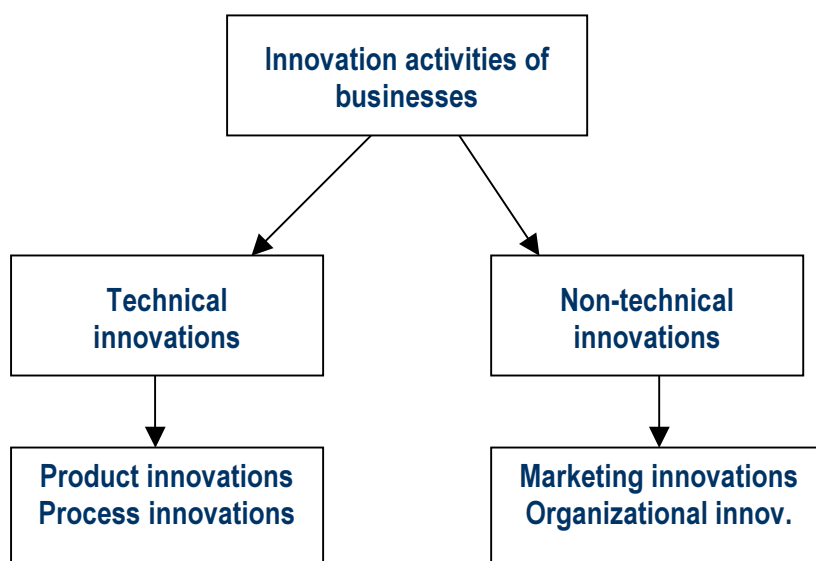


1.1 General background of innovation survey

Research, development and support of innovation environment are one of the most important means for rising competitive advantage of products and services. Assuring of functional environment in this field is therefore naturally comprehended as crucial presumption of country's economic prosperity. Rising quality of scientific and development base and ensuring its innovation function leads to increasing interest for investment into perspective branches. Increasing costs and risks connected with innovation creation cause, that private economic subjects invest into this sphere less than it is socially desirable. From those and also many other reasons is the innovation field of the entrepreneurship a part of support and focus of economic policy of the government. It is concerned mainly of assuring enough risk and developing capital, qualified labour force, research background and availability of information sources. Measures focusing on support of innovative entrepreneurial environment include list of regulation tools that positively affect entrepreneurs' behaviour, their willingness to take necessary risk. Innovative entrepreneurial environment is determined mainly by stable macroeconomic policy, favourable and transparent legislative. Innovation policy is however significantly different from traditional economic policy, because of it concentrates mainly on rising quality and competitive strength of products and services through innovations. Owing to innovations evolves many of new branches, like information technologies, biotechnology, nanotechnology and other. Exactly these branches are becoming these days significant factor of structural changes and modernizing global economy.

The term innovation comes from latin word „innovare“ – recover. From it's meaning it is clear, that it means novelty, newness or renewal in human activity, and from this reason is innovation necessary part of the human's being. In this meaning we will not focus on the general human activity, but on activity that is connected with improving and developing of production goods and services, production process and economic potential of the enterprises. Whilst in the past-prevalled innovations based on experiences from practice, these days prevail innovations obtained by application of scientific and technological knowledge. Innovations in their widest meaning go beyond abilities of quantitative statistical survey, they present improvement in quality of progress of production, ecological and social spheres of the life. In the survey that was carried out in the Czech Statistical Office, we concentrated on the narrow meaning of innovations, on so called **technical innovations (product and process)**, it means on the creation of new or improving of existing products and services, production technologies and processes. Innovation in this meaning therefore means process of carrying out continual changes (in technical layout of the product, production technologies, used materials etc.), non-technological **innovations (marketing and organizational)**¹.

For better understanding, see following scheme with breakdown of innovation activities according to methodological manual OECD (**Oslo manual 2005**).



¹ Other information concerning the theoretical aspect and classification of innovation ranks see the previous publication „Innovation in the Czech Republic in 2005“.

1.2 Main types of innovations

According to the new conception of innovation by revised the Oslo manual 2005 we have four main types of innovations: **product innovations, process innovations, marketing innovations and organizational innovations**. This classification keeps the highest possible degree of continuity with the previous definition of technical product and process innovation used in the previous second edition of the Oslo manual 1997. Product and process innovations are closely related to the concept of **technical product and process innovations**. Marketing and organizational innovations compared with the previous definition extend range of innovations covered by the Manual under **non-technical innovations**.

A product innovation means implementation of goods or services that are new or significantly improved with regard to their characteristics or intended use. It covers important improvements in technical specifications, components and materials, software, user friendliness or other functional characteristics.

