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INNOVATION IN ENTERPRISES, 2022 – 2024

In the period from 2022 to 2024, slightly more than a quarter (27.7%) of the observed enterprises in the Republic of Croatia were innovative

The presented data are the outcome of the survey on innovation activities in enterprises in the period from 2022 to 2024 carried out on a sample of 4 002 enterprises (4 665 legal units). According to this survey, innovative enterprises are defined as enterprises that introduced a product (goods or services) or a process innovation in the observed period.

The share of innovative enterprises grows with the enterprise size. A total of 24.7% of small enterprises, 36.4% of medium-sized enterprises and 56.6% of large enterprises were innovative. Service enterprises had the largest share in innovation activities, namely 29.9% of them, while 25.4% of industrial enterprises were innovative.

Innovative enterprises generated 56.0% of the total turnover of all observed enterprises in 2024. This trend is also noticeable among persons in employment, as 46.4% of all persons in employment in 2024 were employed in innovative enterprises. Observing the size of innovative enterprises, the largest share in the total turnover of enterprises was generated by large enterprises (76.1%), while the share in the total turnover of medium-sized enterprises was 49.6% and of small enterprises it was 33.4%.

Expenditure on innovation was incurred by 34.6% of enterprises, in which expenditure on research and development activities performed in-house had a share of 14.4%, other innovation expenditure accounted for 14.6%, while expenditure on external research and development services had the lowest share (5.6%).

Enterprises most frequently developed product innovations (11.1%) and process innovations (16.4%) by themselves, while a smaller number of enterprises developed product innovations (6.8%) and process innovations (10.7%) together with other enterprises or institutions. Most enterprises, 22.4% of them, developed innovations in both ways, by themselves and in cooperation with other enterprises or institutions.

There were 41.0% of innovative enterprises that received some kind of public financial support, while 22.3% of them used it either for research and development activities or other innovation activities.

Regarding the cooperation of innovative enterprises on innovation activities with partners according to geographical location, most often they cooperated with partners from Croatia, both inside and outside the business sector of the enterprise. There were 32.4% of innovative enterprises that collaborated on innovation activities with partners from the business sector in Croatia, 20.3% of those that collaborated with partners from the remaining EU or EFTA countries and 6.7% of those that collaborated with partners from all other countries. The cooperation with partners outside the business sector of the enterprise was realised by 15.9% of innovative enterprises in Croatia, 3.9% of them in the remaining EU or EFTA countries and 0.8% of them in other countries.

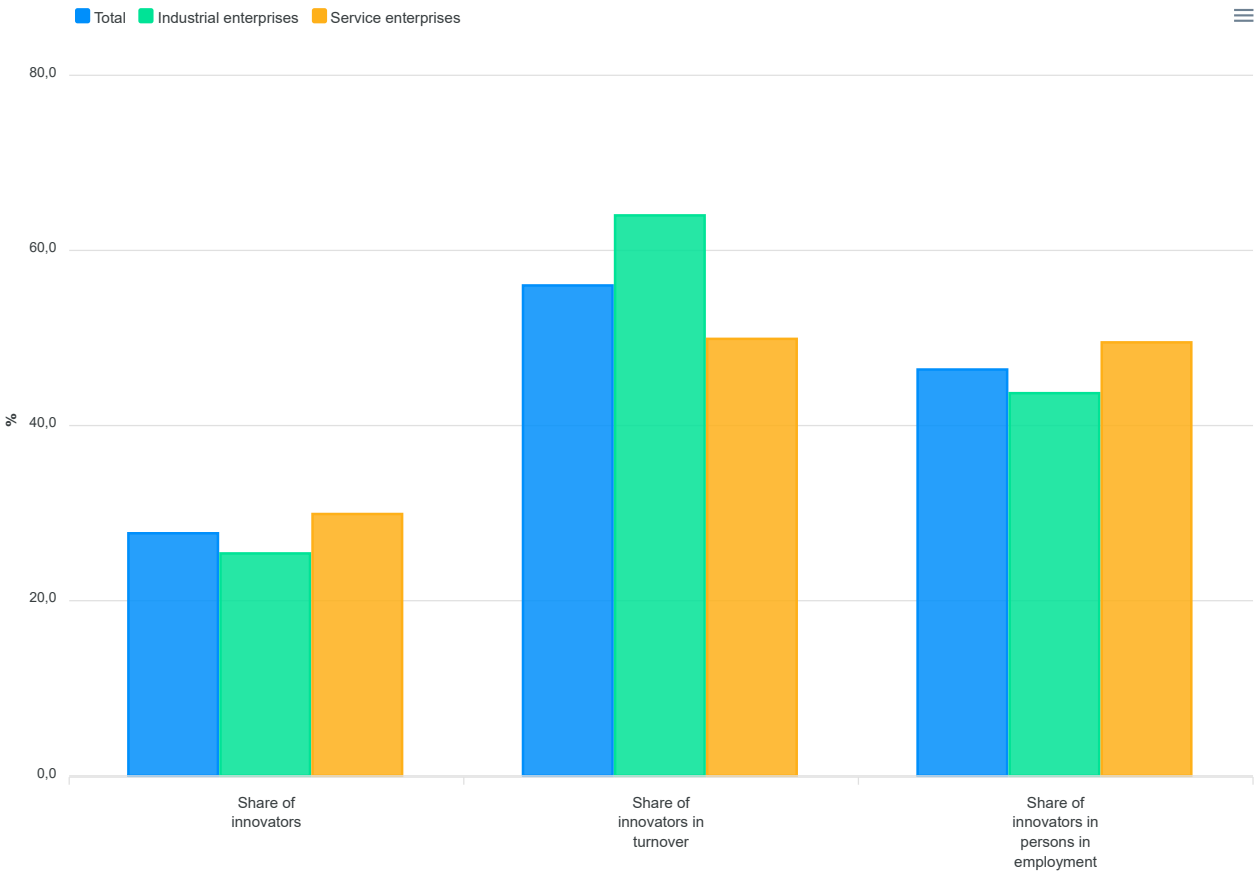
1 ENTERPRISES, BY INNOVATION PERFORMANCE, ACTIVITY AND SIZE, 2022 – 2024[1)]

