprises with established co-operation arrangements on innovation activities during 2001–2003 by economic activity (NACE Rev.1), service sector[a]

Economic activity	Enterprises with innovation co--operation as a % of total number of enterprises
T o t a l	**9,4**
public sector..	26,3
private sector	8,4
Wholesale trade and commission trade, except of motor vehicles and motorcycles (NACE 51)	6,2
Land transport, transport via pipelines (NACE 60)	3,9
Water transport (NACE 61)	5,7
Air transport (NACE 62)	10,0
Supporting and auxiliary transport activities; activities of travel agencies (NACE 63)	10,9
Post and telecommunications (NACE 64)	17,5
Financial intermediation, except insurance and pension funding (NACE 65)	28,6
Insurance and pension funding, except compulsory social security (NACE 66)	43,2
Activities auxiliary to financial intermediation (NACE 67)	12,1
Computer and related activities (NACE 72)	18,1
Research and development (NACE 73)	60,5
Architectural and engineering activities and related technical consultancy (NACE 74.2)	7,1
Technical testing and analysis (NACE 74.3).	16,7

a Data concern enterprises with more than 9 employees.
S o u r c e: GUS 2004 survey on innovation in the service sector (based on the CIS-3 questionnaire).

Table 4. Industrial enterprises[a] with established co-operation arrangements on innovation activities during 2001-2003 by economic activity (NACE Rev.1)

Economic activity	Enterprises with innovation co--operation as a % of total number of enterprises
T o t a l	**10,5**
Mining and quarrying (NACE 10-14)	**10,7**
Manufacturing (NACE 15-37)	**10,5**
of which:	
Manufacture of coke, refined petroleum products and nuclear fuel	43,5
Manufacture of basic metals	29,1
Manufacture of chemicals and chemical products	26,9
Manufacture of medical, precision and optical instruments, watches and clocks	22,0
Manufacture of motor vehicles, trailers and semi-trailers	21,5
Manufacture of other transport equipment	20,2
Electricity, gas and water supply (NACE 40-41)	**10,8**

a Data concern enterprises with more than 49 employees.
So u r c e: GUS 2004 yearly survey on innovation in industry.

ADDENDUM

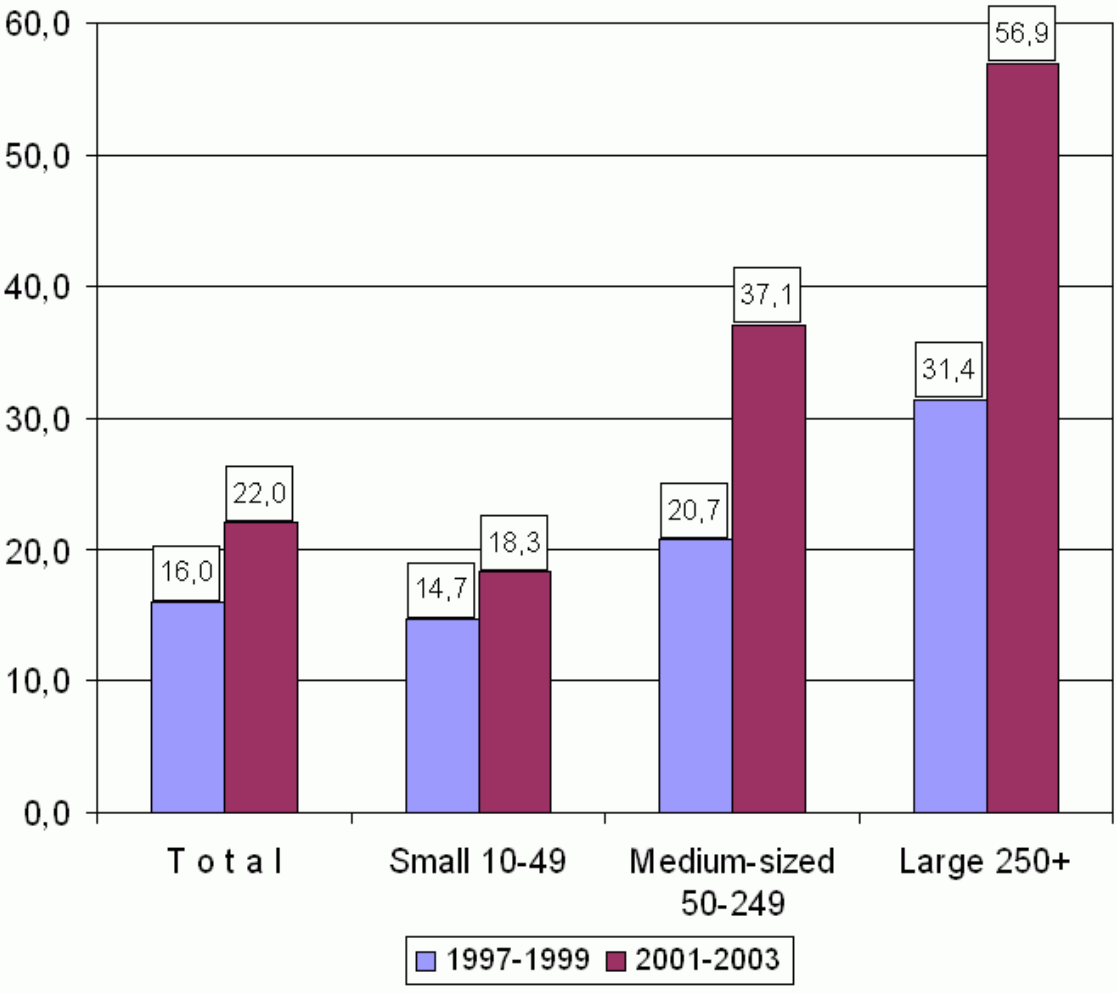
Table 5. Target populations by kind of activity, EU-15[a] and Poland, %

