

Innovation

Introduction

Nowadays, emphasizing the importance of innovation is a cliché. There is no such segment in the economy, where the importance of innovation is questioned. Businesses, irrespective of their field of specialization, are interested in enhancing their efficiency, in which innovation is an important, if not the most important tool. Innovation enhancement manifests itself at all levels of decision making, so naturally the demand for related information is on the rise. Despite the widespread use of the notion of innovation many problems arising from its inexact definition. According to the internationally accepted definition, innovation is the introduction of a new or significantly improved product (good or service) or process, new marketing method or a new management organization method into the practice of business, management or external relations. According to this, it is not necessary that the product or process should be new to the whole market or section; new-to-firm developments are also regarded as innovations. Enterprises are not required to undertake research development functions; they may purchase such services on the market as well. In many cases, businesses are not aware of the exact meaning of these two criteria as well as statistical data show actual innovation activities differently; since the definition of innovation is not always objective and entrepreneurial culture may differ by countries. Despite this, indicators are suitable to highlight tendencies, innovation influencing factors and generated results.

In 2011, the seventh innovation survey (CIS2010), similarly to the previous ones based on the Eurostat methodological guidance, was conducted by HCSO. Since 2004, the Community Innovation Survey has been a mandatory survey¹ for all EU member states governed by a commission regulation.

Technological innovation

In the period between 2008 and 2010, the proportion of enterprises with technological innovations² was 18.4%, down by 2.4 percentage points on 2006-2008 and by 1.7 percentage points compared with 2004-2006. It resulted exclusively from a fall in the innovation activity of small enterprises, which was not offset by a positive change in the two other – medium and large – enterprise groups. Among businesses with 10-49 employees, this proportion decreased from 16.3% to 13.3%, a level even lower than in 2004-2006, while among businesses with 50-249 or more employees an increase can be seen.

Figure 1

Proportion of enterprises with technological innovation by size class



Table 1

Proportion of enterprises with technological innovation by section and size class, 2008-2010

(%)

Section	10 – 49 employees	50-249 employees	250 or more employees	Total
Industry (excluding construction)	12.5	32.7	62.5	19.2
within this				
manufacturing	12.6	32.2	61.4	18.8
Services	14.1	32.6	53.8	17.5
within this				
transport, storage	6.3	19.8	49.2	9.3
financial intermediation	13.2	37.3	92.3	24.2
National economy total	13.3	32.7	60.0	18.4

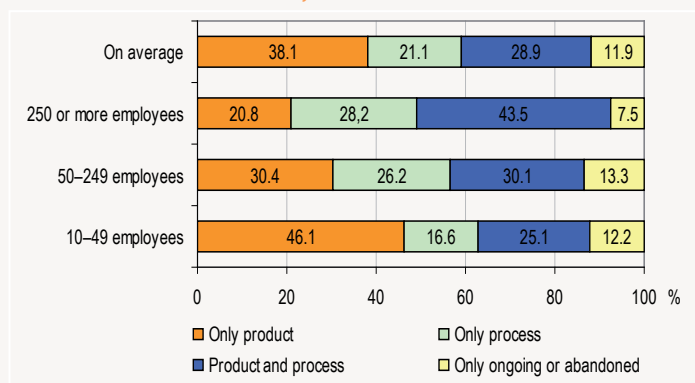
¹ Commission Regulation (EC) No 1450/2004 of 13 August 2004 implementing Decision No 1608/2003/EC of the European Parliament and of the Council concerning the production and development of Community statistics on innovation (Text with EEA relevance).

² Those enterprises may be classified as technological innovators, which introduced a new product or process in the observed period or worked on these without any result (ongoing or abandoned innovation).

Concerning the proportion of innovative enterprises there are great differences not only by size, but also by activity. The proportion of businesses with new products and services averaged 19.2% in industry and 17.5% in the services sector; however, there is a major dispersion behind these averages. The manufacture of pharmaceuticals continued to be the driver of industrial innovation, where 56.8% of all enterprises and all firms with 250 or more employees marketed new products or processes. The manufacture of motor vehicles, trailers and semitrailers with its 42.5% share was ranked second. Concerning manufacturing, the manufacture of wearing apparel, where only 1.7% of enterprises were innovative, was bottom ranked. The proportion of innovative enterprises showed large discrepancies by the monitored subsections of the services section: it was two thirds among insurance businesses, 44% among information technology enterprises and less than 10% among those classified into the transport activity group.

