

# CREATIVITY AND SKILLS AVAILABLE IN ENTERPRISES IN THE SLOVAK REPUBLIC

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**Abstract:** *Creativity is one of the most important conditions for the creation and the dissemination of innovations in the economy. In this paper we will concentrate on the comparison creativity and skills available in enterprises in the Slovak Republic and in other EU countries. Four types of innovation are currently reported by the Community innovation survey: product, process, organisational and marketing innovation. A CIS 2010 ad hoc module focused on in-house and external skills available in enterprises. Information was collected for enterprises that resort to external resources to obtain specific knowledge, or enterprises that only rely on internal capacities in fields such as multimedia, web design, market research, mathematics or engineering.*

**Keywords:** *creativity, skills, innovation, enterprise, Inov 1-99, CIS 2010*

**JEL Classification:** *L26, M54, O31*

## 1. INTRODUCTION

At present, the economic success is determined both by financial capital, natural sources, knowledge; and still more importantly by creativity and related skills. In most of the industry sectors, a global competition takes part. It is accelerated by technological and information transfers – society talks about hypercompetition. Globalization, interconnection markets provided new opportunities to the countries in the field of foreign trade on [2]. This gradually growing global competition changes the basis of competitive advantages. In recent years, the creativity attracts still more attention by experts both from theory and practice, as a new type of competitive advantage. Creativity is one of the most important conditions for the creation and the dissemination of innovations in the economy. Creativity is an important method of innovation without research and development [5, p. 18]. This is the reason why European statistics system that ensures common data finding on innovations across EU (Community Innovation Survey - CIS), included into CIS 2010 also the indicators related to use and support of creativity and creative skill in corporations. These indicators were not obligatory, however, the most part of member states presented them. Four types of innovation are currently reported by the Community innovation survey: product, process, organisational and marketing innovation. A CIS 2010 ad hoc module focused on in-house and external skills available in enterprises. Information was collected for enterprises that resort to external resources to obtain specific knowledge, or enterprises that only rely on internal capacities in fields such as multimedia, web design, market research, mathematics or engineering. In this paper we will concentrate on the comparison creativity and skills available in enterprises in the Slovak Republic and in other EU countries.

## 2. METHODOLOGY

For the purposes of CIS 2010 survey, a model questionnaire in Eurostat has been prepared in cooperation with member states, just like on previous survey occasions. The questionnaire has been translated into Slovak and

published as Inov 1-99 for 2010. The innovation survey included 3 310 reporting units that equal to 42.4% out of the whole research file. Statistical unit represented one enterprise, or corporation. The database of reporting units was created from corporation statistic register, by combination of methods of exhaustive survey (in case of enterprises with number of employees above 250) and stratificated random survey (in case of small and medium enterprises). Only enterprises with more than 10 employees were included. The results here presented were processed according to the answers from 2 363 respondents, with the questionnaire return rate of 71.4%. Presented results were weighted and generally applied to the whole research file of 7 033 enterprises. [4, p. 251-252]

Inov 1-99 have concentrated, through its module 659 „Creativity and skills“, on the following creativity-related skills:

- design of objects or services,
- engineering / applied sciences,
- graphic arts / layout / advertising,
- multimedia,
- market research,
- mathematics / statistics / database management,
- software development,
- web design.

Inov 1-99 focused on the question whether the respective enterprise has obtained these skills only from internal sources (i.e. whether it employed the employees with these skills), only from external sources, from both sources, or whether it did not use these skills at all. External sources included freelance experts, consultants, other enterprises, etc.

## 3. FINDINGS AND DISCUSSION

Comparison of the methods of obtaining the skills between Slovak and European enterprises takes into account the data from statistical survey CIS 2010. For this purpose, Eurostat prepared a model questionnaire.

