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Science, Technology and Innovation Statistics

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Indicators of innovation activities, 2016–2018

The data presented in this statistical release are the result of the survey on innovation activities in enterprises, over 2016-2018. Innovative enterprises are defined as enterprises that introduced, in the reference period, a product/process innovation, or had innovations that were abandoned or unfinished.

The survey showed that the share of enterprises with at least one of the mentioned types of innovations amounted to 50.2%. The size of enterprises was key factor for their innovation activity. Innovation activities were more present in manufacturing enterprises, about 62% of medium enterprises, while there were slightly more than 47% of small ones. Innovation activities were more present in manufacturing enterprises, in which more than a half introduced innovations, while regarding service enterprises, less than 50% introduced innovations.

1. Enterprises by innovations, activities and size classes

	Total	Innovators	Non-innovative enterprises	Share of innovators (%)
Total	19011	9546	9466	50,21
Small enterprises	15878	7566	8312	47,65
Medium enterprises	2544	1573	971	61,83
Large enterprises	589	407	182	69,10
Manufacturing enterprises	5039	2854	2185	56,64
Service enterprises	13972	6692	7281	47,90

Referring to regional distribution, product and process innovations had almost the same share (about 40%), but they were not equally distributed by regions. Regional distribution of product and process innovations ranged from 50% (Beogradski region) to 10% (Region Južne i Istočne Srbije).

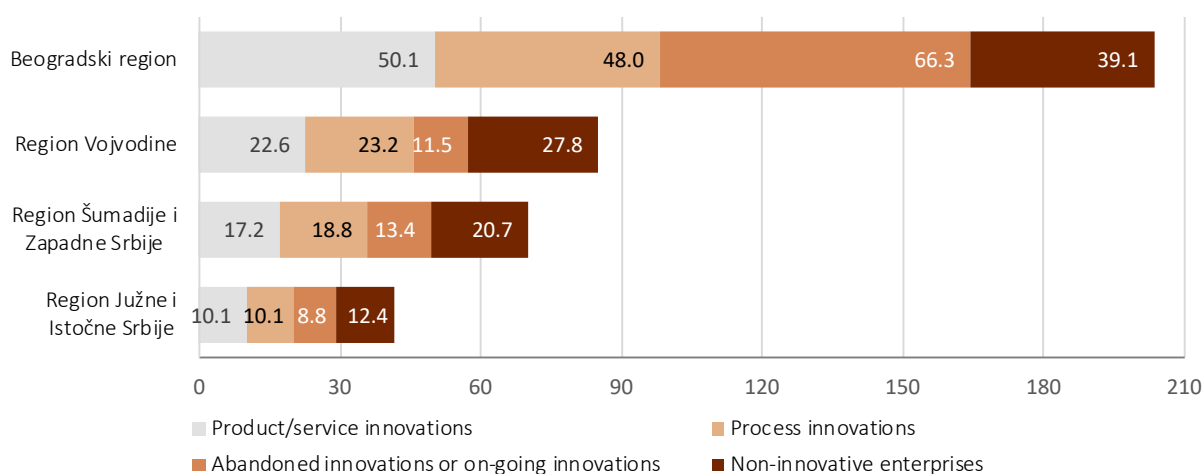
2. Share of types of innovations by territory and size classes of enterprises

Territory	Size class	Innovative enterprises			Non-innovative enterprises
		Product/service innovations	Process innovations	Abandoned innovations or on-going innovations	
REPUBLIC OF SERBIA	Total	7554	7519	454	9466
	Small	6087	5833	394	8312
	Medium	1142	1321	36	971
	Large	325	364	23	182
Beogradski region	Total	3784	3607	301	3698
	Small	3142	2895	270	3320
	Medium	499	556	21	310
	Large	143	156	10	68
Region Vojvodine	Total	1710	1741	52	2631
	Small	1343	1291	31	2265
	Medium	276	348	13	310
	Large	92	102	7	56

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

Territory	Size class	Innovative enterprises			Non-innovative enterprises
		Product/service innovations	Process innovations	Abandoned innovations or on-going innovations	
Region Sumadije i Zapadne Srbije	Total	1296	1411	61	1961
	Small	985	1062	57	1731
	Medium	252	282	0	194
	Large	58	67	4	36
Region Južne i Istočne Srbije	Total	764	760	40	1176
	Small	617	586	36	996
	Medium	115	136	2	157
	Large	32	38	2	23
Region Kosovo i Metohija	Total