Kind of activity (NACE Rev.1)	EU-15 CIS-2 1994-1996	Poland CIS-3 2001-2003
Total	**100,0**	**100,0**
Wholesale (NACE 51)[b]	38,1	62,5
Transport (NACE 60-63)	25,6	11,6
Supporting and auxiliary transport activities; activities of travel agencies (NACE 63)	.	4,8
Post and telecommunications (NACE 64)[c]	0,5	1,1
Financial intermediation (NACE 65-67)	9,2	8,0
Computer and related activities (NACE 72)	8,2	4,0
Research and development (NACE 73)	.	1,7
Engineering services (NACE 74.2)	18,4	5,6
Technical testing and analysis (NACE 74.3)	.	0,7

a Spain and Italy are not included.
b For CIS-2 NACE 51 division except 51.1 (Wholesale on a fee or contract basis).
c For CIS-2 only Telecommunications – NACE 64.2.
Source for EU-15:Panorama of the European Union, Statistics on Innovation in Europe, Data 1996-1997, 2000 Edition

Figure 1.

NUMBER OF INNOVATING ENTERPRISES IN THE SERVICE SECTOR[a] BY SIZE-CLASS, %, 1997-1999 AND 2001-2003

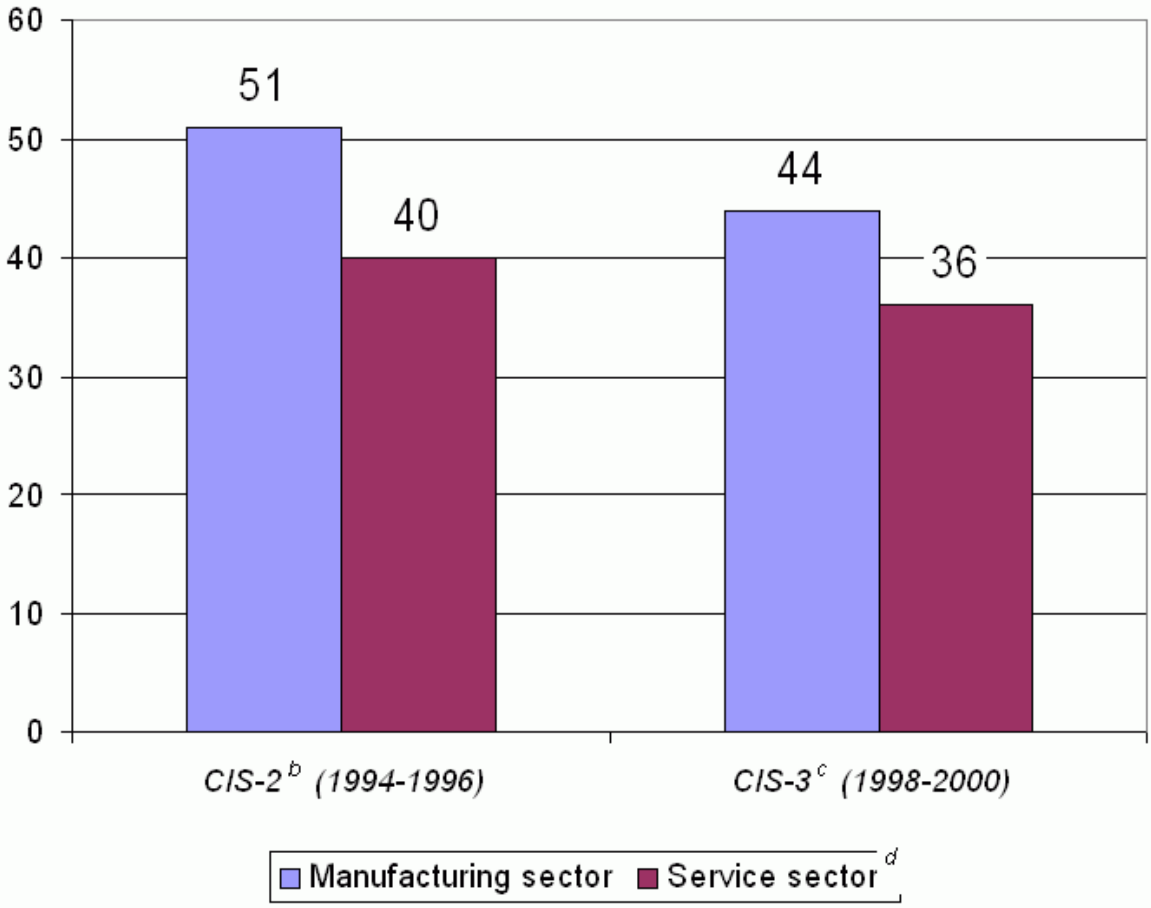


a For information on the target populations, see methodological note and table 1.

S o u r c e: GUS 2000 survey on innovation in the service sector (based on the CIS-2 questionnaire) and GUS 2004 survey on innovation in the service sector (based on the CIS-3 questionnaire).

Figure 2.

