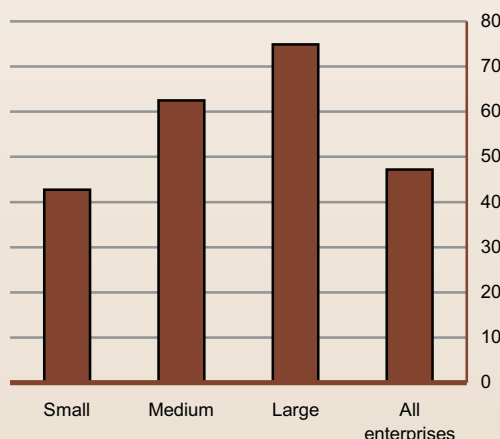




Innovation rates by size of enterprise, 2004 - 2006



This release presents first results from the Community Innovation Survey (CIS) of enterprises in Ireland and it is expected that a more detailed report will be published in the coming months. The survey collected information about product and process innovations along with other key variables for the three year period 2004 to 2006 inclusive.

The CIS was previously conducted by Forfás but is now jointly conducted by the CSO and Forfás to increase efficiency in the collection of statistical data and to reduce the burden on the participating enterprises. Data were collected in accordance with Section 33 of the Statistics Act, 1993 and with EU law and the survey was carried out under the agreed set of international rules as laid out in the OECD Oslo manual. Data are strictly confidential and will be used only for statistical purposes. See *Background Notes on page 8* for further information.

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Community Innovation Survey 2004-2006 – First Findings

Innovation rates by sector and size of enterprise, 2004 - 2006

	Small (10-49)	Medium (50-249)	Large (250+)	% All enterprises
Industry	51.4	67.3	84.2	56.7
Services	38.1	57.5	63.1	41.3
Total industry and services	42.7	62.5	74.9	47.2

Source: CSO/Forfás - Community Innovation Survey 2004 - 2006

47% of all enterprises engaged in innovation activities

In the period 2004 to 2006 inclusive, over 47% of enterprises in Ireland indicated that they were active innovators. Almost 57% of industrial enterprises were classed as innovation active while 41% of service enterprises were innovation active.

Large industrial enterprises had innovation rates of 84% compared to 63% of similarly sized service enterprises. In excess of 67% of medium sized industrial enterprises engaged in innovation activity in the period while 58% of service enterprises were innovation active. Small industrial enterprises had an innovation activity rate of 51% compared to 38% of small service sector enterprises.

The figures in this release also show that:

- ◆ In excess of 33% of all enterprises were engaged in product innovation while 30% were engaged in process innovation.
- ◆ Almost 13% of total turnover in the industrial and services sectors in 2006 was estimated to be the result of product innovations between 2004 and 2006.
- ◆ Total spending on innovation-related activities was almost €4.6bn in 2006.
- ◆ Of those enterprises who were innovation active, 27% engaged in innovation collaboration.
- ◆ The principle barriers to innovation for those firms who did not engage in any innovation activities in the period were a lack of funds and high innovation costs.
- ◆ Just under 42% of all enterprises introduced an organisational innovation in the three years 2004 to 2006.

Methodological changes have been introduced in the CIS 2004-2006. As a consequence of this, no conclusions should be drawn regarding the direction or scale of any real changes between CIS 2002-2004 (CIS4) and CIS 2004-2006.

For further information contact Brian Ring (CSO) 021 453 5747 or Andrew Stockman (Forfás) 01 607 3224.

Innovation Types

Enterprises who are innovation active engage in product innovation, process innovation or both product and process innovation. In addition, some enterprises have ongoing or abandoned innovation activities.

In the period 2004 to 2006, just over 33% of all enterprises were engaged in product innovations, 30% of enterprises were engaged in process innovations and 2% of enterprises had ongoing or abandoned innovation activities.

Product and process innovation rates tended to be higher as the size of the enterprise increased with large enterprises more than twice as likely to have these types of innovation activities compared with small enterprises. While 29% of small enterprises were product innovators, 48% of medium enterprises were active in product innovation and over 62% of large enterprises were engaged in product innovations. Similarly, 27% of small enterprises engaged in process innovations compared to 41% of medium enterprises and 60% of large enterprises. See Table 1 and Figure 1.