	Total	Innovators	Non-innovators	Share of innovators, %	Share of innovators in turnover[2)], %	Share of innovators in persons in employment[2)], %
Total	8 418	2 328	6 089	27,7	56,0	46,4
Industrial enterprises	4 187	1 063	3 124	25,4	64,0	43,7
Service enterprises	4 231	1 266	2 965	29,9	49,9	49,5
Small enterprises	6 767	1 674	5 092	24,7	33,4	25,7
Medium-sized enterprises	1 389	505	884	36,4	49,6	38,3
Large enterprises	262	148	114	56,6	76,1	67,1

1) Due to the rounding, the total sum may sometimes differ from the sum obtained by adding up of individual items.

2) Data refers only to 2024.

G-1 SHARE OF INNOVATIVE ENTERPRISES IN TUROVER AND PERSONS IN EMPLOYMENT, BY ACTIVITY, 2022 – 2024



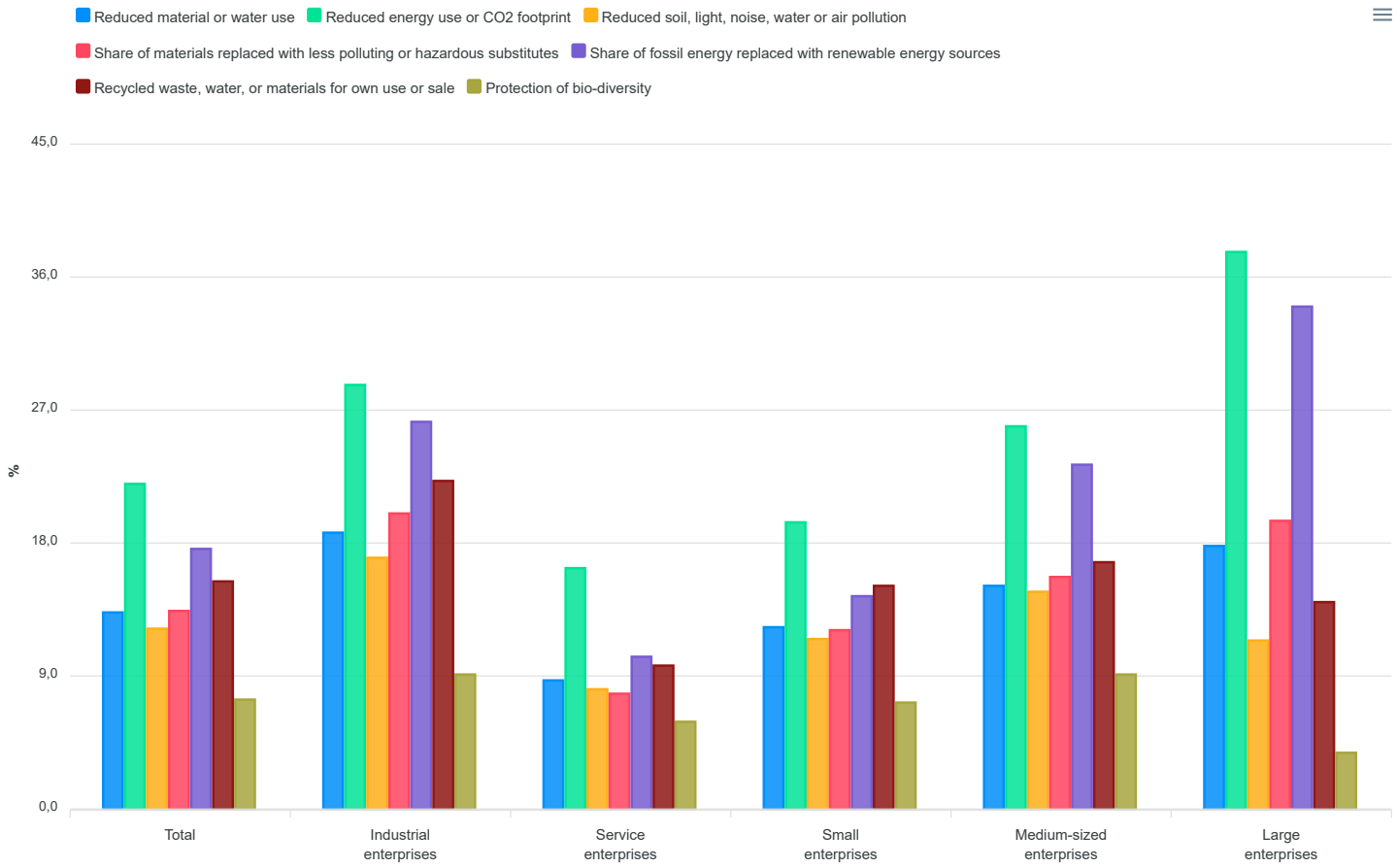
2 ENTERPRISES WITH INNOVATION EXPENDITURE, BY TYPE OF INNOVATION EXPENDITURE, ACTIVITY AND SIZE, 2024[1)]

