

# COMMUNICATION

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## Indicators of innovation activities in the Republic of Serbia, 2008–2010

The data presented in this communication are the result of the survey on innovation activities in enterprises in the Republic of Serbia (without AP Kosovo i Metohija) over 2008–2010. The survey was carried out on a sample of 3982 enterprises, and innovating enterprises were defined as enterprises that introduced in the reference period a product/process innovation, organizational innovation or marketing innovation. The survey showed that the share of enterprises with at least one of the mentioned types of innovation was approximately 47%. The size of enterprises was the key factor for their innovation activity. Innovating were almost 70% of large enterprises, somewhat more than a half of medium and more than a third of large enterprises. Innovation activities are more frequent in manufacturing enterprises of which half introduced innovations, while innovations were introduced by over 40% of service enterprises.

### 1. Enterprises by innovations, activities and size classes, 2008–2010

	Total	Innovators	Non-innovator enterprises	Share of innovators, %
<b>Total</b>	12141	5812	6329	47,9
Small enterprises	9347	4143	5204	44,3
Medium enterprises	2237	1280	957	57,2
Large enterprises	557	389	167	69,8
Manufacturing enterprises	4141	2314	1827	55,9
Service enterprises	8000	3498	4502	43,7

The share of enterprises with product innovations and process innovations is almost the same, while the share of organizational and marketing innovators was slightly higher. These two groups of innovations were generally simultaneously present in enterprises. Innovating enterprises that had at the same time product/process innovations and organizational/marketing innovations were mostly manufacturing rather than service enterprises. More than a half of large enterprises introduced simultaneously product/process innovations and organizational/marketing innovations, while the share of medium and small enterprises was smaller.

### 2. Share of types of innovations by territory and size classes of enterprises

Territory	Size class	Innovating enterprises					Non-innovating enterprises	%
		Product/service innovations	Process innovations	Abandoned innovations or on-going innovations	Organizational innovations	Marketing innovations		
<b>REPUBLIC OF SERBIA</b>	Total	27,4	28,2	15,5	32,5	29,3	52,1	
	Small	24,9	25,1	12,9	29,1	26,3	55,7	
	Medium	33,3	36,3	21,1	40,3	37,5	42,8	
	Large	45,2	46,9	37,0	57,3	45,6	30,0	
SRBIJA – NORTH	Total	27,0	28,3	14,7	30,9	28,6	53,0	
	Small	24,6	25,5	11,5	27,2	25,1	56,8	
	Medium	32,3	35,3	23,0	40,0	38,8	43,1	
	Large	46,8	48,7	37,0	58,5	46,8	26,9	
Beogradski region	Total	30,1	30,1	15,1	32,1	30,5	50,1	
	Small	28,1	27,3	12,5	28,5	26,8	53,5	
	Medium	33,4	35,7	19,4	39,7	40,9	41,9	
	Large	49,1	54,2	39,4	62,0	48,6	26,4	

## 2. Share of types of innovations by territory and size class of enterprises (continued)

%

Territory	Size class	Innovating enterprises					Non-innovating enterprises
		Product/service innovations	Process innovations	Abandoned innovations or on-going innovations	Organizational innovations	Marketing innovations	
Region Vojvodine	Total	22,9	25,9	14,3	29,3	26,0	56,9
	Small	20,0	23,2	10,3	25,6	22,9	61,1
	Medium	30,8	34,7	28,1	40,4	35,9	44,9
	Large	43,3	40,4	33,3	53,9	44,0	27,7
SRBIJA – SOUTH	Total	28,0	27,8	16,9	35,4	30,6	50,5
	Small	25,4	24,2	15,4	32,7	28,6	53,5
	Medium	34,9	37,9	17,9	40,9	35,3	42,2
	Large	42,0	43,5	37,0	55,0	43,5	35,5
Region Sumadije i Zapadne Srbije	Total	28,9	28,0	15,5	36,2	30,3	49,9
	Small	26,5	24,2	13,4	34,1	28,5	52,6
	Medium	35,1	39,7	18,2	40,9	33,7	41,5
	Large	44,9	44,1	40,2	52,8	48,0	37,8
Region Juzne i Istocne Srbije	Total	26,5	27,5	19,2	33,8	31,1	51,5
	Small	23,4	24,2	19,0	30,2	28,8	55,2
	Medium	34,7	35,3	17,5	40,9	37,7	43,3
	Large	38,4	43,8	31,5	57,5	37,0	30,1
Region Kosovo i Metohija	Total	...	...	...	...	...	...