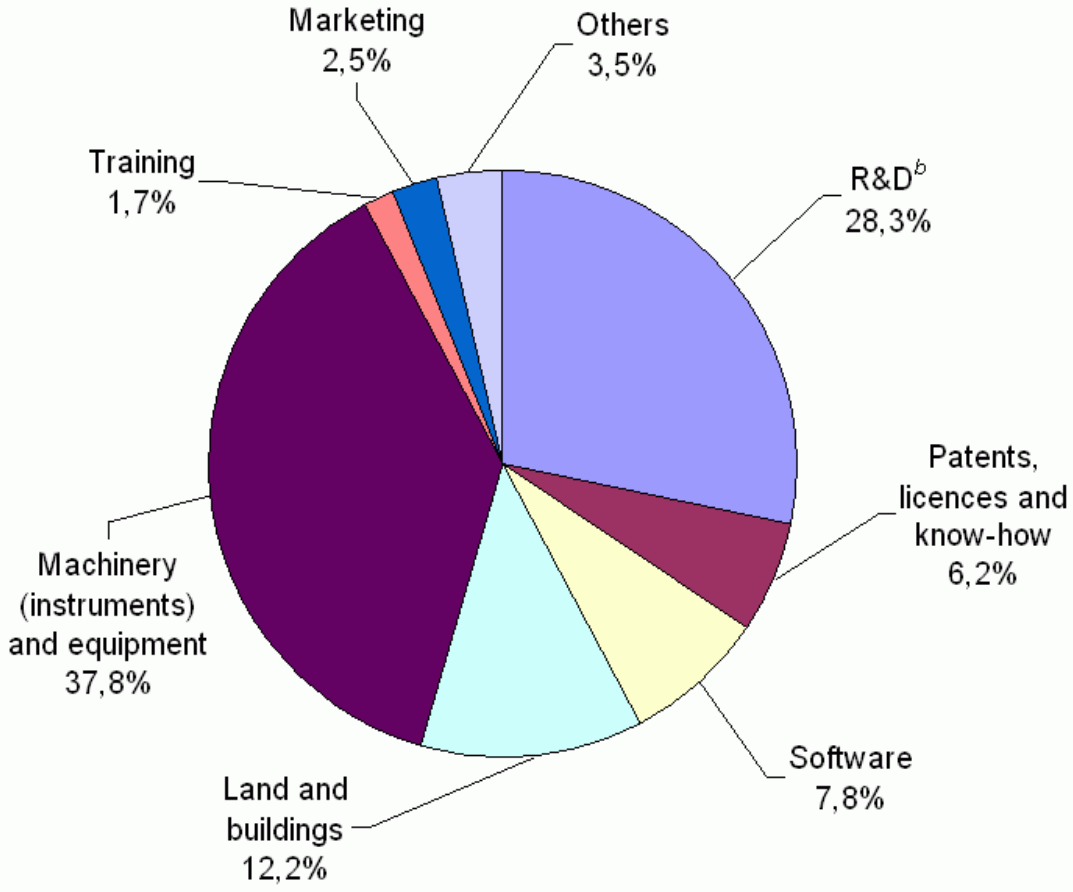
NUMBER OF INNOVATING ENTERPRISES[a] (PRODUCT AND PROCESS INNOVATORS) IN MANUFACTURING AND SERVICE SECTORS, EU-15 (CIS-2 AND CIS-3), %



a Data concern enterprises with more than 9 employees. In CIS-2 in manufacturing - more than 19 employees. b Excluding Greece, Portugal and Spain. c Excluding United Kingdom, Ireland and Luxembourg. d Target populations: (1) CIS-2 - NACE Rev.1: 51 except 51.1, 60-62, 64.2, 65-67, 72, 74.2; (2) CIS-3 – NACE Rev. 1: 51, sections I and J, 72, 73, 74.2, 74.3.

S o u r c e: CIS-2 - Panorama of the European Union, Statistics on Innovation in Europe, Data 1996-1997, 2000 Edition; CIS-3 - Panorama of the European Union, Innovation in Europe, Results for the EU, Iceland and Norway, Data 1998-2001, 2004 Edition.

Figure 3.
EXPENDITURE ON INNOVATION ACTIVITIES IN THE SERVICE SECTOR[a] BY TYPE OF INNOVATION ACTIVITIES, %, 2003

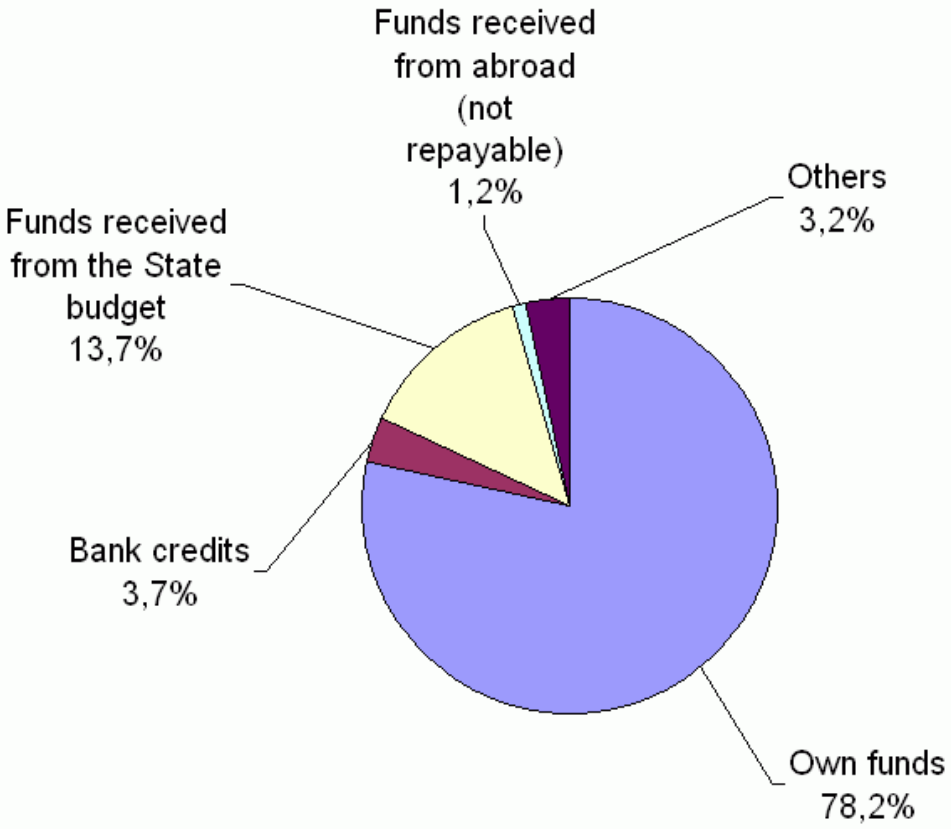


a Data concern enterprises with more than 9 employees; for information on the target population, see methodological note and table 1. *b* Intramural and extramural expenditure on R&D.