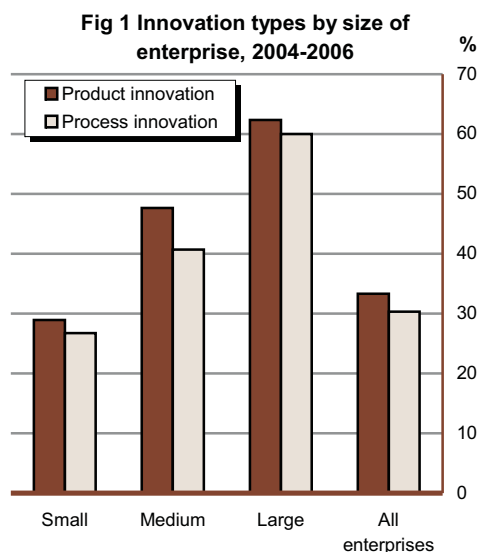


Table 1 Innovation types by size of enterprise, 2004 - 2006

	Small (10-49)	Medium (50-249)	Large (250+)	All enterprises
Product innovation	29.0	47.7	62.4	33.3
Process innovation	26.7	40.7	60.0	30.3
Ongoing/Abandoned innovation	2.3	2.8	0.0	2.3
Any innovation	42.7	62.5	74.9	47.2

Source: CSO/Forfás - Community Innovation Survey 2004 - 2006

Innovation rates for all types of innovation were higher in the industrial sector when compared to the services sector. Almost 57% of all industrial enterprises engaged in some type of innovation activity over the period compared to 41% of all service enterprises. In excess of 40% of industrial companies were engaged in product innovations while 29% of service enterprises were engaged in product innovations. Just under 38% of enterprises in the industrial sector were process innovators compared to 26% of service enterprises.

Large industrial enterprises were both the most active product innovators (68%) and process innovators (71%). Just over 56% of large service sector enterprises engaged in product innovations while 46% engaged in process innovations. See Table 2 and Figure 2.

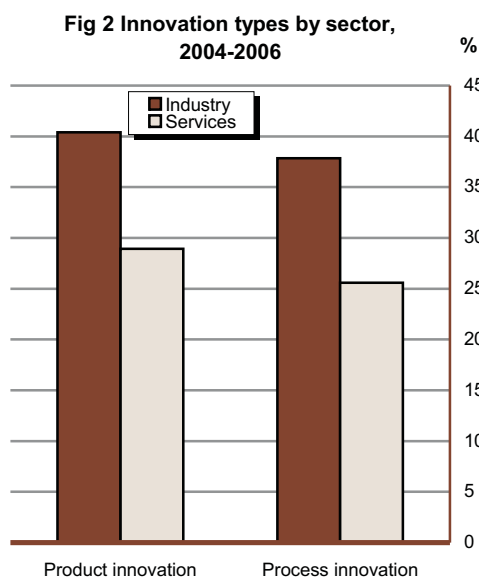
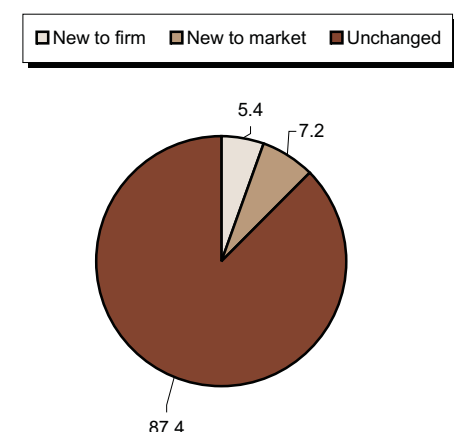


Table 2 Innovation types by sector and size, 2004 - 2006

	Product innovation	Process innovation	Ongoing/ abandoned innovation	Any innovation
Industry				
Small	34.7	33.5	2.8	51.4
Medium	52.1	44.0	4.5	67.3
Large	67.9	70.9	0.0	84.2
Total Industry	40.4	37.8	3.0	56.7
Services				
Small	25.8	23.1	2.0	38.1
Medium	43.0	37.2	1.1	57.5
Large	56.2	46.2	0.0	63.1
Total Services	28.9	25.6	1.8	41.3
All enterprises	33.3	30.3	2.3	47.2

