

# UPOTREBA informaciono-komunikacionih tehnologija u Bosni i Hercegovini

*USE OF INFORMATION AND COMMUNICATION  
TECHNOLOGY IN BOSNIA AND HERZEGOVINA*

**2023.**



Bosna i Hercegovina  
Bosnia and Herzegovina



Agencija za statistiku  
Bosne i Hercegovine  
Agency for Statistics of  
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**UPOTREBA INFORMACIONO-  
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U BOSNI I HERCEGOVINI**  
***USE OF INFORMATION AND  
COMMUNICATION TECHNOLOGIES  
IN BOSNIA AND HERZEGOVINA***  
**2023**



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Bosnia and Herzegovina



**Agencija za statistiku  
Bosne i Hercegovine**  
Agency for Statistics of  
Bosnia and Herzegovina

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## UVOD

Razvoj i upotreba informaciono-komunikacionih tehnologija transformisali su savremeno društvo u „informaciono društvo“. Njegova glavna karakteristika je ta što informaciono-komunikacione tehnologije igraju najvažniju ulogu kako u proizvodnji i ekonomiji, tako i u svim ostalim sferama života pojedinca i društva u cjelini.

Agencija za statistiku Bosne i Hercegovine u proteklih pet godina, zajedno sa entitetskim statističkim institucijama, provodi istraživanja o korištenju informaciono-komunikacionih tehnologija. Prvo se odnosilo na domaćinstva i pojedince, a drugo na preduzeća.

Oba ova istraživanja provedena su 2023. godine.

Svrha ovoga istraživanja je prikazati nivo upotrebe interneta i ostalih informaciono-komunikacionih tehnologija, te broj osoba u Bosni i Hercegovini koji su korisnici interneta, i za koje se svrhe upotrebljava internet. Ovi podaci čine važan izvor informacija za provođenje politika u sektoru informacionog društva.

Koncepti i definicije koje se primjenjuju za IKT istraživanja usklađeni su sa Eurostat-ovom metodologijom za statistike o Informacionom društvu, 2023., sa regulativom Evropskog parlamenta i Vijeća br. 2019/1700 o uspostavi zajedničkog okvira za statistike o osobama i domaćinstvima te regulativama 2022/1399 i 2022/2279 o provođenju istraživanja o upotrebi informaciono-komunikacionih tehnologija u domaćinstvu i od strane pojedinaca za referentnu 2023. godinu.

Kada je riječ o domaćinstvima i pojedincima, referentni period činila su tri mjeseca koja su prethodila telefonskom intervjujsanju ili posjeti anketara, dok su se pojedina pitanja odnosila na cijelokupnu 2023. godinu.

Uzorak je dizajniran kao troetapno stratifikovani slučajno izabrani uzorak. Jedinice uzorkovanja prve etape su jedan ili više popisnih krugova. Slučajno izabrana domaćinstva sa bar jednim članom domaćinstva starosti 16-74 godine unutar tih popisnih krugova su jedinice druge etape uzorkovanja, dok su slučajno izabrane osobe unutar tih izabranih domaćinstava jedinice treće etape uzorkovanja.

## INTRODUCTION

*The development and use of information and communication technologies have transformed modern society into an “information society”. Its main characteristic is that information and communication technologies play the most important role in both production and the economy, as well as in all other spheres of life of individuals and society as a whole.*

*In the past five years, the Agency for Statistics of Bosnia and Herzegovina, together with the entity statistical institutions, has been conducting research on the use of information and communication technologies. The first referred to households and individuals, and the second covered companies.*

*Both of these researches were conducted in 2023.*

*The purpose of this survey is to show the level of Internet use and other information and communication technologies, as well as the number of people in Bosnia and Herzegovina who are Internet users and for which the Internet is used. These data constitute an important source of information for the implementation of policies in the information society sector.*

*The concepts and definitions used in ICT surveys are harmonized with the Eurostat Methodology for Information Society Statistics, 2023., with the European Parliament and Council Regulation No. 2019/1700 on establishing a common framework for statistics relating to persons and households and regulations 2022/1399 and 2022/2279 on conducting surveys for usage of ICT in households and by individuals for 2023 reference year.*