S o u r c e: GUS 2004 survey on innovation in the service sector (based on the CIS-3 questionnaire).

Figure 4.

EXPENDITURE ON INNOVATION ACTIVITIES IN THE SERVICE SECTOR[a] BY SOURCE OF FUNDS, %, 2003



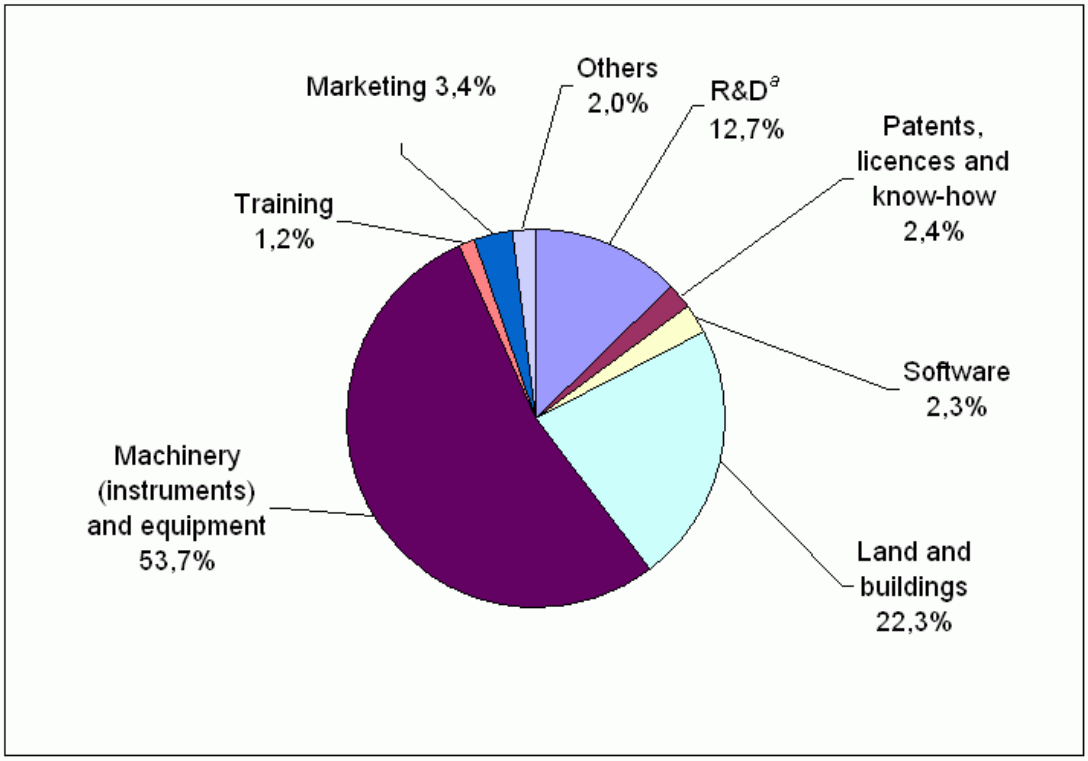
a Data concern enterprises with more than 9 employees; for information on the target population, see methodological note and table 1.

S o u r c e: GUS 2004 survey on innovation in the service sector (based on the CIS-3 questionnaire).

Figure 5.
EXPENDITURE ON INNOVATION ACTIVITIES IN MANUFACTURING SECTOR BY TYPE OF INNOVATION ACTIVITIES, %, 2000 AND 2003