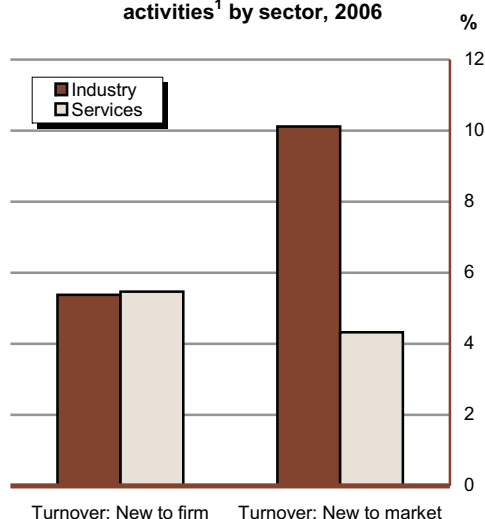
Source: CSO/Forfás - Community Innovation Survey 2004 - 2006

Fig 3 Percentage of total turnover attributed to product innovation activities¹, 2006



Note: ¹ Product innovation activities during the period 2004-2006

Fig 4 Percentage of total turnover attributed to product innovation activities¹ by sector, 2006



Note: ¹ Product innovation activities during the period 2004-2006

Innovation Turnover

The survey measured how much of total turnover was attributed to product innovations, separated into new to market innovations (a measure of novelty and creativity) and new to the firm innovations (those which were adopted by the firm but invented and created elsewhere).

Almost 13% of turnover of all active and non-active innovators in 2006 in the industrial and service sectors was as a result of product innovations in the 2004 to 2006 period. Over 5% of this turnover was from new to firm products and over 7% was from new to market products. Large enterprises attributed 16% of their turnover to product innovations with almost 10% being from new to market products. Medium sized enterprises attributed 6% of their total turnover to new to market products compared to 5% for new to firm products. See Table 3 and Figure 3.

Table 3 Percentage of total turnover attributed to product innovation activities¹ by size of enterprise, 2006

	Small (10-49)	Medium (50-249)	Large (250+)	% All enterprises
Turnover: New to firm	3.0	5.3	6.5	5.4
Turnover: New to market	2.8	6.1	9.5	7.2
Turnover: Unchanged	94.2	88.5	84.0	87.4
Total	100.0	100.0	100.0	100.0

Source: CSO/Forfás - Community Innovation Survey 2004 - 2006

Note: ¹ Product innovation activities during the period 2004-2006

The percentage of turnover generated by new to the firm product innovations was 5% for both the industrial and services sectors. Enterprises in industry however, generated more than twice as much of their turnover from new to market product innovations when compared to enterprises in the services sector. New to market product innovations contributed over 10% of the turnover in industry while new to market product innovations contributed in excess of 4% of turnover in services. See Table 4 and Figure 4.

Table 4 Percentage of total turnover attributed to product innovation activities¹ by sector and size, 2006

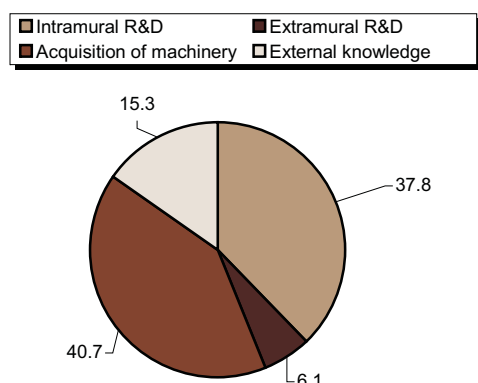
	Turnover: New to firm	Turnover: New to market	Turnover: Unchanged	% Total
Industry				
Small	2.2	2.1	95.7	100.0
Medium	4.8	10.2	85.0	100.0
Large	6.0	11.2	82.9	100.0
Total Industry	5.4	10.1	84.5	100.0
Services				
Small	3.2	3.0	93.8	100.0
Medium	5.7	3.6	90.8	100.0
Large	7.4	6.2	86.4	100.0
Total Services	5.5	4.3	90.2	100.0
All enterprises	5.4	7.2	87.4	100.0