Table 1 Innovative enterprises – skills employed in-house-only

	Design of objects or services	Engineering, applied sciences	Graphic arts, layout, advertising	Multimedia	Market research	Mathematics, statistics, database management	Software development	Web design
Austria	26,9%	18,6%	22,2%	15,5%	12,7%	20,9%	17,1%	16,5%
Belgium	21,5%	21,9%	17,3%	15,7%	17,6%	22,9%	22,1%	19,1%
Bulgaria	10,6%	18,5%	7,6%	5,7%	21,1%	12,8%	8,4%	8,0%
Croatia	20,5%	24,2%	13,4%	11,3%	28,1%	28,5%	13,8%	13,7%
Cyprus	29,6%	33,2%	15,2%	7,7%	35,6%	42,8%	18,1%	13,2%
Czech Republic	19,6%	19,2%	25,8%	14,2%	35,7%	23,3%	15,8%	21,6%
Estonia	17,6%	31,1%	8,9%	5,9%	21,3%	36,4%	11,2%	13,0%
France	22,9%	20,5%	17,8%	14,0%	18,4%	19,5%	16,7%	15,0%
Hungary	12,7%	23,9%	15,3%	8,9%	26,1%	29,8%	13,7%	15,6%
Ireland	25,4%	22,2%	18,0%	13,8%	20,5%	20,8%	17,4%	16,1%
Italy	18,4%	13,6%	9,8%	10,2%	19,5%	18,2%	11,6%	9,7%
Lithuania	24,9%	21,0%	17,8%	13,5%	30,4%	28,6%	13,6%	19,2%
Malta	20,2%	19,5%	11,6%	9,6%	19,2%	19,5%	13,3%	11,3%
Poland	22,0%	14,9%	24,4%	14,7%	25,7%	22,3%	17,1%	21,5%
Portugal	15,2%	14,0%	11,5%	9,2%	11,4%	14,0%	9,8%	9,6%
Romania	29,0%	27,9%	23,1%	13,9%	42,2%	22,8%	16,9%	15,8%
Slovakia	15,6%	14,8%	14,6%	11,3%	33,7%	25,8%	8,2%	15,6%
Slovenia	11,8%	30,8%	9,4%	7,6%	19,4%	19,5%	16,6%	12,3%
Sweden	25,3%	20,0%	19,6%	14,6%	18,2%	22,0%	16,8%	20,4%

Source: own elaboration based on [1]

Table 2 Innovative enterprises – skills obtained from external sources-only

	Design of objects or services	Engineering, applied sciences	Graphic arts, layout, advertising	Multimedia	Market research	Mathematics, statistics, database management	Software development	Web design
Austria	22,1%	10,1%	40,9%	27,7%	23,8%	14,4%	39,7%	48,2%
Belgium	16,6%	8,0%	27,7%	25,0%	16,3%	7,5%	36,9%	41,5%
Bulgaria	16,8%	7,3%	22,0%	15,0%	15,2%	7,3%	24,3%	26,0%
Croatia	22,2%	7,7%	33,1%	20,9%	14,8%	7,7%	41,0%	29,1%
Cyprus	19,9%	10,8%	48,7%	21,3%	15,1%	9,0%	45,1%	43,6%
Czech Republic	24,6%	9,2%	40,7%	33,9%	19,7%	10,4%	43,2%	58,2%
Estonia	17,6%	13,5%	32,9%	16,6%	19,4%	10,3%	49,6%	37,0%
France	14,2%	6,1%	26,9%	24,2%	14,6%	6,5%	26,3%	35,8%
Hungary	16,3%	10,6%	38,4%	24,5%	18,5%	8,9%	40,3%	42,9%
Ireland	22,6%	9,3%	39,1%	26,4%	24,3%	9,4%	36,6%	48,1%
Italy	15,4%	7,0%	33,5%	17,5%	13,1%	8,7%	41,2%	32,4%
Lithuania	20,2%	4,2%	37,6%	15,1%	17,0%	5,2%	36,2%	40,4%
Malta	18,5%	8,3%	38,4%	29,1%	17,9%	8,3%	37,8%	45,4%
Poland	22,1%	8,3%	36,1%	21,1%	18,0%	11,3%	39,5%	46,1%
Portugal	19,0%	5,2%	34,5%	19,2%	10,7%	7,9%	34,9%	31,2%
Romania	15,3%	5,4%	21,6%	17,9%	11,6%	7,3%	32,9%	24,6%
Slovakia	27,5%	12,4%	45,7%	31,7%	19,9%	11,5%	40,5%	45,0%
Slovenia	28,0%	14,6%	38,0%	28,1%	23,2%	16,5%	41,2%	46,0%
Sweden	14,9%	6,7%	29,7%	21,5%	19,7%	8,3%	28,6%	37,5%