2000

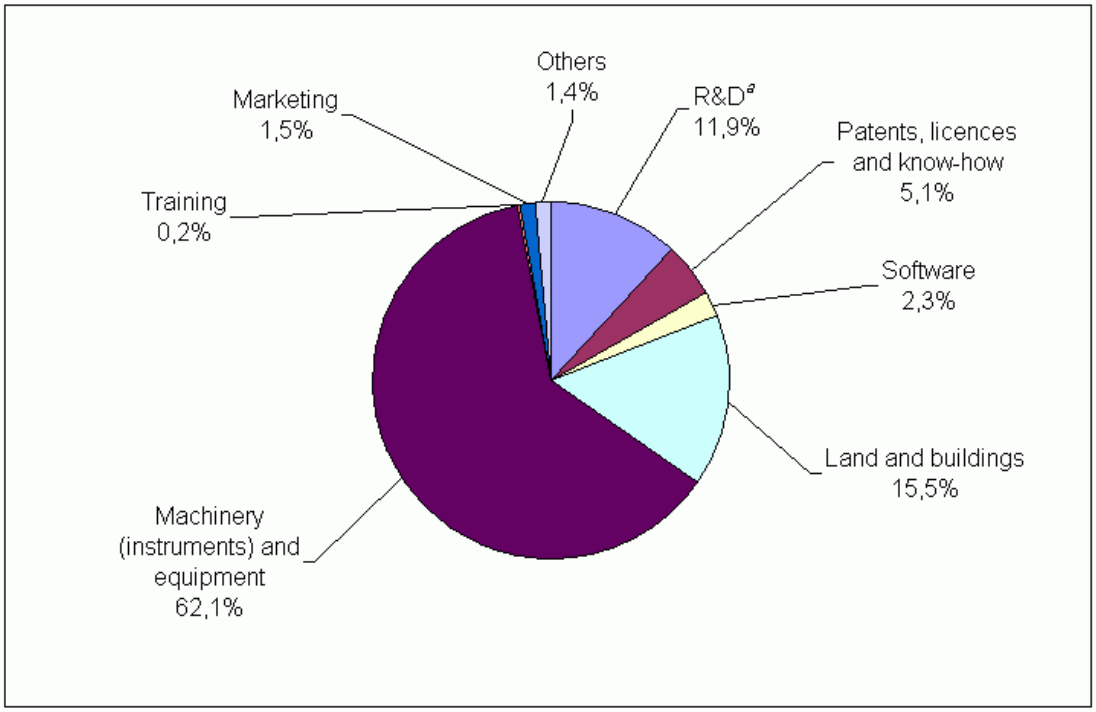
Enterprises with more than 9 employees



S o u r c e: GUS 2001 CIS-type survey on innovation in industry.

2003

Enterprises with more than 49 employees



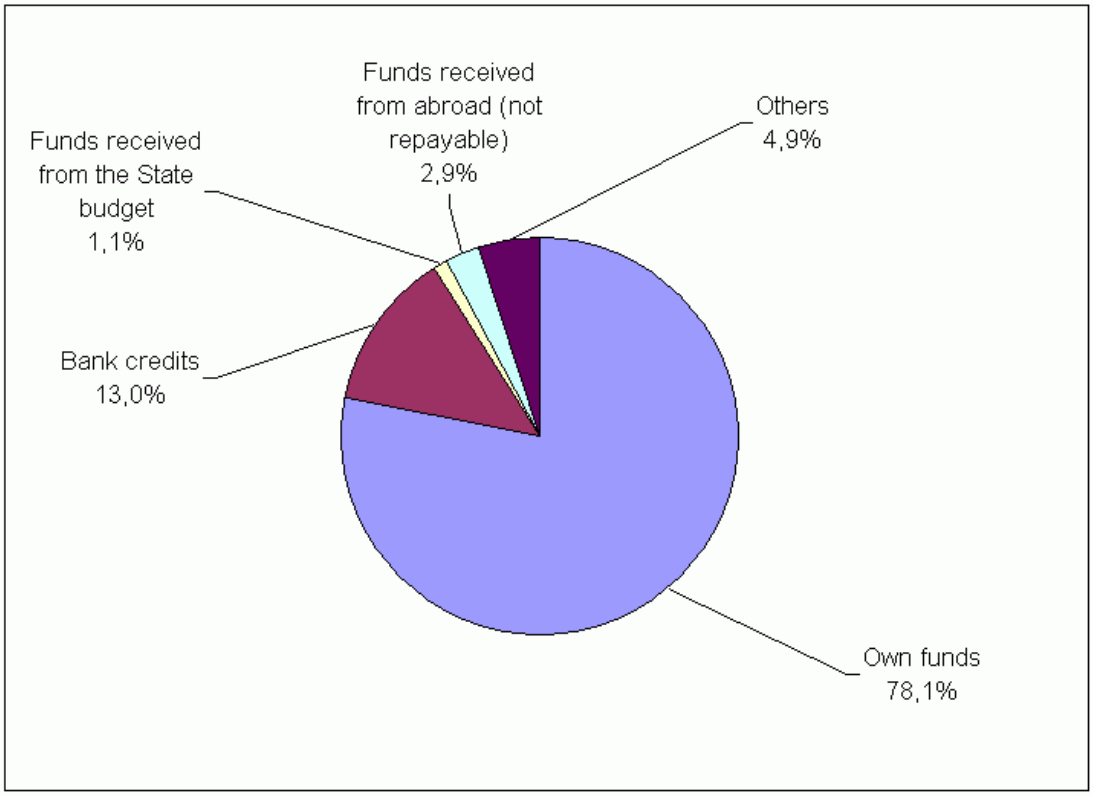
a Intramural and extramural expenditure on R&D.

S o u r c e: GUS 2004 yearly survey on innovation in industry.