	Total	Enterprises with innovation expenditure[2)]			
		Total, %	Type of innovation expenditure		
			R&D performed in-house, %	External R&D, %	Other innovation expenditure, %
Total	8 418	34,6	14,4	5,6	14,6
Industrial enterprises	4 187	31,0	12,9	4,5	13,6
Service enterprises	4 231	38,2	15,8	6,7	15,7
Small enterprises	6 767	30,3	12,9	4,6	12,8
Medium-sized enterprises	1 389	46,1	17,7	8,2	20,2
Large enterprises	262	85,6	35,2	16,6	33,8

1) Due to the rounding, the total sum may sometimes differ from the sum obtained by adding up of individual items.

2) Data refers only to 2024.

G-2 INNOVATIVE ENTERPRISES BY ACTIVITY, SIZE AND INNNOVATION WITH SIGNIFICANT ENVIRONMENTAL BENEFIT INTRODUCED WITHIN THE ENTERPRISE, 2022 – 2024



3 DRIVERS OF INNOVATION DEVELOPMENT, BY ENTERPRISE ACTIVITY AND SIZE, 2022 – 2024[1)]

	Total	Product innovation		Process innovation		By itself or together with others, %
		By itself, %	Together with others, %	By itself, %	Together with others, %	
Total	8 418	11,1	6,8	16,4	10,7	24,4
Industrial enterprises	4 187	11,2	6,2	16,0	8,2	22,1
Service enterprises	4 231	11,0	7,4	16,8	13,2	26,7
Small enterprises	6 767	9,5	5,0	14,8	8,6	21,9
Medium-sized enterprises	1 389	15,4	11,2	20,6	16,1	31,5
Large enterprises	262	31,3	29,8	36,8	36,7	52,8

1) Due to the rounding, the total sum may sometimes differ from the sum obtained by adding up of individual items.

4 INNOVATIVE ENTERPRISES THAT RECEIVED ANY PUBLIC FINANCIAL SUPPORT AND USED IT FOR R&D OR OTHER INNOVATION ACTIVITIES, 2022 – 2024[1)]

	Innovative enterprises	Innovative enterprises that received any public financial support , %	Received funds used partially or fully for R&D or other innovation activities, %
Total	2 328	41,0	22,3
Industrial enterprises	1 063	52,3	26,7
Service enterprises	1 266	31,5	18,7
Small enterprises	1 674	37,1	20,5
Medium-sized enterprises	505	50,5	28,0
Large enterprises	148	52,2	23,5

1) Due to the rounding, the total sum may sometimes differ from the sum obtained by adding up of individual items.