Source: own elaboration based on [1]

Since the creativity indicators and related skills were not obligatory, they were not presented and published by all member states. Therefore, there are no data available from Denmark, Germany, Greece, Latvia, Luxembourg, Netherlands, Spain and United Kingdom.

The below tables show the percentage share of the number of enterprises which acquire the creative skill of that source among all enterprises with innovation activities in respective EU member states.

Table 1 expresses the percentage share of the number of enterprises that only rely on internal capacities in fields such as multimedia, web design, market research, mathematics or engineering. Table 2 shows the percentage share of the number of enterprises that only rely on external resources to obtain specific skills in fields such as multimedia, web design, market research, mathematics or engineering.

## Creativity and Skills Available in Enterprises in the Slovak Republic

Table 3 Innovative enterprises – skills employed in-house and obtained from external sources

	Design of objects or services	Engineering, applied sciences	Graphic arts, layout, advertising	Multimedia	Market research	Mathematics, statistics, database management	Software development	Web design
Austria	6,2%	5,8%	15,2%	6,4%	3,7%	5,2%	8,3%	7,7%
Belgium	8,3%	6,9%	12,7%	7,3%	6,6%	6,2%	12,9%	8,7%
Bulgaria	1,3%	1,7%	1,7%	0,8%	1,9%	1,2%	1,6%	1,3%
Croatia	3,5%	2,3%	4,0%	1,7%	2,7%	2,8%	4,3%	3,8%
Cyprus	9,5%	6,2%	10,9%	6,3%	7,6%	8,0%	15,1%	12,2%
Czech Republic	0,2%	0,2%	0,2%	0,1%	0,2%	0,0%	0,1%	0,2%
Estonia	5,5%	10,7%	7,8%	3,0%	8,1%	7,8%	9,9%	6,2%
France	5,5%	4,8%	8,4%	6,1%	4,3%	3,3%	6,8%	6,7%
Hungary	1,8%	5,8%	4,5%	2,2%	4,2%	5,0%	6,6%	3,7%
Ireland	5,1%	4,0%	5,5%	4,0%	5,5%	3,6%	6,1%	6,2%
Italy	6,5%	3,7%	5,6%	4,2%	3,3%	4,0%	6,9%	3,6%
Lithuania	4,8%	3,4%	6,6%	2,6%	3,5%	4,4%	4,0%	4,2%
Malta	6,3%	3,6%	3,6%	5,0%	6,0%	4,3%	6,6%	4,6%
Poland	4,1%	2,3%	6,5%	2,9%	2,9%	2,7%	4,8%	4,5%
Portugal	6,1%	4,5%	9,3%	6,5%	4,8%	5,3%	9,1%	7,3%
Romania	2,4%	1,8%	3,6%	2,5%	2,4%	2,0%	2,5%	2,3%
Slovakia	6,3%	3,6%	10,8%	5,7%	7,3%	5,9%	6,7%	5,7%
Slovenia	2,9%	3,9%	2,2%	2,1%	2,6%	3,7%	4,9%	3,0%
Sweden	8,9%	5,2%	14,9%	8,2%	6,4%	5,2%	9,7%	12,6%

Source: own elaboration based on [1]