*When it comes of households and individuals, the reference period consisted of three months preceding the telephone interviews or interviewers visit, while certain issues were related to the entire 2023.*

*The sample was designed as a three-stage stratified random sample. The sampling units of the first stage are one or more census districts. Randomly selected households with at least one household member aged 16-74 within these census districts are units of the second sampling stage, while randomly selected persons within these selected households are units of the third sampling stage.*

Velična uzorka na nivo Bosne i Hercegovine je 7 990 domaćinstava. Stopa odgovora je 82,1%, odnosno 6 557 domaćinstava (stopa odgovora = broj jedinica koje su odgovorile/sa broj jedinica izabran u uzorak).

Podaci su prikupljeni putem telefonskog anketiranja (CATI).

Anketa za preduzeća provedena je na uzorku stratifikovanom po veličini i djelatnosti. Okvir uzorka je Statistički poslovni registar. Primijenjen je stratifikovani uzorak, veličina uzorka 2 704 preduzeća. Realizovani uzorak 2 234 preduzeća. Stopa odgovora iznosi 82,6%.

Podaci su prikupljeni kombinovanim metodama: putem telefonskog anketiranja (CATI), anketiranje putem pošte.

Zaprovođenje istraživanja o upotrebi informaciono-komunikacionih tehnologija od strane preduzeća i e-trgovina primjenjuje se EU regulativa 2019/2152 za poslovne statistike i regulativa 2022/1344 za referentnu 2023. godinu.

Nadamo se da će ova publikacija pružiti korisnicima dovoljno podataka o trenutnom stanju u oblasti informaciono-komunikacionih tehnologija i da će poslužiti kao dobra osnova za planiranje njenog daljeg razvoja.

*The sample size at the level of Bosnia and Herzegovina is 7 990 households. The response rate is 82.1%, or 6 557 households (response rate = number of units responded/with number of units selected in the sample).*

*Data were collected through telephone interviewing (CATI).*

*The survey of enterprises was conducted on a sample stratified by size and activity. The sample frame is the Statistical Business Register. The stratified sample was applied, a sample size of 2 704 enterprises. The realized sample of 2 234 enterprises. The response rate is 82.6%*

*The data were collected via CATI and survey by mail.*

*EU regulations on business statistics no. 2019/2152 and EU regulation no. 2022/1344 have been applied for conducting survey on usage of ICT and e-commerce in enterprises for 2023 reference year.*

*We hope that this publication will provide users with sufficient data on the current state of information and communication technologies and will serve as a good basis for planning its further development.*

# **DOMAĆINSTVA I POJEDINCI**

## **HOUSEHOLDS AND INDIVIDUALS**



## UZORAK

Istraživanja o upotrebi informaciono-komunikacionih tehnologija u domaćinstvima provedeno je na reprezentativnom uzorku od 7 990 domaćinstva na teritoriji Bosne i Hercegovine. Stopa odgovora iznosi 82,1%, (6 557 domaćinstva).

## SAMPLE

The survey on the use of information and communication technologies in households was conducted on a representative sample of 7 990 households in the territory of Bosnia and Herzegovina. The response rate is 82.1%, (6 557 households).

Uzorak domaćinstva Household sample	Entitet /Entity			Ukupno BiH Total BiH	Tip domaćinstva Type of household		Domaćinstva sa i bez djece Households with and without children	
	Federacija BiH Federation of BiH	Republika Srpska	Distrikt Brčko Brčko District		Gradsko Urban	Ostalo Other	Domaćinstva sa djecom mlađom od 16 godina Households with children under 16 years of age	Domaćinstva bez djece mađe od 16 godina Households without children under 16 years of age
Broj odgovora Number of responses	3 138	2 756	663	6 557	3 232	3 325	1 912	4 645
%	47,9	42,0	10,1	100,0	49,3	50,7	29,2	70,8

Isti uzorak koji je upotrebljen kod domaćinstava iskorišten je i za anketiranje osoba starosti od 16 do 74 godine koji žive na teritoriji Bosne i Hercegovine, uzorak je obuhvatilo 7 990 pojedinaca. Stopa odgovora iznosi 82,1% (6 557 osoba).

