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Innovation statistics

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Innovation activities in enterprises in the Republic of Serbia, 2004 – 2006

The Statistical Office of the Republic of Serbia publishes the data on innovation activities in enterprises for the period from 2004 to 2006, which resulted from the conducted pilot survey (*INOV*). The data obtained express enterprise activities on innovation of products, processes, enterprise organization and marketing. The most of the data refer to new and considerably improved products and services, new and significantly improved processes, logistics and distribution modes.

In the tables presented are the basic enterprises' features and activities, according to their size (small, medium, large).

Upon the study of the data compiled, notable is the most intensive innovation trend in organization of enterprises (57.34% enterprises), and the slowest in marketing (28.81% enterprises). The innovations of products/services (47.09%) and processes (46.81%) are almost the same.

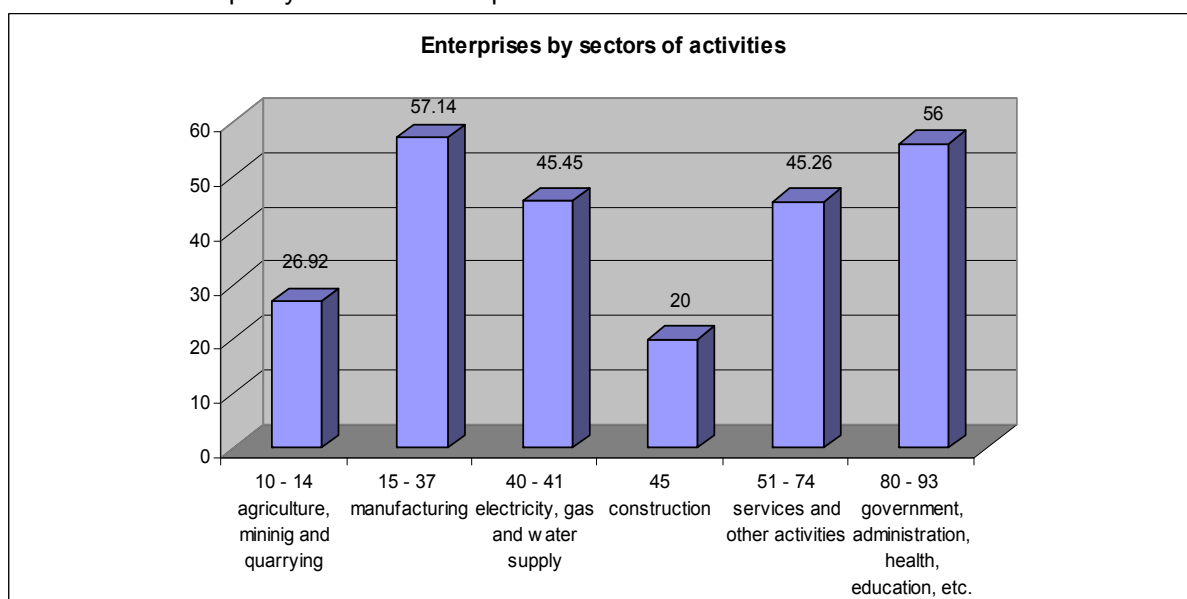
The largest number of enterprises with expressive innovations belongs to the sectors of services (38.45%) and manufacturing (37.44%).

Observing the markets where enterprises sold their products/services, the largest share had the local/regional market of Serbia, i.e. 92.52%, and as the main customers/users for products/services, stated were other enterprises (64.5%).

Of the total income, 6.22% is allotted for innovation purposes, the largest share of which is used for machines and equipment provisions (5.38% total income). This came expected, since in 31.12% enterprises the equipment is more than 10 years old on average.