Table 4 Innovative enterprises – not used or not relevant skills

	Design of objects or services	Engineering, applied sciences	Graphic arts, layout, advertising	Multimedia	Market research	Mathematics, statistics, database management	Software development	Web design
Austria	44,8%	65,5%	21,7%	50,3%	59,8%	59,5%	34,9%	27,6%
Belgium	53,6%	63,2%	42,3%	52,0%	59,5%	63,4%	28,0%	30,7%
Bulgaria	71,3%	72,5%	68,8%	78,5%	61,9%	78,7%	65,7%	64,8%
Croatia	53,9%	65,8%	49,5%	66,0%	54,5%	61,0%	40,9%	53,5%
Cyprus	41,0%	49,9%	25,2%	64,8%	41,8%	40,3%	21,7%	31,1%
Czech Republic	55,6%	71,5%	33,3%	51,8%	44,4%	66,4%	41,0%	20,1%
Estonia	59,3%	44,7%	50,3%	74,5%	51,3%	45,5%	29,4%	43,9%
France	57,3%	68,6%	46,9%	55,7%	62,7%	70,7%	50,2%	42,5%
Hungary	69,5%	59,9%	41,9%	64,6%	51,3%	56,4%	39,4%	37,9%
Ireland	45,2%	62,9%	36,6%	53,4%	48,5%	64,2%	38,8%	28,8%
Italy	59,7%	75,8%	51,2%	68,1%	64,1%	69,1%	40,4%	54,4%
Lithuania	50,2%	71,5%	38,0%	68,9%	49,1%	61,9%	46,2%	36,3%
Malta	55,0%	68,5%	46,4%	56,3%	57,0%	67,9%	42,4%	38,7%
Poland	60,1%	79,2%	45,9%	67,2%	59,2%	69,1%	48,3%	36,9%
Portugal	59,8%	76,3%	44,7%	65,2%	73,2%	72,8%	46,2%	51,9%
Romania	53,3%	64,9%	51,8%	65,7%	43,8%	68,0%	47,7%	57,3%
Slovakia	43,6%	61,1%	26,2%	45,8%	32,8%	50,0%	37,3%	27,9%
Slovenia	57,2%	50,7%	50,4%	62,1%	54,8%	60,4%	37,2%	38,7%
Sweden	45,2%	62,4%	30,1%	49,9%	49,8%	58,7%	39,0%	23,8%

Source: own elaboration based on [1]

Table 3 expresses the percentage share of the number of enterprises that rely on internal capacities or on external sources to obtain these specific skills. Table 4 shows the percentage share of the number of enterprises with innovation activities that either don't use these skills, or they don't consider them relevant for their activities.

According to the comparison it is obvious that:

- the companies prefer skills obtained either only from internal or only from external sources,

- innovative companies from developed EU countries prefer creative skills obtained from internal sources,
- the most part of EU enterprises with innovation activities either don't use skills "design of objects or services", "engineering / applied sciences", "multimedia" and "mathematics / statistics / database management" or they don't consider them relevant for their activities,

- many EU enterprises with innovation activities either don't use skills "graphic arts / layout / advertising", "market research" and "web design" or they don't consider them relevant for their activities,
- the most part of EU enterprises with innovation activities use the skill "software development" and they consider them relevant for their activities.

Slovak enterprises with innovations are relatively aware of the importance of these skills, especially in the area of graphic presentations and publicity, web design, market research and software development. The less used areas are design of objects or services and multimedia. At least used areas are mathematics, statistics and database administration and engineering, applied sciences.

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#### 4. CONCLUSION

The results of comparison show that within EU, the enterprises operating in Slovak republic are at average level in using creative skills. That is the reason why it is desirable, more than until now, to concentrate on obtaining and using these skills, especially in the area of software development and design of objects or services. Creativity and related skills are important factors of successful innovation process of enterprises regardless of their size and sector they operate in. Stimulation of creativity and skills of employees should be a key part of innovation strategy of every company.

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