The same sample used in households was also used for the survey of persons aged 16 to 74 years living in the territory of the Bosnia and Herzegovina, the sample included 7 990 individuals. The response rate is 82.1% (6 557 persons).

Uzorak osobe Person sample	Spol /Gender		Ukupno BiH Total BiH	Starosna dob /Age					
	Muški Male	Ženski Female		16-24	25 - 34	35 - 44	45 - 54	55 - 64	65 - 74
Broj odgovora Number of responses	3 360	3 197	6 557	354	613	975	1 175	1 566	1 874
%	51,2	48,8	100,0	5,4	9,3	14,9	17,9	23,9	28,6

Uzorak osobe Person sample	Ukupno BiH Total BiH	Obrazovni nivo ispitanika Educational level of respondents				Radni status ispitanika Working status of the respondents			
		Osnovno ili niže srednje obrazovanje Primary or lower secondary education	Srednjoškolsko obrazovanje Secondary education	Više i visoko obrazovanje Tertiary education	Zaposlen Employed	Nezaposlen Unemployed	Student Student	Ostali (penzioneri, neaktivni) Other not in the labour force (retired, inactive)	
Broj odgovora Number of responses	6 557	1 610	4 042	905	2 305	1 472	142	2 638	
%	100,0	24,6	61,6	13,8	32,4	25,6	2,4	39,6	



## GLAVNI INDIKATORI

### Računari u domaćinstvima (Bilo koje vrste: desktop, laptop, netbook, tablet, osim smart phone)

Rezultati istraživanja o upotrebi informaciono-komunikacionih tehnologija u domaćinstvima i pojedinačno (IKT-D) u Bosni i Hercegovini, pokazali su sljedeće:

- 63,5% domaćinstava imaju pristup računaru,
- 36,5% domaćinstava nemaju pristup računaru.

## MAIN INDICATORS

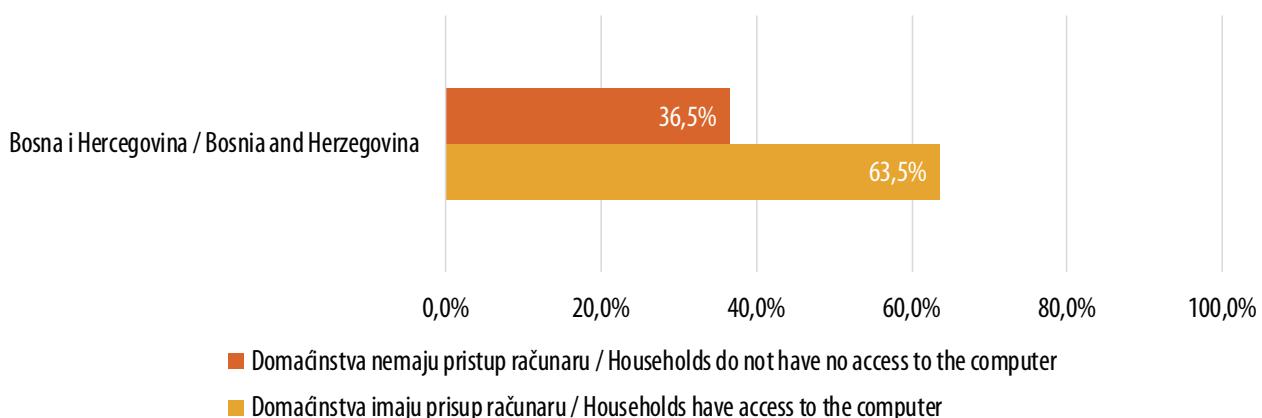
### Computers in households (Any type of: desktop, laptop, netbook, tablet, except smartphone)

The results of the survey on the use of information and communication technologies in households and individually (ICT-HH) in Bosnia and Herzegovina have shown the following:

- 63.5% of households have access to the computer
- 36.5% of households do not have computer access.