Source: CSO/Forfás - Community Innovation Survey 2004 - 2006

Note: ¹ Product innovation activities during the period 2004-2006

Innovation Expenditure

Fig 5 Percentage share of innovation expenditure by type of expenditure, 2006



Enterprises were asked if they were active in any of the following categories and to estimate innovation spending on each of those categories in 2006: in-house R&D (intramural R&D); acquisition of R&D (extramural R&D); acquisition of machinery, equipment and software; acquisition of other external knowledge. More detailed information regarding expenditure by enterprises on R&D activities is available from the Business Expenditure on Research and Development (BERD) survey¹.

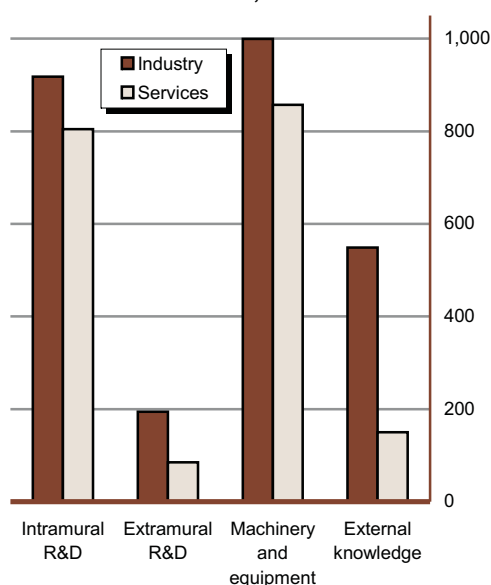
Total spending on innovation activities across the Irish economy is estimated to have been €4.6bn in 2006. Just under 41% of all expenditure was for acquisition of machinery, equipment and software, which totalled €1.9bn in 2006. Almost 38% of expenditure or €1.7bn was spent on intramural R&D. Acquisition of external knowledge accounted for 15% of expenditure and extramural R&D accounted for 6%. See Table 5 and Figure 5.

Table 5 Innovation expenditure by size of enterprise, 2006

	Small (10-49)	Medium (50-249)	Large (250+)	All enterprises
Intramural R&D	266.2	434.5	1,021.7	1,722.5
Extramural R&D	18.9	98.9	162.0	279.8
Machinery and equipment	197.4	532.5	1,126.7	1,856.7
External knowledge	22.1	264.9	412.3	699.3
Total expenditure	504.7	1,330.8	2,722.7	4,558.2

Source: CSO/Forfás - Community Innovation Survey 2004 - 2006

Fig 6 Innovation expenditure by sector, 2006



The total spend by industrial enterprises on innovation activities was almost €2.7bn in 2006 while the total spend in the services sector was €1.9bn. Industrial enterprises spent €1bn on machinery and equipment, €920m on intramural R&D, €550m on acquisition of external knowledge and €195m on extramural R&D. The services sector spent €860m on machinery and equipment, €805m on intramural R&D, €150m on acquisition of external knowledge and €85m on extramural R&D. See Table 6 and Figure 6.

Table 6 Innovation expenditure by sector, 2006

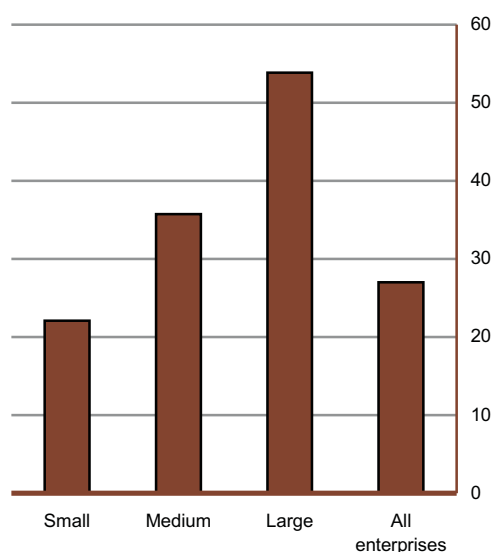
	Industry	Services	All enterprises
Intramural R&D	917.7	804.7	1,722.5
Extramural R&D	194.6	85.2	279.8
Machinery and equipment	999.4	857.3	1,856.7
External knowledge	549.0	150.3	699.3
Total expenditure	2,660.7	1,897.5	4,558.2

Source: CSO/Forfás - Community Innovation Survey 2004 - 2006

¹Results from the 2005-2006 BERD survey are available on the Forfás website. Go to www.forfas.ie and then go to Publications: Science, Technology and Research.