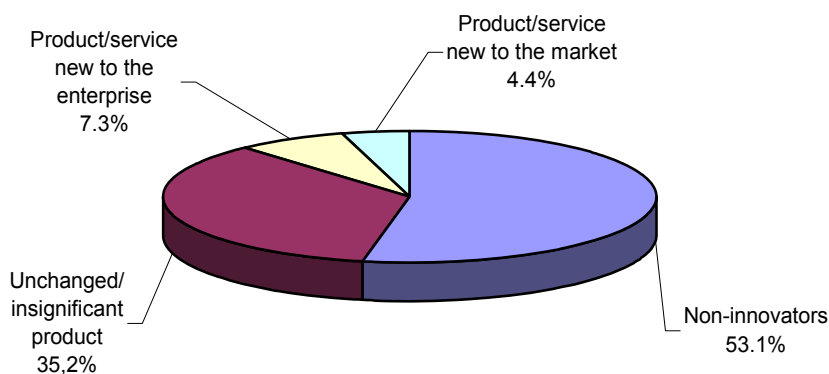
## 3. Enterprises by types of innovations and sections of activities

	Innovators								Non-innovators, %
	Total		Product/process innovators		Organizational/marketing innovators		Product/process innovators and organizational/marketing innovators		
	Number	%	Number	%	Number	%	Number	%	
<b>Total</b>	5812	47,9	4495	37,0	4881	40,2	3564	29,4	52,1
A: Agriculture, forestry and fishing	221	43,2	177	34,6	159	31,1	114	22,3	56,8
B: Mining and quarrying	24	40,7	23	39,0	20	33,9	19	32,2	59,3
C: Manufacturing	2156	57,6	1769	47,3	1851	49,5	1464	39,1	42,4
D: Electricity, gas and steam, air conditioning	32	42,7	25	33,3	32	42,7	25	33,3	57,3
E: Electricity, gas and steam, water supply, sewerage and waste management	102	38,6	75	28,4	85	32,2	58	22,0	61,4
F: Construction	458	37,7	326	26,8	367	30,2	235	19,3	62,3
G: Wholesale and retail trade; repair of motor vehicles and motorcycles	1442	43,7	980	29,7	1237	37,5	776	23,5	56,3
H: Transportation and storage	264	37,9	228	32,7	183	26,3	147	21,1	62,1
I: Accommodation and food service activities	149	37,5	114	28,7	121	30,5	86	21,7	62,5
J: Information and communications	277	56,5	223	45,5	262	53,5	207	42,2	43,5
K: Financial and insurance activities	81	66,9	69	57,0	76	62,8	64	52,9	33,1
L: Real estate activities	13	36,1	13	36,1	6	16,7	6	16,7	63,9
M: Professional, scientific and technical activities	476	51,0	390	41,8	379	40,6	293	31,4	49,0
N: Administrative and support activities	117	39,0	85	28,3	102	34,0	70	23,3	61,0

## Share in the total income from product/service innovations

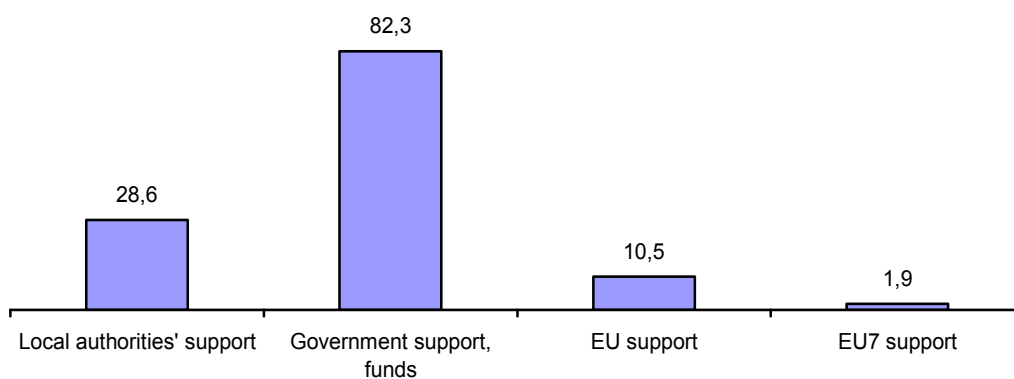
In the structure of innovating enterprises' income, the prevailing share is that of income from sale of unchanged or slightly changed products, amounting to approximately 35%, while the share of sale of products/services that were new to the enterprise and that of sale of products/services were new to the market was about 12%. Almost 13% of enterprises – technological innovators introduced for the first time a new process to the market.