Graph 1. Percentage of types of innovations by territory



3. Enterprises by types of innovations and sections of activities

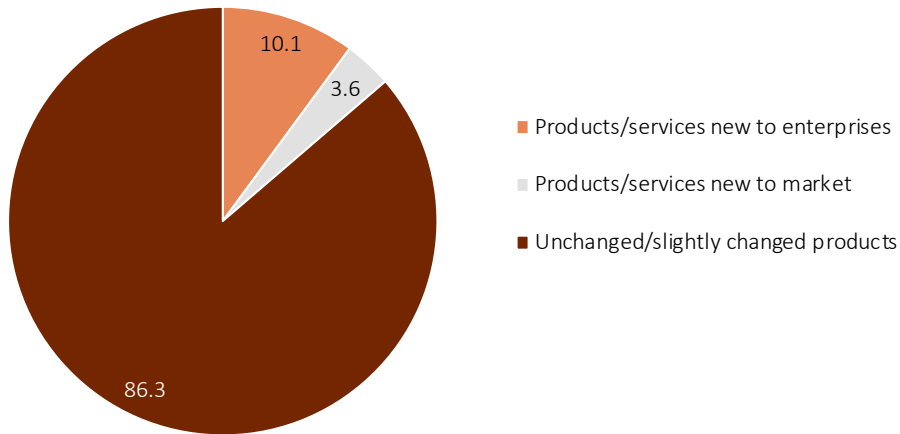
	Innovators								Non-innovators
	Total		Product/service innovators		Organizational/marketing innovators		Product/process innovators and organizational/marketing innovators		
	Number	%	Number	%	Number	%	Number	%	
Total	9546	50,2	7554	39,7	7519	39,6	454	2,4	9466
A – Agriculture, forestry and fishing	216	49,3	122	27,9	184	42	7	1,6	222
B – Mining	26	41,9	14	22,6	24	38,7	3	4,8	36
C – Manufacturing	2597	58,2	2165	48,5	1922	43,1	92	2,1	1868
D – Electricity, gas and steam, air conditioning supply	16	21,3	6	8	16	21,3	0	0	59
E – Water supply, sewerage and waste management and remediation activities	141	45	84	26,8	116	37,1	1	0,3	172
F – Construction	499	42,6	314	26,8	387	33	16	1,4	672
G – Wholesale and retail trade; repair of motor vehicles and motorcycles	1486	42,8	911	26,2	1303	37,5	53	1,5	1987
H – Transportation and storage	421	42	293	29,2	291	29	3	0,3	581
I – Accommodation and food service activities	264	44,8	243	41,3	200	34	0	0	325
J – Information and communications	1757	61,3	1611	56,2	1473	51,4	112	3,9	1111
K – Financial and insurance activities	103	32,8	94	29,9	85	27,1	4	1,3	211
L – Real estate activities	32	41,6	26	33,8	26	33,8	0	0	45
M – Professional, scientific and technical activities	1742	48,7	1496	41,8	1286	36	151	4,2	1835
N – Administrative and support activities	235	40,7	164	28,4	196	33,9	12	2,1	343
Q – Human health and social work activities	11	100	11	100	11	100	0	0	0

The largest percentage of innovative enterprises were in the section Information and communication, more than 60%, and more than 58% in Manufacturing

Share in the total income from product/service innovations

In the structure of innovative enterprises' income, the share of income from sale of unchanged or slightly changed products was predominant and amounted to 86%, while that of sale of products/services new to the enterprises, and that of sale of products/services new to market totalled to approximately 14%.

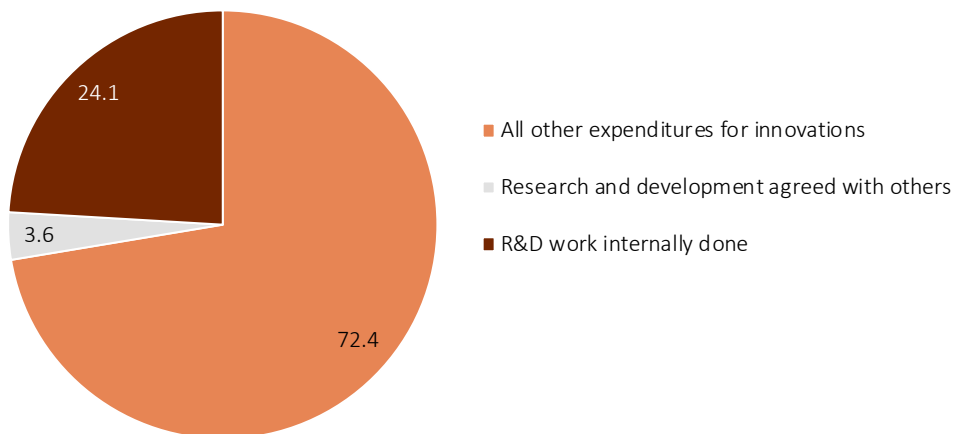
Graph. 2. Structure of innovators' income