Innovation Cooperation

Fig 7 Cooperation by innovative enterprises by size of enterprise, 2004-2006



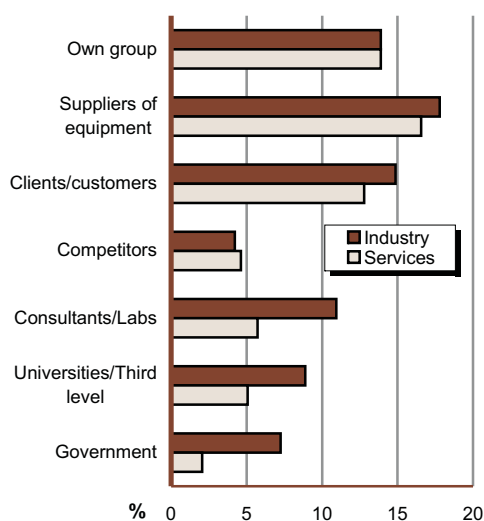
Enterprises were asked if they cooperated on any of their innovation activities with other enterprises or institutions. In total, 27% of all innovative enterprises indicated that they engaged in some cooperation activity when developing their innovations. More than half (54%) of all large innovation active enterprises were involved in innovation partnerships compared to 22% of small enterprises. Suppliers of equipment, materials, components or software were the most commonly cited innovation partners with over 17% of enterprises having innovation cooperation with these suppliers. Almost 14% of enterprises indicated that they cooperated with other enterprises within their own enterprise group. See Table 7 and Figure 7.

Table 7 Cooperation by innovative enterprises by type of cooperation partner and size of enterprise, 2004 - 2006

	Small (10-49)	Medium (50-249)	Large (250+)	All enterprises
Within own group	10.0	19.7	38.9	13.9
Suppliers of equipment	13.7	24.4	32.1	17.2
Clients/customers	11.6	19.3	19.5	13.7
Competitors	4.1	5.6	4.5	4.4
Consultants/labs	5.9	13.2	16.7	8.1
Universities/third level	4.3	9.7	26.7	6.8
Government	3.0	7.5	11.8	4.5
Any cooperation	22.1	35.7	53.8	27.0

Source: CSO/Forfás - Community Innovation Survey 2004 - 2006

Fig 8 Cooperation by innovative enterprises by type of cooperation partner and sector, 2004-2006



Just over 28% of innovation active industrial enterprises indicated that they were engaged in innovation cooperation compared to 26% of service sector enterprises. Cooperation partnerships with suppliers of equipment, materials, components or software were the most likely innovation partnerships in both industry (18%) and services (17%). See Table 8 and Figure 8.

Table 8 Cooperation by innovative enterprises by type of cooperation partner and sector, 2004 - 2006

	Industry	Services	All enterprises
Within own group	13.9	13.9	13.9
Suppliers of equipment	17.8	16.6	17.2
Clients/customers	14.9	12.8	13.7
Competitors	4.2	4.6	4.4
Consultants/labs	10.9	5.7	8.1
Universities/third level	8.9	5.1	6.8
Government	7.3	2.1	4.5
Any cooperation	28.3	25.9	27.0

Source: CSO/Forfás - Community Innovation Survey 2004 - 2006

Barriers to Innovation

A number of factors which might have curtailed innovation activities were listed in the survey and enterprises were asked to rank each of the factors as being of high, medium, low or no importance. Results are shown for hampering factors that enterprises indicated as being of high importance.