Product innovations can utilise new knowledge or technologies, or can be based on new uses or combinations of existing knowledge or technologies. The term “product” is used to cover both goods and services. Product innovations include both the introduction of new goods and services and significant improvements in the functional or user characteristics of existing goods and services.

New products are goods and services that differ significantly in their characteristics or intended uses from products previously produced by the firm.

Significant improvements to existing products can occur through changes in materials, components and other characteristics that enhance performance.

Product innovations in services can include significant improvements in how they are provided (for example, in terms of their efficiency or speed), the addition of new functions or characteristics to existing services, or the introduction of entirely new services.

A process innovation is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software.

Process innovations include new or significantly improved methods for the creation and provision of services. They can involve significant changes in the equipment and software used in services-oriented firms or in the procedures or techniques that are employed to deliver services.

A marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing.

Marketing innovations are aimed at better addressing customer needs, opening up new markets, or newly positioning a firm’s product on the market, with the objective of increasing the firm’s sales.

The distinguishing feature of a marketing innovation compared to other changes in a firm's marketing instruments is the implementation of a marketing method not previously used by the firm. It must be part of a new marketing concept or strategy that represents a significant departure from the firm’s existing marketing methods. The new marketing method can either be developed by the innovating firm or adopted from other firms or organisations. New marketing methods can be implemented for both new and existing products.

Marketing innovations include significant changes in product design that are part of a new marketing concept. Product design changes here refer to changes in product form and appearance that do not alter the product’s functional or user characteristics. They also include changes in the packaging of products such as foods, beverages and detergents, where packaging is the main determinant of the product’s appearance. An example of a marketing innovation in product design is the implementation of a significant change in the design of a furniture line to give it a new look and broaden its appeal. Innovations in product design can also include the introduction of significant changes in the form, appearance or taste of food or beverage products, such as the introduction of new flavours for a food product in order to target a new customer segment. An example of a marketing innovation in packaging is the use of a fundamentally new bottle design for a body lotion, which is intended to give the product a distinctive look and appeal to a new market segment.

New marketing methods in product placement primarily involve the introduction of new sales channels. Sales channels here refer to the methods used to sell goods and services to customers, and not logistics methods (transport, storing and handling of products), which deal mainly with efficiency.

New marketing methods in product promotion involve the use of new concepts for promoting a firm's goods and services.

Innovations in pricing involve the use of new pricing strategies to market the firm's goods or services.

Seasonal, regular and other routine changes in marketing instruments are generally not marketing innovations. For such changes to be marketing innovations, they must involve marketing methods not previously used by the firm.

An organisational innovation is the implementation of a new organisational method in the firm's business practices, workplace organisation or external relations.

The distinguishing feature of an organisational innovation compared to other organisational changes in a firm is the implementation of an organisational method (in business practices, workplace organisation or external relations) that has not been used before in the firm and does management take the result of strategic decisions.

Organisational innovations in business practices involve the implementation of new methods for organising routines and procedures for the conduct of work. These include, for example, the implementation of new practices to improve learning and knowledge sharing within the firm.

Innovations in workplace organisation involve the implementation of new methods for distributing responsibilities and decision making among employees for the division of work within and between firm activities (and organisational units), as well as new concepts for the structuring of activities, such as the integration of different business activities.

New organisational methods in a firm's external relations involve the implementation of new ways of organising relations with other firms or public institutions, such as the establishment of new types of collaborations with research organisations or customers, new methods of integration with suppliers, and the outsourcing or subcontracting for the first time of business activities in production, procuring, distribution, recruiting and ancillary services.

Changes in business practices, workplace organisation or external relations that are based on organisational methods already in use in the firm are not organisational innovations. Nor is the formulation of managerial strategies in itself an innovation.

Mergers with, or the acquisition of, other firms are *not* considered organisational innovations, even if a firm merges with or acquires other firms for the first time.

*By methodology of Eurostat **innovative enterprises** are the enterprises that have implemented the product and/or process innovation (technical innovation) or have ongoing and/or abandoned innovation activities. Non-technological innovations have not the same importance as technical ones so far. Enterprises with marketing or organisational innovations are not considered innovative.*

1.3 Coverage, sample and population

To the data collection we used harmonized questionnaire of the EU Member States for the innovation survey CIS 2006 (Community innovation survey).

The survey was carried out on the basis of the Commission Regulation No. 1450/2004 from 13th August 2004, by which is carried out the Decision of the European Parliament and the Council No. 1608/2003/EC about creation and development of the Community statistics in the field of innovation.

Under this obligatory legal act, the national version of statistical survey CIS 2006 was carried out covering years 2004–2006 in the Czech Republic.