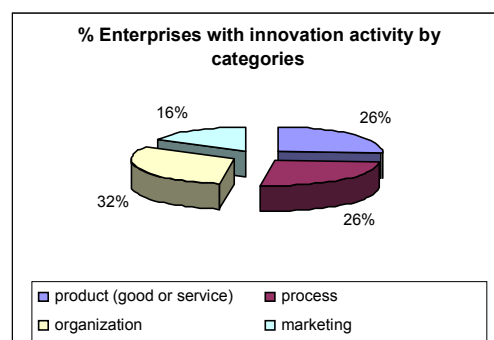
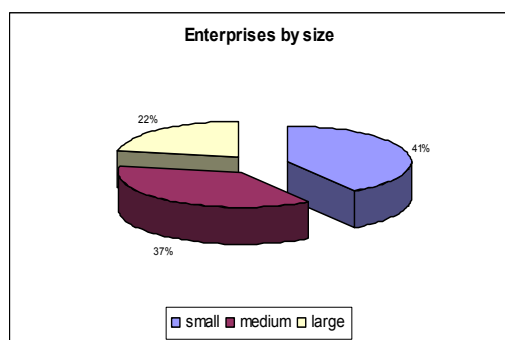
As the most important source of information on required innovations the enterprises stated the information received internally within the enterprise or the group they belonging to (22.9%), and as the most hampering factor for innovations given was the lack of financial support from public funds (34.07% enterprises).

As the major effect of introduced innovations in enterprise organization we could see improved produces and service quality in 28.25% enterprises.



T1. Innovations by sectors of activities, enterprise size and type of innovation

Sectors of activities (NACE 2003), enterprise size	Total number of enterprises %	Enterprises having introduced innovations of:			
		Product/service	Process	Enterprise organization	Marketing
Total	100	47.09	46.81	57.34	28.81
Sectors of activities					
01 – 14 agriculture, mining and quarrying	7.20	26.92	38.46	50	15.38
15 – 37 manufacturing	37.44	57.14	55.64	62.41	39.85
40 – 41 electricity, gas and water supply	3.05	45.45	45.45	72.73	9.09
45 construction	6.93	20.00	28.00	56.00	4.00
51 – 74 services and other business activities	38.45	45.26	44.53	58.39	29.20
80 – 93 government administration, health, education, etc.	6.93	56.00	48.00	36.00	20.00
Enterprise size, number of employees	100				
10 – 49	40.72	31.97	34.01	49.66	23.81
50 – 249	37.12	58.96	56.72	65.67	29.85
250 +	22.16	55.00	53.75	57.50	36.25



T2. General data on enterprises and innovations

	Total %	Small %	Medium %	Large %
Enterprises belonging to enterprise group	30.19	25.17	29.10	41.25
Enterprises belonging to enterprise group with head office abroad	33.94	44.95	30.77	24.24
Enterprises selling goods in local/regional market	92.52	97.28	88.81	90.00
Enterprises selling goods in other EU markets, EFTA, and/or EU-CC countries	30.19	23.81	32.09	38.75
Enterprises selling goods to other countries	26.04	11.56	29.10	47.50

Enterprises by size, share in total income

Total income in 2004 (thousand RSD)	100	6.10	12.96	80.94
Total income in 2005 (thousand RSD)	100	6.78	12.48	80.74
Total income in 2006 (thousand RSD)	100	7.35	14.40	78.25
Total number of employment in 2006	100	2.59	12.53	84.87

Innovations and expenditures, 2006

Enterprises engaged in internal research and development	44.55	23.81	47.76	63.75
Costs of internal R&D in 2006	0.17	0.11	0.33	0.15
Enterprises engaged in external R&D	20.78	10.88	22.39	36.25
Costs of external R&D in 2006	0.03	0.02	0.05	0.03
Enterprises that purchased equipment, hardware and software	41.83	26.53	49.25	57.50
Costs of equipment, hardware and software in 2006	5.38	0.29	2.59	6.37
Enterprises that purchased other external knowledge in 2006	19.39	12.93	20.90	28.75
Costs of external knowledge in 2006	0.03	0.02	0.18	0.015
Enterprises with organized training	38.50	25.17	41.04	58.75
Enterprises engaged in placing innovations to market	30.19	18.37	35.07	43.75

T2. General data on enterprises and innovations (continued)