Figure 6.
EXPENDITURE ON INNOVATION ACTIVITIES IN MANUFACTURING SECTOR BY SOURCE OF FUNDS, %, 2000 AND 2003

2000

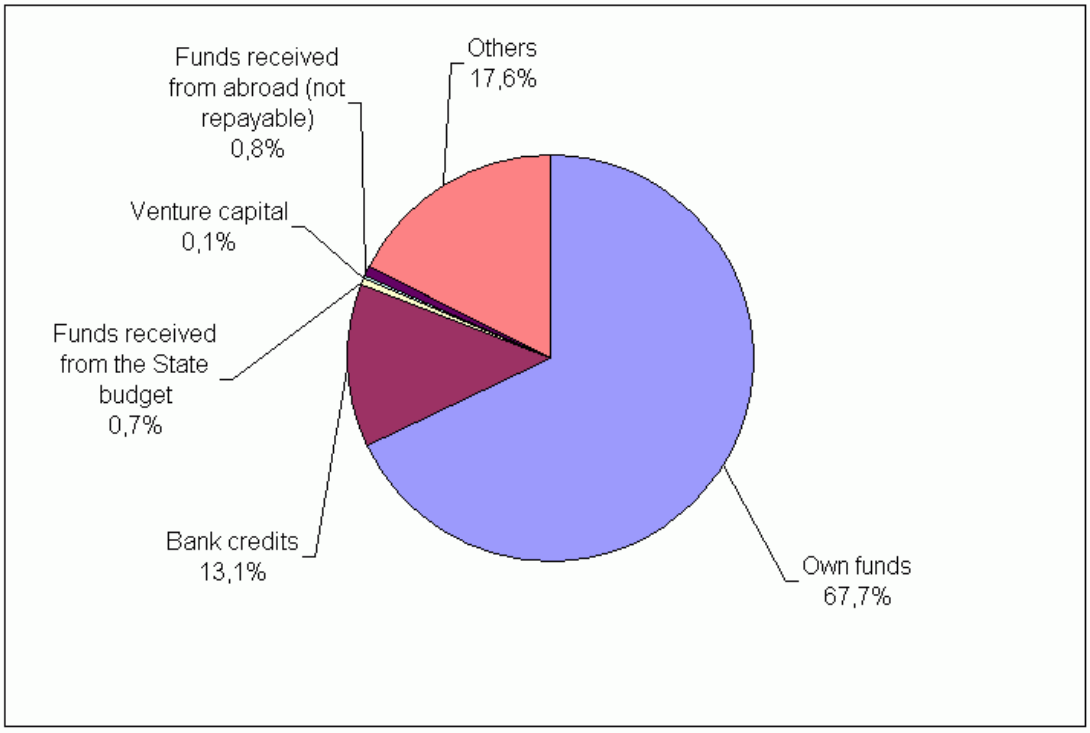
Enterprises with more than 9 employees



S o u r c e: GUS 2001 CIS-type survey on innovation in industry.

2003

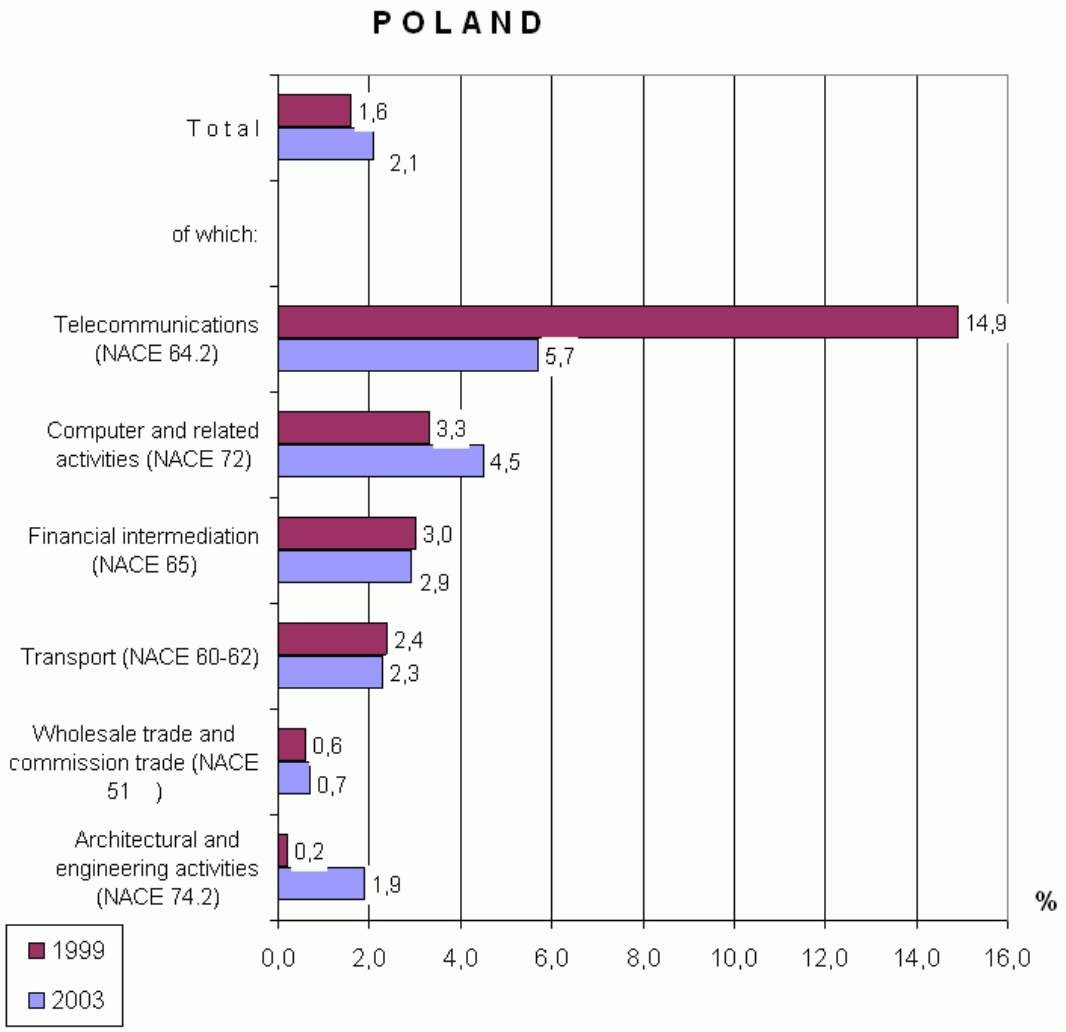
Enterprises with more than 49 employees

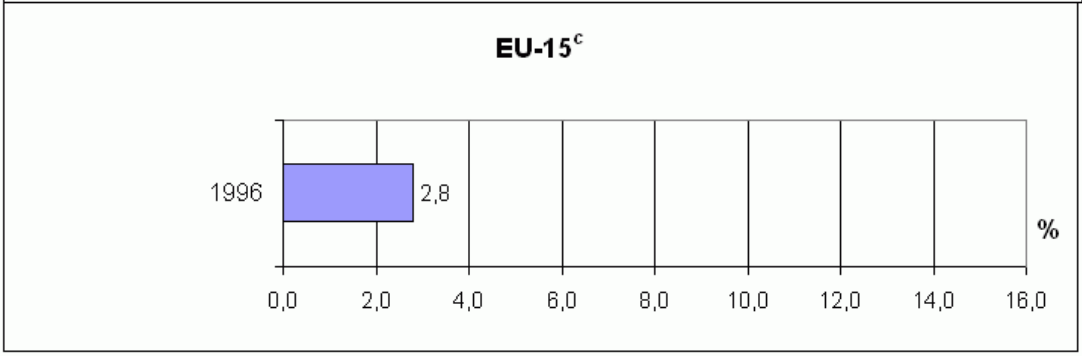


S o u r c e: GUS 2004 yearly survey on innovation in industry.