Those enterprises that were both innovative and non-innovative indicated that the three largest hampering factors were lack of funds, high costs and markets dominated by established enterprises. Almost 19% of innovative enterprises indicated that lack of funds was a highly important factor hampering innovation compared to 13% of non-innovative enterprises. In excess of 16% of innovation active firms cited high costs as a high hampering factor while 11% of non-innovative enterprises indicated that high costs were a hampering factor. See Table 9 and Figure 9.

Fig 9 Highly important hampering factors of innovative and non-innovative enterprises, 2004-2006

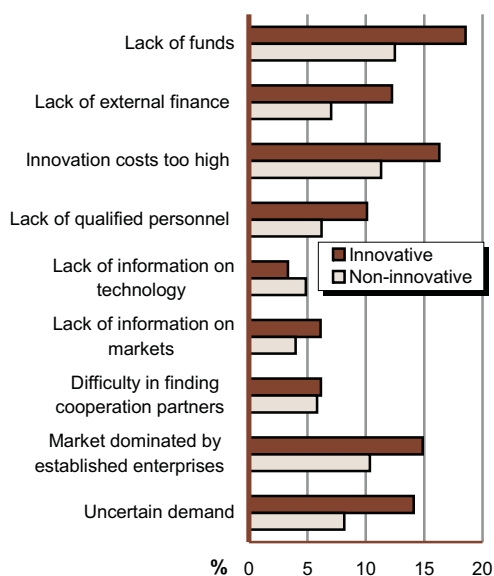


Table 9 Highly important hampering factors to innovative activities, 2004 - 2006

	Innovative Enterprises	Non-innovative Enterprises
Lack of funds	18.6	12.5
Lack of external finance	12.2	7.0
Innovation costs too high	16.3	11.3
Lack of qualified personnel	10.1	6.2
Lack of information on technology	3.3	4.9
Lack of information on markets	6.1	4.0
Difficulty in finding cooperation partners	6.2	5.8
Market dominated by established enterprises	14.9	10.3
Uncertain demand	14.1	8.2

Source: CSO/Forfás - Community Innovation Survey 2004 - 2006

Fig 10 Highly important hampering factors of innovative enterprises by sector, 2004-2006

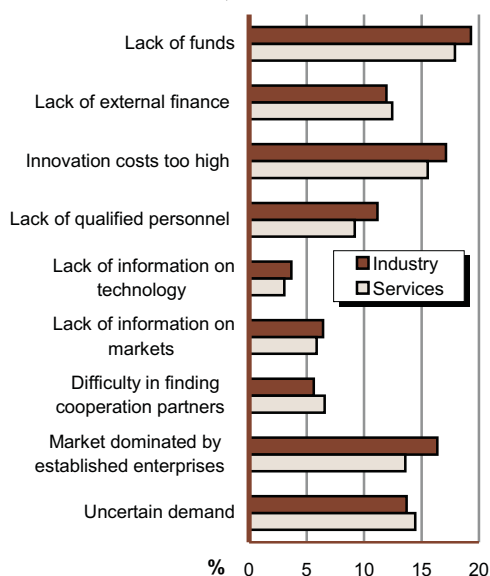


Table 10 Highly important hampering factors to innovation activities for innovative enterprises by sector, 2004 - 2006

	Industry	Services
Lack of funds	19.3	17.9
Lack of external finance	11.9	12.4
Innovation costs too high	17.1	15.6
Lack of qualified personnel	11.2	9.2
Lack of information on technology	3.7	3.1
Lack of information on markets	6.4	5.9
Difficulty in finding cooperation partners	5.6	6.6
Market dominated by established enterprises	16.4	13.6
Uncertain demand	13.7	14.5

Source: CSO/Forfás - Community Innovation Survey 2004 - 2006

Organisational Innovation

Fig 11 Organisational innovation by type of innovation, 2004-2006



A pilot module was included in the CIS 2004-2006 which included some new questions on organisational innovation. Almost 42% of all enterprises carried out an organisational innovation between 2004 and 2006. The most common form of organisational innovation was the introduction of new business practises and 38% of all enterprises indicated that they engaged in this activity.