Figure 2

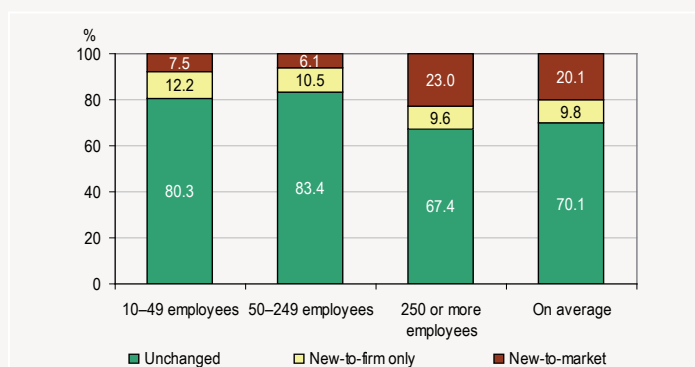
Distribution of enterprises with innovation activity by type of innovation and size class, 2008–2010



On average, two thirds of innovative enterprises introduced a new good or service into the market and nearly half of them applied some new procedures. Whilst only a difference of few percentage points was seen in the proportion of product innovators between large and small businesses, the share of process innovators was significantly different. More than 70% of innovative enterprises with 250 or more employees and 42% of businesses with fewer than 50 employees introduced a new technology. It was more likely that larger businesses were both product and process innovators. The share of ongoing or abandoned or discontinued innovation activities was the highest among medium sized enterprises with over 13%, this proportion was less than 8% among large enterprises. 12% of all observed enterprises marketed new products and 9% new processes. The difference between large and small enterprises was four-fold in the area of introducing new products and eight-fold in case of processes in favour of the larger enterprises.

Figure 3

Distribution of the revenues of product innovator enterprises by degree of novelty, 2010



If we analyze how the revenues of product innovator enterprises are distributed, we can unambiguously state that the proportion of revenues from new-to-market products is three-times higher among large enterprises than among medium and small enterprises. Usually, larger businesses have such resources, human capacities, which are required to develop new-to-market products. The proportions of revenues from new-to-firm products and services slightly varied between 9.6 and 12.2% by size categories. The proportion of revenues from new products is influenced not only by business size, but also by the type of product. Products have a shorter life cycle in the manufacture of road vehicles or that of computer, electronic and optical products, therefore innovation is essential for market competition. In these sections, the share of turnover from new-to-market products was two times higher than the average. Insurance businesses, which are otherwise highly innovative, are rather characterized by the high proportion of sales from products being innovative only to the company concerned.

Table 2

Presence of product and process innovation related activities as a percentage of innovative enterprises, 2008–2010

Innovation activity	10–49 people	50–249 people	250 or more people	Total
In-house R & D	43.3	47.6	58.7	46.5
External R & D	12.8	38.7	57.3	26.3
Acquisition of machinery, equipment and software	68.2	60.5	68.4	65.8
Acquisition of external knowledge	17.9	23.3	29.4	21.0
Training for innovative activities	34.9	37.3	50.7	37.6
Market introduction of innovation	25.3	25.6	25.8	25.5
Design	24.1	24.0	27.4	24.5
Other innovation	34.0	42.3	55.4	39.2

Irrespectively of business size, concerning the technological innovation related implementation activities, sales of machines, pieces of equipment and software continued to play the biggest role. Own instruments and staff based research and development was the second most important activity, however, these innovations played a much more significant role in the larger businesses³, than in the smaller ones. Concerning external R & D, the difference was even stronger, 57% of enterprises with 250 or more employees and only 13% of business with 50 or fewer employees applied external R & D during their innovations. The importance of training should be stressed, which was especially important among large companies. In each size category, a relatively same proportion of one quarter of enterprises marketed innovations and used design services.

³ Statistics data on R and D clearly confirm that more than half of expenditures on R and D activities in the enterprise sector arise in enterprises with 250 or more employees.

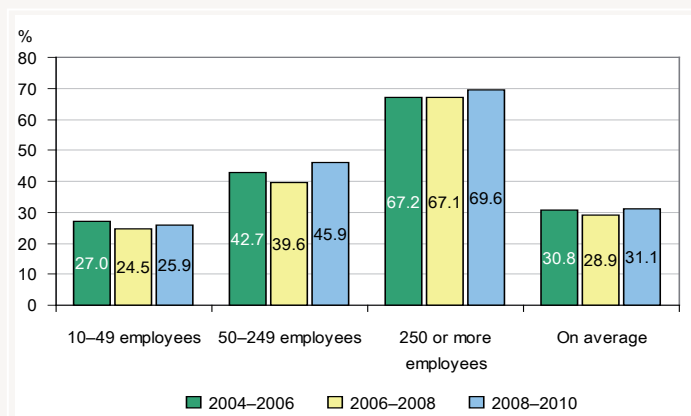
Table 3
Number of innovation cooperations as a percentage of innovative enterprises by type of partner, 2008–2010