Figure 7.

EXPENDITURE ON INNOVATION ACTIVITIES IN THE SERVICE SECTOR[a] AS A % OF TOTAL TURNOVER (INNOVATION INTENSITY), TOTAL POPULATION OF ENTERPRISES, 1999 AND 2003



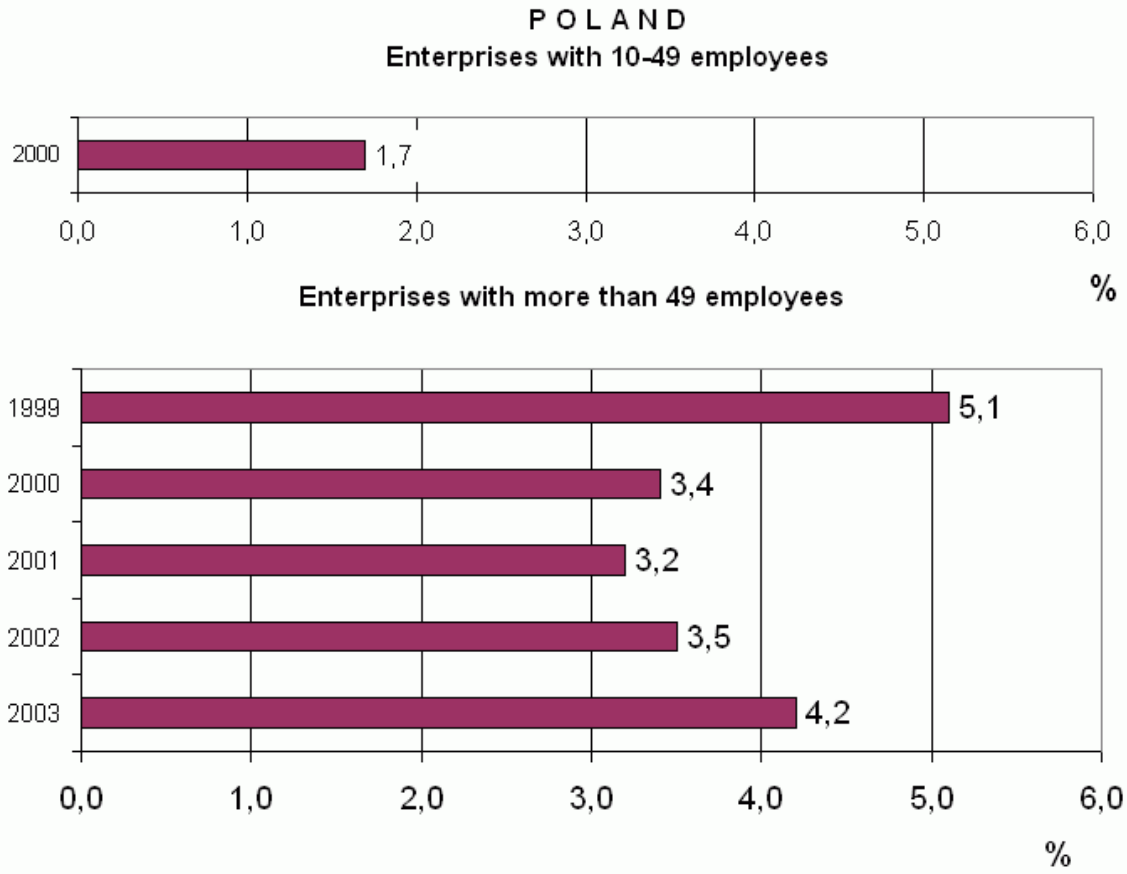


a Data concern enterprises with more than 9 employees; for information on the target populations, see methodological note and table 1. *b* For 1999 - NACE 51 division except 51.1.

c Expenditure on land and buildings is not included as a component of expenditure on innovation activities.

S o u r c e: CIS-2, Eurostat/Enterprises DG.

Figure 8.
EXPENDITURE ON INNOVATION ACTIVITIES IN MANUFACTURING SECTOR AS A % OF TOTAL TURNOVER (INNOVATION INTENSITY), TOTAL POPULATION OF ENTERPRISES, 1999 - 2003



S o u r c e: GUS surveys on innovation in industry.