	Total %	Small %	Medium %	Large %
Enterprises engaged in other activities	18.01	13.61	17.91	26.25
Enterprises engaged in innovation activities	48.75	32.65	56.72	65.00
Total innovation costs	6.22	0.65	4.82	7.01
Enterprises with continual internal R&D	22.99	10.20	26.12	41.25
Enterprises with casual internal R&D	18.56	13.61	21.64	22.50
Share of total innovation costs in total income in 2006	6.22	0.65	4.82	7.01
Share of R&D costs in total income in 2006	0.20	0.13	0.37	0.17
Share of equipment, hardware and software costs in total income in 2006	5.38	0.29	2.59	6.37
Share of external knowledge costs in total income in 2006	0.03	0.02	0.18	0.01

Source of information on innovations, 2006

Within enterprise or enterprise group	22.99	17.01	23.88	32.50
Suppliers of material, equipment, hardware components or software	11.91	9.25	11.94	16.25
Clients or customers	16.62	10.20	20.90	21.25
Competitors or other enterprises of the same section	9.70	8.84	6.72	16.25
Consultants, business research agencies or private institutions engaged in I&R	6.93	4.76	6.72	11.25
University schools and other high-education institutions	5.82	1.36	5.22	15.00
Government or public research institutions	5.54	2.04	5.97	11.25
Conferences, fairs, exhibitions	9.97	6.80	11.94	12.50
Scientific magazines and commercial/technical publications	10.80	7.48	13.43	12.50
Professional and other same activity associations	6.37	2.72	6.72	12.50

Hampering factors to innovations, 2006

Enterprises with discontinued IA in project conception phase	8.86	4.08	11.19	13.75
Enterprises with discontinued IA activities or project initiated	10.53	6.12	12.69	15.00
Enterprises with IA delayed	13.57	7.48	14.93	22.50
High economic risks	18.01	16.33	19.40	18.75
High costs of direct innovations	24.10	17.69	31.34	23.75
High costs of financing innovations	29.36	23.81	33.58	32.50
Availability of funds	26.04	21.09	31.34	26.25
No financial support from public funds	34.07	28.57	40.30	33.75
Unavailable professional staff	9.70	8.16	14.93	3.75
Insufficient technical knowledge	5.54	6.80	4.48	5.00
Insufficient market knowledge	4.43	4.76	3.73	5.00
Insufficient innovation potentials (R&D, design, etc.)	10.25	14.29	8.96	5.00
Difficulties in finding partners for cooperation	9.42	10.20	9.70	7.50
Employees opposed to changes	3.60	3.40	2.99	5.00
Management opposed to changes	3.60	3.40	4.48	2.50
Market dominated by well established enterprises	18.01	19.05	17.91	16.25
Uncertain demands for innovating goods or services	16.34	16.33	15.67	17.50
Lack of infrastructure	12.47	14.97	11.19	10.00
Deficient system of intellectual property protection	13.02	14.977	13.43	8.75
Legislation, standards, taxes	13.02	16.33	10.45	11.25
Observance of government regulations	10.25	11.56	8.96	10.00
Observance of EU regulations	10.53	10.20	8.96	13.75

T2. General data on enterprises and innovations (continued)