Innovation activities expenditures

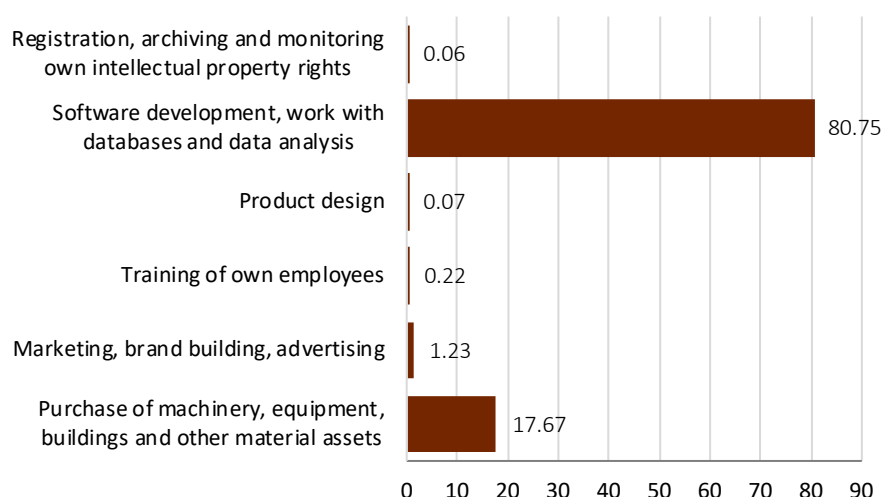
Innovation activities expenditures include investments new product development, investments for introduction of new products on the market, funds allocated to significant improvement of existing products, services or processes as well as funds for unfinished innovation projects. Innovation activities expenditures comprise current expenditures (salaries, equipment, materials, services, etc.) as well as investment expenditures.

Chart 3. Structure of innovation activities expenditures



R&D activities expenditures amounted to more than 27%, whether internally conducted or in co-operation with another subject, while all other expenditures, except for R&D, participated in total expenditures with more than 72%.

Chart 4. Structure of total enterprises' expenditures in 2018



Expenditures for software development and purchase of machinery and equipment participated with more than 98%, being the largest share in total innovation activities expenditures, while only 1.6% of funds were invested in all other activities.

4. Significance of factors that were obstacles to innovation activities

Majority of enterprises had motive for innovation activities, but did not carried them out because expenditures for innovation were too high or there was shortage of own financial resources.

Factors	Importance			
	high	medium	small	negligible
Shortage of own financial resources	25,50	35,51	18,57	20,42
Shortage of credits or private capital	15,34	30,41	21,75	32,50
Too high expenditures for innovations	19,35	22,44	25,71	32,50
Shortage of qualified staff in enterprises	29,51	33,34	14,58	22,57
Lack of partners for cooperation	15,83	30,78	24,49	28,90
Difficult obtaining of state donations an subsidies	12,72	32,45	23,36	31,46
Uncertain demand on the market for your innovative ides	8,65	25,60	30,49	35,26
Too big competition on your market	22,53	33,62	20,59	23,25
Legislative regulations are a burden	20,78	34,05	22,19	22,97
Legislative regulations provoke uncertainty	15,73	32,85	25,90	25,52
Legislative regulations are not consistent in the whole EU	5,0	5,1	6,0	83,9

5. Employees with tertiary education or education after the completed faculty (master, specialist, Mr, PHD)

In total population of enterprises, about 15% are those with no employees who have completed tertiary education, which mostly refers to small enterprises. The greatest number of enterprises employees from 1% to 4% of tertiary educated persons, while almost a third part of large enterprises was with 10% to 24% of employees who have completed tertiary education.

	Employees with tertiary education or education after the completed faculty						
	0%	1–4%	5–9%	10–24%	25–49%	50–74%	75–100%
Total	15,10	21,16	12,05	16,14	10,40	8,00	17,15
Small	17,74	20,40	10,16	14,04	10,41	7,76	19,49
Medium	2,04	26,49	21,11	25,67	9,24	9,43	6,01
Large	0,34	18,85	23,60	31,58	15,11	8,15	2,38

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 **3 673** small, medium and large enterprises. Large enterprises were fully covered. The sample frame covered active enterprises from the Statistical Business Register, containing 19 011 enterprises. 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 (classes of activities according to CA 08) as well as according to territorial distribution up to the level of regions (NSTJ 2). Sample realization was over 77%. Approximately 2% of selected enterprises were not on the referent address, also 2% of enterprises did not respond to the survey due to some other reason, while 1% of selected enterprises were frozen or in bankruptcy. About 14% of enterprises did not respond to the survey.

Starting from 1999 the Statistical Office of the Republic of Serbia has not available data for AP Kosovo and Metohija therefore these data are not included in the coverage for the Republic of Serbia (total).

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