5 INNOVATIVE ENTERPRISES THAT COLLABORATED ON OTHER INNOVATION ACTIVITIES WITH OTHER ENTERPRISES OR INSTITUTIONS, BY LOCATION OF COOPERATION PARTNER, 2022 – 2024[1)]

	Innovative enterprises	Cooperation partners from the business sector of the enterprise			Cooperation partners outside the business sector of the enterprise		
		Croatia, %	Remaining EU or EFTA countries, %	Outside EU or EFTA countries, %	Croatia, %	Remaninig EU or EFTA countries, %	Outside EU or EFTA countries, %
Total	2 328	32,4	20,3	6,7	15,9	3,9	0,8
Industrial enterprises	1 063	34,3	20,3	7,4	18,9	4,3	0,7
Service enterprises	1 266	30,8	20,3	6,1	13,4	3,6	0,9
Small enterprises	1 674	25,8	16,3	3,1	10,9	2,7	0,3
Medium-sized enterprises	505	44,9	24,9	12,9	23,5	5,3	1,2
Large enterprises	148	65,0	50,7	25,2	46,4	12,9	4,7

1) Due to the rounding, the total sum may sometimes differ from the sum obtained by adding up of individual items.

NOTES ON METHODOLOGY

Data sources

Data are the outcome of the survey on innovation activities of enterprises in the period from 2022 to 2024 carried out on the sample of 4 002 enterprises (4 665 legal units). The survey was conducted by the Croatian Bureau of Statistics and was completely harmonised with the Community Innovation Survey, which is conducted in the European Union every two years.

Observation units

The main observation/statistical unit is an enterprise in accordance with Council Regulation 696/1993 on statistical units for the observation and analysis of the production system within the Community and according

to Annex II of the Regulation EU 2019/2152 of the European Parliament and the Council of 27 November 2019 on European business statistics and repealing 10 legal acts in the field of business statistics. This wave of the survey is regulated by Commission Implementing Regulation (EU) 2022/1092 of 30 June 2022 laying down technical specifications of data requirements for the topic ''Innovation''.

Coverage and comparability

The basic group for the statistical survey on innovation activities of enterprises in the period from 2022 to 2024 was extracted from the Statistical Business Register of the Croatian Bureau of Statistics (situation as at the end of 2024). Two requests were sent to the Statistical Business Register – one for the extraction of legal units and the other for the extraction of enterprises. One company may consist of one or more legal units. The basic group contains 9 401 enterprises employing 10 or more persons and with a main activity classified among the following:

Division	Description
05 – 09	Mining and quarrying
10 – 33	Manufacturing
35	Electricity, gas, steam and air conditioning supply
36 – 39	Water supply; sewerage, waste management and remediation activities
46	Wholesale trade, except of motor vehicles and motorcycles
49 – 53	Transportation and storage
58 – 63	Information and communication
64 – 66	Financial and insurance activities
71	Architectural and engineering activities; technical testing and analysis
72	Scientific research and development
73	Advertising and marketing research

The stratification of the frame for the selection of the sample was made with regard to the activity of the enterprise and the size of the enterprise (number of persons in employment). With regard to the activity, the enterprises are grouped at the level of the NKD 2007 divisions, while, with regard to the class size, they are divided in the following way:

- small enterprises (10 – 49 persons in employment)

- medium-sized enterprises (50 – 249 persons in employment)

- large enterprises (250 + persons in employment)

The total sample size for the survey on innovation activities of enterprises in the period from 2022 to 2024 is 4 002 enterprises (4 665 legal entities). The sample includes all medium-sized and large enterprises and a stratified random sample of small ones. The minimum sample size in the strata of small enterprises is 10. If there are less than 10 units in the stratum in the population, all are included in the sample. Allocation of the sample by strata is optimal with regard to the variable Promet2024 (enterprise turnover in 2024). In the strata in which optimal allocation would give more units in the sample than in other strata, providing that their significance for the survey on innovation activities of enterprises in the period from 2022 to 2024 is lower, the optimal allocation would also be disrupted. Therefore, these strata are further optimised by reducing the number of units in the sample.

The response rate of enterprises that filled in the questionnaire was 74.3%.