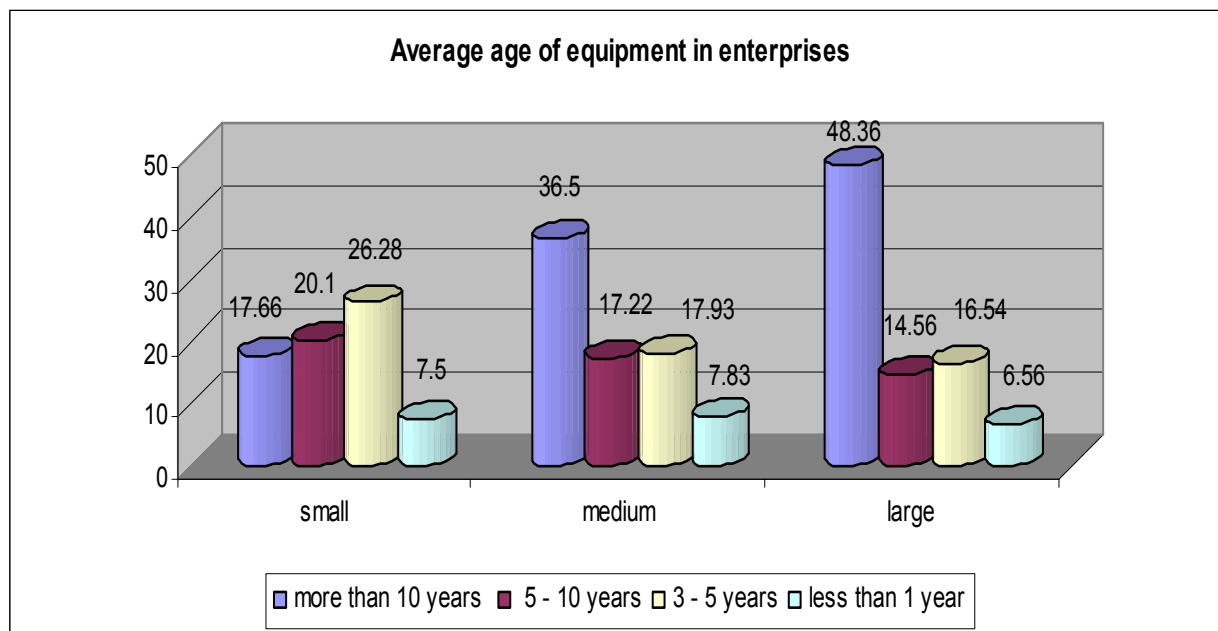
	Total %	Small %	Medium %	Large %
Patents and other protection				
Patents for registration	3.05	2.04	3.73	3.75
Small patents for registration	1.94	0.68	2.24	3.75
Industrial design protection	4.43	2.72	2.99	10.00
Logo protection	11.91	6.12	14.18	18.75
Copyrights protection	7.20	6.80	5.22	11.25

Innovation and improved organization

More prompt answer to customer demands	19.11	17.01	22.39	17.50
Improved quality of products and services	28.25	25.85	29.10	31.25
Reduced costs by product units	11.91	11.56	11.19	13.75
Upgraded satisfaction of employees and/or reduced fluctuation of employees	12.19	15.65	8.96	11.25

Innovation capacities, average equipment age

More than 10 years	31.12	17.66	36.50	48.36
5 – 10 years	17.87	20.10	17.22	14.56
3 – 5 years	21.11	26.28	17.93	16.54
1 – 3 years	22.47	28.46	20.52	13.98
Less than 1 year	7.43	7.50	7.83	6.56



Notes

This is the first survey of innovations in enterprises, carried out as a pilot study with the aim to study realistically the enterprise business policy relative to innovation, primarily considering enterprise being informed on necessity for and effects of innovation, present capacities and hampering factors as well. The compiled data reflect the type, range and quality of innovations in enterprises.

The data are expressed in percent values and they are relative to shares of certain types of activities.

Methodological explanations

The survey was conducted on sample basis. The three enterprise sizes were observed: small (10 – 49 employees), medium (50 – 249 employees) and large (250 and more), however micro enterprises were excluded from observation. The sample comprises various divisions of activities (included were financial sector, university education and research organizations, i.e. institutions).

In preparing the questionnaire we applied EUROSTAT methodology, OECD definitions and methodology and the definitions found in Oslo manual and Frascati manual.

Definitions:

An **innovation** is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations (OECD, Oslo manual, Vol. III, 2005)

Product and service innovation

“A **product innovation** is the introduction of a good or service that is **new** or **significantly** improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics.” (OECD, Oslo manual, Vol. III, 2005).

The innovation (new or improved) must be **new to your enterprise**, but it **does not need to be new to the market**.

Esthetic changes and *exclusively sale* of innovated goods that other enterprise produced and developed **are not considered as innovation**.

“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.” (OECD, Oslo manual, Vol. III, 2005).

The innovation (new or improved) must be **new to your enterprise**, but it does not need to be the first that introduced the process. It does not matter if the innovation was originally developed by your enterprise or by other enterprises. Exclude purely **organizational and managerial** innovations.

“An **organizational innovation** is the implementation of a new organizational method in the firm’s business practices, workplace organization or external relations.” (OECD, Oslo manual, Vol. III, 2005.).

“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.” (OECD, Oslo manual, Vol. III, 2005.).