Type of cooperating partner	10–49 employees	50–249 employees	250 or more employees	Total (%)
Other enterprise within the enterprise group	5.0	20.3	36.8	13.7
Supplier	23.3	31.8	39.9	27.9
Clients or costumers	17.1	23.4	29.4	20.6
Competitors	15.1	18.6	21.9	17.0
Consultants, commercial labs, or private R & D institutes	13.2	28.3	40.7	21.3
Higher education institutions	11.1	29.1	49.6	21.4
Government or public research institutes	6.3	12.3	22.4	10.2
Any form of cooperation	32.1	54.2	66.8	43.2

Organizational and marketing innovation

More than 40% of technological co-operations are implemented in cooperation with some other partners. Among large enterprises, this proportion stands at two thirds, while among enterprises with fewer than 50 employees at below one third. Subcontractors were the most important among the cooperating partners, 28% of businesses worked with them, at the same time, among enterprises with 250 employees, the contribution of higher education institutions was the most important. Only 10% of enterprises cooperated with budgetary research institutes. 63% of partners were Hungarian organizations; however, other EU member state based organizations also played a significant role with their 27% share. Cross border cooperation was overrepresented among large enterprises. Innovation – as shown by its definition – is not only about the introduction of new products and processes, but about the application of new organization, management and marketing methods, the significance of these latter ones has only recently become known for the wider public. As a result of this, the gathering of methodology based data on this area is quite recent as well. 2006 was the first year, when not only technological innovations were covered by the innovation survey.

Figure 4
Proportion of innovative enterprises by size class



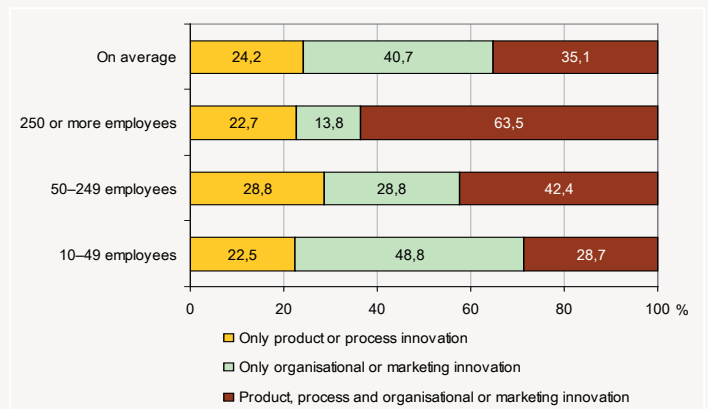
The proportion of innovative enterprises averaged 31% oscillating in a wide range by business size and section as in case of technological innovation.

4 Non-technological innovation is the introduction of a new marketing method or a new management, organizational method into business practice, workplace or external relations.

Nearly 70% of large enterprises and slightly more than one quarter of enterprises with fewer than 50 employees engaged in some innovating activities. Compared with 2006–2008 all size category, even that of small enterprises (where the proportion of technological innovators decreased), saw an increase. However, the fall in the proportion of technological innovators was offset by the faster spread of the application of non-technological innovations.⁴ Marketing and organisational innovations, on their own as well as in connection with technological innovations, may ensure significant competitive edges, efficiency enhancements for businesses, which are getting to realize it by using this option.

Figure 5

Distribution of innovative enterprises by type of innovation and size class, 2008–2010



On average, more than one third of monitored enterprises and nearly two thirds of large ones engaged in both technological and non-technological innovations. Whilst the proportions of those engaging only in technological innovations were relatively well balanced by size class, a significant dispersion was seen among those engaging only in non-technological innovations by size. Nearly half of those with fewer than 50 employees only engaged in the innovations of organizational, management processes or marketing methods, while only 14% of businesses with at least 250 employees did not engage in technological innovations as well. Among medium sized businesses those engaging only in product and process innovations or only in non-technological innovations accounted for the same proportion.