Grafikon 1. Procenat domaćinstava koja imaju pristup računaru, BiH

Graph 1 Households access to the computer, BiH

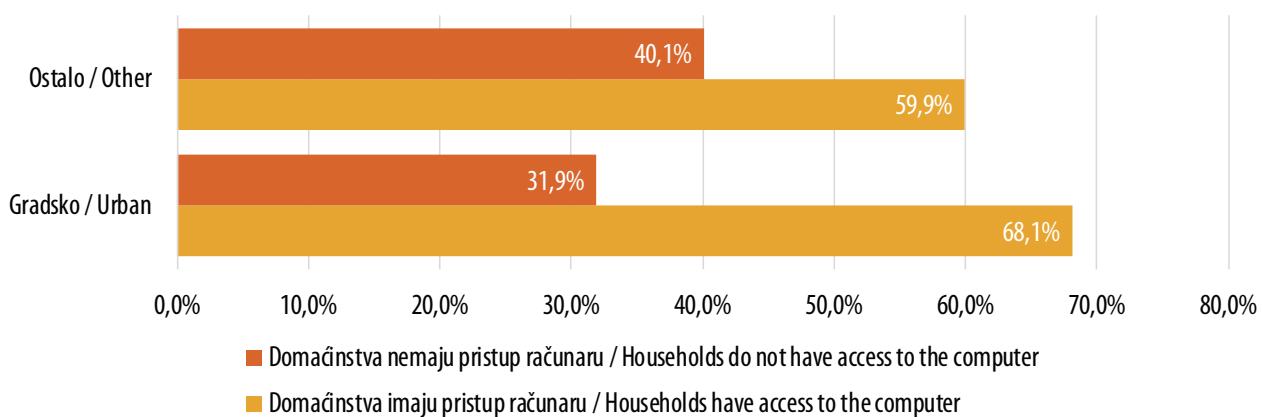


Zastupljenost računara u domaćinstvima varira zavisno o tipu naselja. U urbanim sredinama 68,1% domaćinstava ima pristup računaru u ostalim dijelovima 59,9%.

The representation of computers in households varies depending on the type of settlement. In urban areas 68.1% of households have access to a computer in other parts 59.9%

Grafikon 2. Procenat domaćinstava koja imaju pristup računaru, prema tipu naselja, BiH

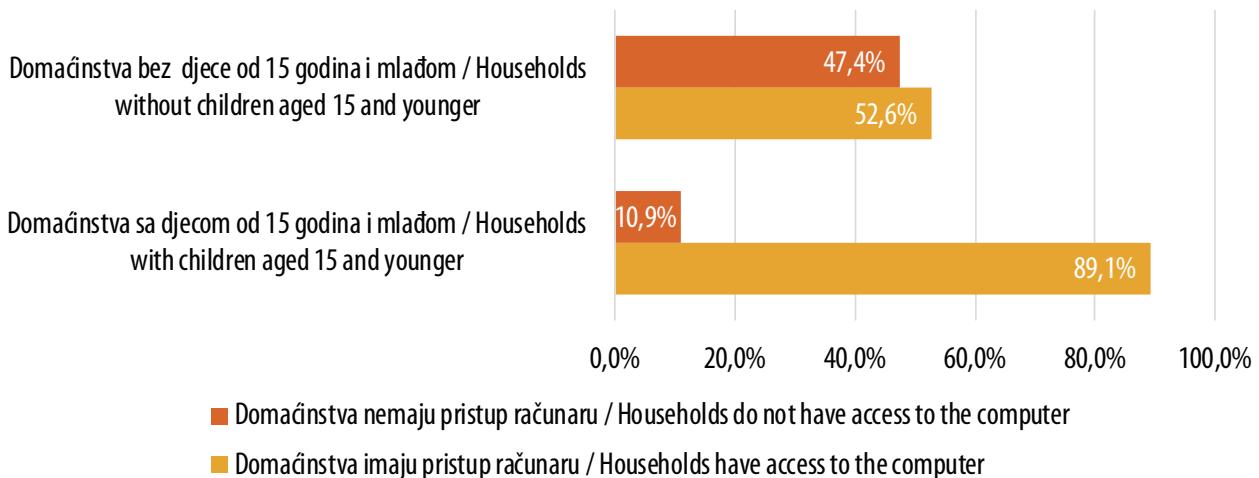
Graph 2 Percentage of households which have access to the computer, by the type of settlement, BiH