An organisational innovation was introduced by 61% of large enterprises between 2004 and 2006. Half of all medium sized enterprises introduced an organisational innovation in the period compared to 39% of small enterprises. *See Table 11 and Figure 11.*

Table 11 Organisational innovation by type of innovation and size of enterprise, 2004 - 2006

	Small (10-49)	Medium (50-249)	Large (250+)	% All enterprises
New business practices	35.8	44.8	58.0	38.2
New knowledge management systems	24.3	33.0	44.7	26.5
New methods of workplace organisation	29.3	36.1	51.5	31.3
New methods of organising external relations	15.4	17.9	32.5	16.5
Any organisational innovation	38.9	50.0	61.0	41.6

Source: CSO/Forfás - Community Innovation Survey 2004 - 2006

Fig 12 Organisational innovation by type of innovation and sector, 2004-2006



Industrial enterprises were slightly more likely to have engaged in an organisational innovation when compared to service enterprises. Just under 43% of enterprises in the industrial sector introduced an organisational innovation while 41% of service enterprises introduced an organisational innovation in the period. Enterprises in both industry and services generally had very similar rates of introducing the various categories of organisational innovations. *See Table 12 and Figure 12.*

Table 12 Organisational innovation by type of innovation and sector, 2004 - 2006

	Industry	Services	% All enterprises
New business practices	39.3	37.5	38.2
New knowledge management systems	25.6	27.1	26.5
New methods of workplace organisation	31.1	31.4	31.3
New methods of organising external relations	16.1	16.7	16.5
Any organisational innovation	42.7	41.0	41.6

Source: CSO/Forfás - Community Innovation Survey 2004 - 2006

Background Notes

Introduction The Community Innovation Survey (CIS) 2006 is a survey of innovation activities of enterprises in Ireland and other EU Member States. The CIS is carried out under Commission Regulation (EC) No 1450/2004 implementing Decision No 1608/2003/EC. The survey collects information about product and process innovation as well as organisational innovation along with other key variables during the three year period 2004 to 2006 inclusive. Most questions cover new or significantly improved goods or services or the implementation of new or significantly improved processes, logistics or distribution methods.

The CIS was previously conducted by Forfás but is now jointly conducted by the CSO and Forfás to increase efficiency in the collection of statistical data and to reduce the burden on the participating enterprises. Data were collected in accordance with Section 33 of the Statistics Act, 1993 and with EU law and the survey was carried out under the agreed set of international rules as laid out in the OECD Oslo manual. Data are strictly confidential and will be used only for statistical purposes.

Methodological changes have been introduced in the CIS 2004-2006. As a consequence of this, no conclusions should be drawn regarding the direction or scale of any real changes between CIS 2002-2004 (CIS4) and CIS 2004-2006.

Survey The CIS survey sampled enterprises with ten or more persons engaged in the selected NACE categories as included in the table below. The CSO and Forfás jointly conducted a postal survey in October 2007. A total of 4,150 survey forms were issued to the sampled enterprises from the CSO's Business Register. The sample returns were then grossed using this Register population to produce overall results.

Nace Rev. 1	
Sections and Divisions	Description
C (10-14)	Mining and quarrying
D (15-37)	Manufacturing
E (40-41)	Electricity, gas and water supply
51	Wholesale trade
I (60-64)	Transport, storage and communications
J (65-67)	Financial intermediation
72	Computer and related activities
74.2	Architectural and engineering activities
74.3	Technical testing and analysis

Questionnaire The CIS questionnaire is available from the CSO website. Go to www.cso.ie and then go to Business Sectors: Science and Technology.

Definitions **Product Innovation:** The introduction of a new good or service or a significantly improved good or service with respect to its capabilities. The product innovation could either be new to the market or new to the firm.

Process Innovation: The introduction of a new or significantly improved production process, distribution method, or support activity for goods and services. The process innovation could either be new to the market or new to the firm.

New to Market Innovation: An innovation activity, which saw the introduction of a new good or service by the firm onto its operating market before other competitors.

New to Firm Innovation: An innovation activity which saw the introduction of a significantly improved good or service to the firm, that was already available from competitors in the operating sector.

Innovation Expenditure: Spending on activities to support and implement production or process innovations.

Organisational Innovation: The implementation of new or significant changes in firm structure or management methods that are intended to improve your firms use of knowledge, the quality of your goods and services or the efficiency of work flows.