**Graph 1. Structure of innovator's income**



Twenty-one percent of enterprises – innovators were subsidized (financial assistance in the form of tax relief, grants, subsidised loans, loan guarantees).

**Graph 2. Structure of financial assistance to innovators (%)**



## Market of sale of products/services over 2008–2010

Among enterprises that sell products/services, the most numerous are those selling on the local market, then on the national market, while the share of EU and EFTA countries' markets was three times smaller, and that of other countries even up to four times smaller.

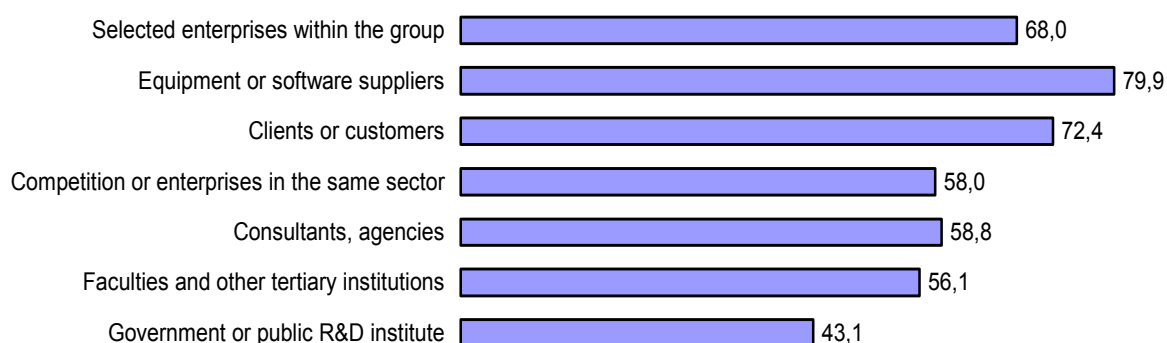
#### 4. Share of sales' markets

Market	Innovators		Non-innovators
	Product/process innovators	Organizational/marketing innovators	
Local/regional market	31,5	34,6	44,5
National market	25,1	27,3	26,6
EU and EFTA markets	13,0	12,9	8,4
Other countries	11,1	10,8	7,6

#### Partners with which enterprises were engaged in innovation co-operation

Enterprises that had contractual co-operations in innovations with other enterprises and institutions said that the most frequent partners in innovations were equipment and software suppliers – almost 80%, while government research institutes participated with 43%.

**Graph 3. Partners with which innovation co-operation was engaged (%)**

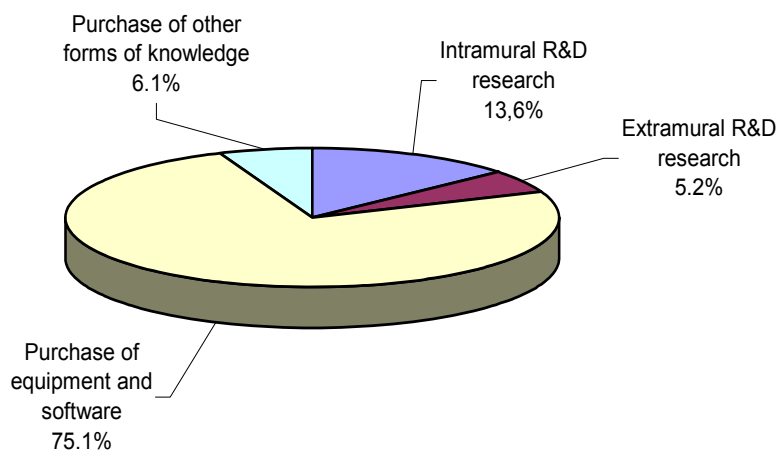


#### Expenditures for innovation activities

Expenditures for innovation activities cover costs for the development of new products, costs for the introduction of a new product to the market, costs for significant improvement of existing products, services or processes, as well as costs for unfinished innovation projects. Expenditures for innovation activities cover current costs (wages and salaries, equipment, services, etc.), as well as investment costs.