Data for the 2022–2024 period are fully comparable with the results from the previous wave of the survey (2020 – 2022). However, they are not comparable with earlier periods due to two methodological changes that caused breaks in the time series. The first change relates to the introduction of a new statistical standard in the last two waves of the survey (2020 – 2022 and 2022 – 2024), according to which an enterprise is used as the statistical unit of observation instead of a legal unit, which is aligned with Council Regulation 696/93 of 15 March 1993 on the statistical units for the observation and analysis of the production system in the Community, Regulation (EU) 2019/2152 of the European Parliament and of the Council of 27 November 2019 on European business statistics, repealing 10 legal acts in the field of business statistics, and Commission Implementing Regulation (EU) 2022/1092 of 30 June 2022 laying down technical specifications of data requirements for the topic ‘Innovation’ pursuant to Regulation (EU) 2019/2152 of the European Parliament and of the Council. The second change and the earlier break in the time series occurred in the wave of the survey covering the 2016 – 2018

period due to changes in the definition of innovation. Therefore, a direct comparison of the latest results with data from periods prior to 2020 is methodologically not possible.

The statistical classification of activities used in this survey is the National Classification of Activities, 2007 version – NKD 2007.

The following table shows estimates, standard estimation errors, confidence intervals (95%) and variation coefficients for the share of innovative enterprises by size and activity.

	Share of innovative enterprises			
	Estimate	Standard estimation error	Confidence interval	Variation coefficient
Total	27.7%	1.0%	25.6% : 29.7%	3.8%
By size				
Small	24.7%	1.3%	22.2% : 27.3%	5.2%
Medium-sized	36.4%	0.7%	35.0% : 37.8%	2.0%
Large	56.6%	1.7%	53.4% : 59.9%	2.9%
By activity				
Industrial	25.4%	1.0%	23.5% : 29.3%	3.9%
Service	29.9%	1.8%	26.3% : 33.5%	6.2%

Definitions and explanations

Innovative enterprises are all business entities that introduced a new or improved product (goods or services) or business process (or their combination) in the period from 2022 to 2024, which significantly differs from previous products or business processes in the enterprise and was introduced to the market (product) or started to be applied in the enterprise (process). Product innovation must be available to potential customers, but it does not necessarily affect sales. Business process innovation is introduced when an enterprise starts using it continuously in its operations (business activities).

Product innovation is a new or improved good or service introduced to the market, which differs significantly from the enterprise's previous goods or services. Products include tangible objects and digital products, as well as software. Services are intangible activities that are produced and consumed at the same time, e.g. retail, banking services, hotel accommodation, insurance, educational courses, air transport, consulting services, etc. Product innovation **includes** significant changes in the design of a good or service and digital products or services. It **excludes** pure resale of new products and services and aesthetic changes.

Business process innovation is a new or improved business process introduced in an enterprise for one or more business functions, which differs significantly from the enterprise's previous business processes.

Innovation activity includes all development, financial and commercial activities that an enterprise undertakes with the intention of developing or introducing an innovation**.**

Product innovators are enterprises that introduced a product and/or service innovation in the period from 2022 to 2024.

Process innovators are business entities that introduced a business process innovation in the period from 2022 to 2024.

Industrial activities in this survey are as follows: Mining and quarrying (05 – 09), Manufacturing (10 – 33), Electricity, gas, steam and air conditioning supply (35) and Water supply; sewerage, waste management and remediation activities (36 – 39).

Service activities in this survey are as follows: Transportation and storage (49 – 53), Information and communication (58 – 63), Financial and insurance activities (64 – 66), Architectural and engineering activities; technical testing and analysis (71), Scientific research and development (72), and Advertising and marketing research (73).

Small enterprises are enterprises employing 10 to 49 persons.

Medium-sized enterprises are enterprises employing 50 to 249 persons.

Large enterprises are enterprises employing 250 and more persons.

Research and development (R&D) comprise creative and systematic work undertaken in order to increase the stock of knowledge – including the knowledge of humankind, culture and society – and to devise new applications of available knowledge, meeting five criteria: novelty, creativity, uncertainty, systematicity and transferability and/or reproducibility.

In-house R&D includes the R&D activities undertaken by an enterprise to create new knowledge or solve scientific or technical issues (including software development within the enterprise). It also includes current expenditures, labour costs and capital expenditure on buildings and equipment specifically intended for R&D.

External R&D includes the same activities as in the above definition, which are outsourced to other enterprises (including other enterprises within its own enterprise group) or to public or private research institutions.

Other innovation expenditure includes the acquisition of machinery equipment, software, intellectual property rights or buildings for innovation activities other than R&D; the acquisition of external knowledge for innovation activities other than R&D (e.g. patents, licenses, trademarks); product or service design, and the preparation of production/distribution for innovation activities other than R&D; employee training and professional development for innovation activities other than R&D (e.g. employee training or continued education); marketing of innovations (marketing activities directly related to innovations, including market research).

Abbreviations

EEC	European Economic Community
EFTA	European Free Trade Association
EU	European Union
NKD 2007	National Classification of Activities, 2007 version

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