Table 4
Proportion of enterprises engaging in organisational innovation by size class, 2008–2010

Denomination	10–49 employees	50–249 employees	250 or more employees	Total (%)
Introducing new business practices	4.5	13.9	34.2	7.3
Introducing new methods of organising work responsibilities and decision making	6.5	17.6	39.5	9.7
Introducing new methods of organising external relations with other firms or public institutions	5.6	9.1	20.1	6.7
Enterprises applying any form of management innovation	10.4	22.8	46.8	14.0

14% of businesses applied some form of organisational innovation. Management and decision making systems were the most frequently

modernized. As in other types of innovation, enterprises engaging in organisational innovation had the highest proportion (48%) among large enterprises, while it was only one tenth among businesses with 10-49 employees. Faster reaction to customer and subcontractor needs was the most important goal.

Table 5

Proportion of enterprises engaging in marketing innovation by size class, 2008–2010

(%)

Denomination	10–49 employees	50–249 employees	250 or more employees	Total
Significant changes to the aesthetic design or packaging of a good or service	5.4	10.6	18.4	6.8
Using new media or techniques for product promotion	8.1	11.8	19.4	9.2
Using new methods for product placement or sales channels	6.3	8.7	14.8	7.1
Using new methods of pricing goods or services	9.8	12.1	14.5	10.4
Enterprises using any form of marketing innovation	15.9	21.9	31.4	17.5

18% of the surveyed enterprises engaged in marketing innovation related activities, the most important goal of which was to preserve as well as to increase their market share. Business size exerted a much smaller influence on this area, but similarly to other types of innovation, enterprises with at least 250 employees were the most innovative in this area as well. All in all, new price determination methods were applied by most of the businesses.

All economics theories stress the priority role that the highly educated and qualified workforce plays in innovations, but CIS2010 was the first survey, which underpinned its significance by exact data.

A significant discrepancy was seen between innovative and non-innovative enterprises in the proportion of college/university graduates. More than half of innovative businesses had a share of over 10% of college/university graduates

in the staff, while this figure was less than one third among non-innovative enterprises. The proportion of enterprises with a 50%-plus share of college/university graduates in the staff is more than twice as much as among innovative enterprises, than among the non-innovative ones.

Creativity and skills

There was a new module on creativity and skills in the CIS2010 survey questionnaire. The first question was to highlight what skills are used by enterprises during their operation and what role outsourcing plays in the given enterprise. Responses showed highly significant discrepancies in this area between innovative and non-innovative businesses. Web-design making and software development were ranked first with over 60% by businesses with new-to-market innovations, while advertisement graphics developments were ranked third. In case of these three areas, outsourcing played a dominant role also in large enterprises; though in their group partnering with other stakeholders also played a role too. In non-innovative businesses, the ranking of applied skills was the same, but the number of businesses indicating these was three times fewer. Concerning sources, no significant difference was seen.

Market research skills were used in nearly half of innovative enterprises, while in case of those without modernizations this figure was less than one fifth. This activity was mainly implemented by in-house employees, though outsourcing also played a significant role. All in all, multimedia and design development were the least frequently used skills. Naturally there were significant differences in how the different skills were used by subsection.

The other new question of the latest survey was to highlight what methods are used to improve creativity and generate new ideas. Findings showed that only a fraction of non-innovative businesses used these. Only every fifth of them mentioned more than one from these and only every second did the same among business with 250 or more employees. As opposed to this, on average, at least one creativity enhancing method was applied by innovative enterprises, while this figure was more than two in case of large businesses. Brainstorming was the most widespread method, but multidisciplinary or cross-functional work teams were frequently used as well. Workplace rotation was the least used: 12% of innovative businesses and less than 2% of the non-innovative ones used this.

Table 6

Proportion of college/university graduates among innovative and non-innovative enterprises by size class, 2008–2010

(%)

Proportion of college/university graduates	10–49 employees	50–249 employees	250 or more employees	On average	10–49 employees	50–249 employees	250 or more employees	On average
	as a percentage of innovative enterprises				as a percentage of non-innovative enterprises			
0	14.6	1.0	0.0	9.9	30.6	7.3	2.8	27.0
1– 4	21.3	16.5	8.6	19.0	26.3	36.2	22.2	27.5
5– 9	11.6	22.6	24.3	15.5	11.6	21.4	26.1	13.1
10– 24	21.9	32.1	37.4	25.8	15.8	21.0	26.7	16.7
25– 49	12.2	13.2	18.8	13.0	6.8	7.2	11.1	7.0
50– 74	8.2	8.6	6.9	8.2	4.7	3.3	5.6	4.6
75–100	10.2	6.0	4.0	8.6	4.2	3.5	5.6	4.1

Further information, data (links):

[Tables](#)
[Methodology](#)

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