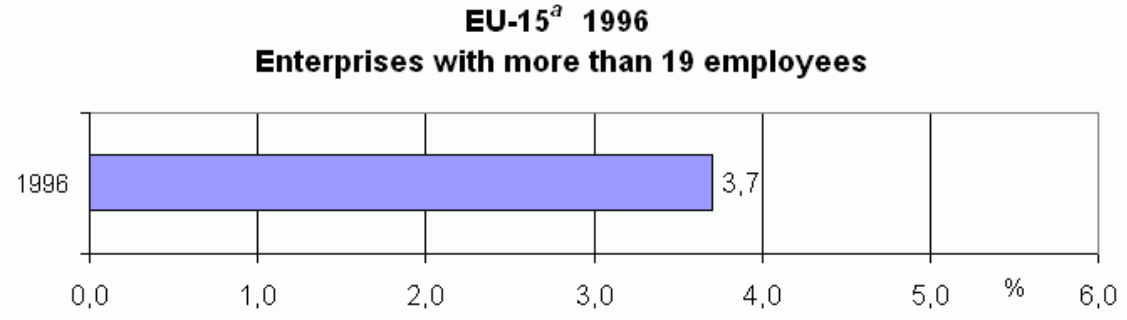
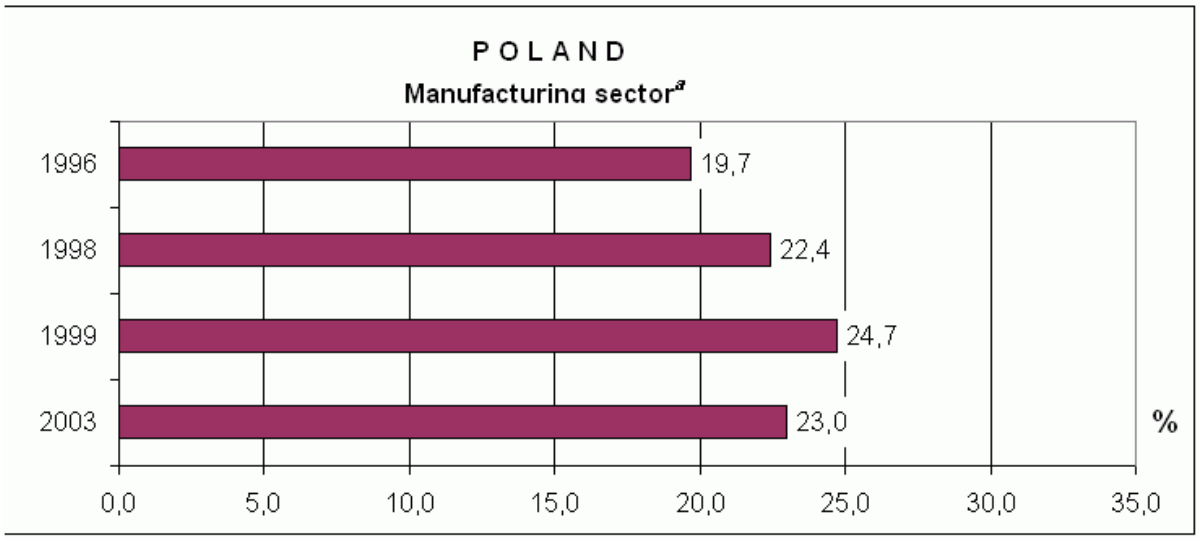
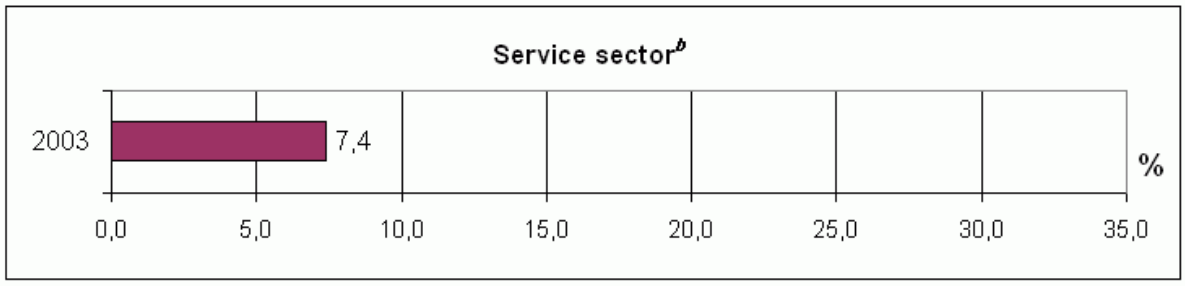


Figure 9.
TURNOVER DUE TO INNOVATIVE PRODUCTS (NEW AND IMPROVED PRODUCTS INTRODUCED ON THE MARKET DURING THE LAST THREE-YEAR PERIOD) AS A % OF TOTAL TURNOVER, TOTAL POPULATION OF ENTERPRISES, 1998 - 2003



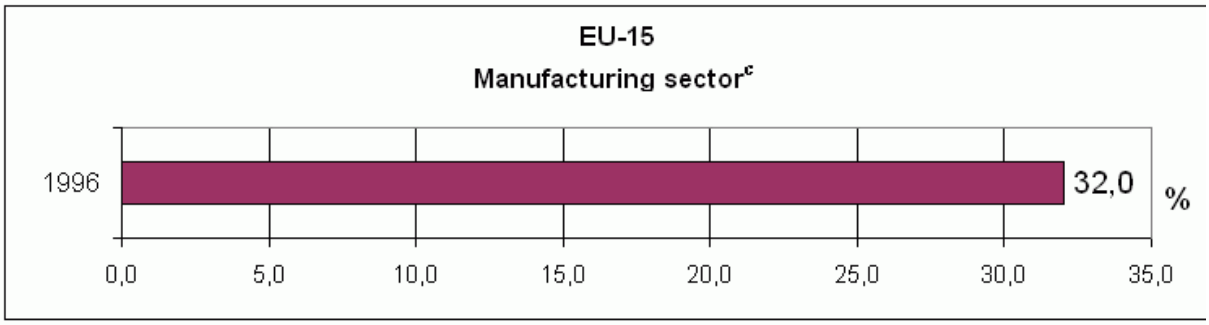
a Data concern enterprises with more than 49 employees.

S o u r c e: GUS surveys on innovation in industry.



b Data concern enterprises with more than 9 employees; for information on the target population, see methodological note and table 1.

S o u r c e: GUS 2004 survey on innovation in the service sector (based on the CIS-3 questionnaire).



c Data concern enterprises with more than 19 employees.

S o u r c e: CIS-2, Eurostat/Enterprise DG.