In the total expenditures for innovations activities of enterprises, the largest share is that for the purchase of equipment and software, amounting to approximately 75%.

**Graph 4: Structure of expenditures for innovation activities**



## Effects of innovations introduced over 2008–2010 considered significant

The most significant effects of introduced technological innovations was the improvement of product/service quality by approximately 30%, and the least effect was the reduction of equipment and energy costs per unit of products by about 12%.

### 5. The most significant effects of introduced innovations

Effects	Technological innovators			
	Total	Small	Medium	Large
Increase of product/service assortment	24,0	21,8	29,7	29,6
Replacement of obsolete products/processes	20,0	18,9	21,3	26,7
Breakthrough to new markets and increase of the share on the market	15,6	13,1	21,1	23,7
Improvement of product/service quality	29,7	28,2	30,9	42,4
Increase of product/process flexibility	17,7	17,6	15,9	24,2
Increase of production capacities/volume of services	18,4	16,3	23,8	22,9
Decrease of labour costs per unit of product	15,2	14,0	18,0	18,5
Decrease of equipment and energy costs per unit of product	11,6	10,3	14,1	17,5
Decrease of harmful environmental effect	14,2	12,5	17,2	21,9
Improvement of human health and employees' safety	17,0	15,4	20,7	22,1

## Hampering factors to innovation activities over 2008–2010

Enterprises said that costs were the most significant hampering factors to innovation activities or the decision not to innovate.

### 6. Factors hampering innovation

		%
Factors of costs	Lack of funds in the enterprise	36,4
	Lack of funds and sources outside the enterprise	26,3
	Costs of direct innovations too high	30,0
Factors of knowledge	Lack of skilled staff	5,5
	Lack of information about technologies	3,4
	Lack of information about markets	3,9
	Difficulties in finding co-operation partner	11,1
Market factors	Markets where prevail positioned entities	14,5
	Uncertain demand of innovating goods or services	14,0

## Methods of stimulating creativity and new ideas of the employees in enterprises

Enterprises that introduced a type of innovation had a considerably higher percentage of using methods to stimulate creativity and new ideas in its employees than non-innovative enterprises.

### 7. Stimulation of employees' creativity

Methods	%	
	Innovators	Non-innovators
Brainstorming sessions	14,3	1,5
Multifunctional working teams	21,4	3,1
Employees' rotation	28,5	4,5
Financial stimulation of employees	28,6	3,8
Non-financial stimulation of employees	26,9	4,7
Training of employees in view of developing new ideas and creativity	33,1	4,3

## Methodological remarks

The survey on innovative enterprises was carried out on a representative sample. The sample was allocated to the territory of the Republic of Serbia up to the level of regions proportionally to the number of enterprises. The sample size was **3500** small and medium enterprises. Large enterprises were fully covered totalling 3982. The sample frame covered active enterprises from the Statistical Business Register, containing 12141 enterprises with 10 employees and more. The obtained results were weighted and calculated on the level of the population of enterprises.

The survey on enterprises was carried out on a stratified sample according to the size class of enterprises (small: from 10 to 49 employees, medium: from 50 to 249 employees and large: more than 250 employees) and according to activities (CA classes of activities). Sample realization was over 71%, approximately 15% of selected enterprises were frozen or in bankruptcy, approximately 14% of enterprises did not respond to the survey.

Used were: web questionnaire (51%), e-mail interviews (12%) and printed questionnaire which was disseminated and collected by post (37%).

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Phone: +381-11- 2412-922 ● Fax: +381-11- 2411- 260 ● [www.stat.gov.rs](http://www.stat.gov.rs)

Responsible – Dragan Vukmirovic, PhD, Director

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