We used the sample survey taking into account regional dimension and by the innovation questionnaire TI 2006 we addressed 8 475 reporting units of the business enterprise sector from the selected fields of manufacturing and services (financial and non-financial sectors) having at least 10 employees. For detailed structure of sample and population see TAB 1 in Table Part.

Reporting units were economic subjects (enterprises) that according to their prevailing activity belong to the following NACE rev.1:

10-14 Mining and quarrying - C

Manufacturing (15-37) - D

15-16 Food, beverages and tobacco - DA

17-19 Textile and leather - DB+DC

20-22 Wood, pulp and printing - DD+DE

23-24 Coke and chemicals - DF+DG

25-26 Rubber and other non-metallic - DH+DI

27-28 Basic and fabricated metals - DJ

29 Machinery and equipment - DK

30-33 Electrical and optical equipment - DL

34-35 Transport equipment NEC - DM

36-37 Manufacturing NEC and recycling - DN

Electricity, gas and water supply (40-41) - E

Construction (45) - F

Services (50-52, 55, 60-67, 70-74) - G to K

50 Retail, repairs of motor vehicles, retail sale of fuel

51 Wholesale trade (excluding vehicles)

52 Retail excluding vehicles, repairs of products for self consumption and mainly for households

55 Accommodation and food services activities

60-64 Transport, storage and communication

65-67 Financial intermediation

70 Real estate activities

71 Rental of machinery and equipment

72 Computer and related activities

73 Research and development

74 Other business activities

Sample of the reporting units was extracted from the Czech Business Register by combination of census and stratified sampling in the particular sectors. Their responding duty is under the Regulation No. 421/2005 (Program of statistical surveys for year 2006).

Data published in this publication were obtained on the basis of 79 % response rate; (8 475 questionnaires were sent out, 6 716 questionnaires were collected); final results from the sample were calculated on the basic population using mathematical-statistical methods. Data mentioned above are published broken down by NACE rev.1 and three size classes according to the number of employees.

These enterprise size classes are:

- small enterprises with 10-49 employees,
- medium enterprises with 50-249 employees,
- large enterprises with more than 250 employees.

Regional data are published according to NUTS2 (representative stratification of sample) and NUTS3. Eurostat requires data at the level NUTS2. For public innovation support from European Commission, NUTS3 are too small regions.

Under the EC Regulation and on the basis of treaty, the Czech Republic is compulsorily to provide and transmit to Eurostat aggregate data and anonymous micro-data (for scientific reasons) by conditions of grant contact CIS 2006 (Transition Facility 2005). Required outputs include the quality data report.

[For further information see Eurostat website – metadata for innovation statistics]²

1.4 The comparison of innovation surveys (CIS)

In the Czech Republic, already 4 innovation statistical surveys have been carried out. Concerning TI2001 and TI2003, only product and process innovations were surveyed. Since statistical survey TI2005, due to the methodological changes initiated by EU/OECD, marketing and organizational innovations have been implemented into surveys. In case of the survey TI2005, sample size increased up to 8 370 respondents (newly included same industries). Reasons are the inclusion of non-technical innovations, ensuring representative regional data and also increasing data quality.

A basic comparison of all so far carried out innovation surveys are set forth below in following table, where are information about the number of reporting units in surveys and the proportion of enterprises with technical innovations. The survey TI 2006 was fully harmonized in line with the CIS 2006 (concerning especially reference period).

Figures concerning the share of innovating businesses in surveys cannot be compared simply, because surveys TI2001 and TI2003 cover only technical (product and process) innovations. On the other hand, surveys TI2005 and TI2006 cover also non-technical (marketing and organizational) innovations (in total number of innovating enterprises). These figures are affected by the inclusion of new industries in TI2005 a TI2006.

TAB 1.1 Comparison of innovation surveys (CIS)

Survey/Period	Type of innovation (% of the total number of all economic subjects)			Reporting units (Enterprises)		
	Product or process innovations (%)	Product innovation (%)	Process innovation (%)	Number of reporting units in the survey	Coverage of population (%)	Response (%)
CIS3 (1999–2001)	29	23	17	5 829	25	63
CIS Light (2002–2003)	26	22	12	4 678	20	81
CIS4 (2003–2005)	29	20	24	8 370	20	74
CIS 2006 (2004–2006)	27	19	22	8 475	20	79

The coverage of population by sample (based on used stratification) remains on 20 %.

In forthcoming the survey TI 2008, new revised version of NACE and modified questionnaire CIS 2008 will be used.

² http://epp.eurostat.ec.europa.eu/portal/page?_pageid=0,1136250,0_45572555&_dad=portal&_schema=PORTAL