Značajne razlike se mogu primijetiti kada se upoređuju pristup računaru u domaćinstvima sa djecom mlađom od 16 godina (89,1%) i domaćinstvima bez djece mlađe od 16 godina (52,6%).

Significant differences can be observed when comparing computer access in households with children under 16 (89.1%) and households without children under 16 (52.6%).

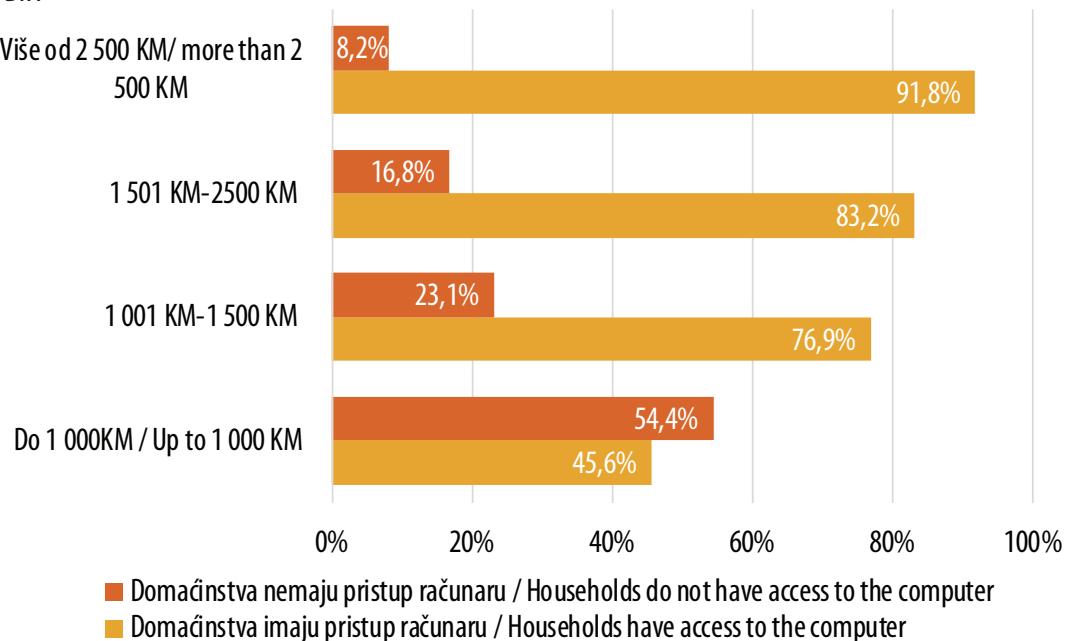
Grafikon 3. Procenat domaćinstava koja imaju pristup računaru, sa djecom od 15 godina i mlađom, BiH  
 Graph 3 Percentage of households which have access to the computer, with children aged 15 and younger, BiH



Jaz u pristupu domaćinstava računaru vidljiv je u strukturi domaćinstava po mjesecnom dohotku. Pristup računaru većinom imaju domaćinstava sa mjesecnim primanjima većim od 1 500 KM (83,2%), odnosno prihodima većim od 2 500 KM (91,8%), dok udio domaćinstava sa primanjima do 1 000 KM iznosi svega 45,6%.

The gap in household access to computers is visible in the structure of households by monthly income. Access to computer mostly have households with monthly income of over 1 500 KM (83.2%) and revenue of more than 2 500 KM (91.8%), while the share of households with income up to 1 000 KM is only 45.6%.

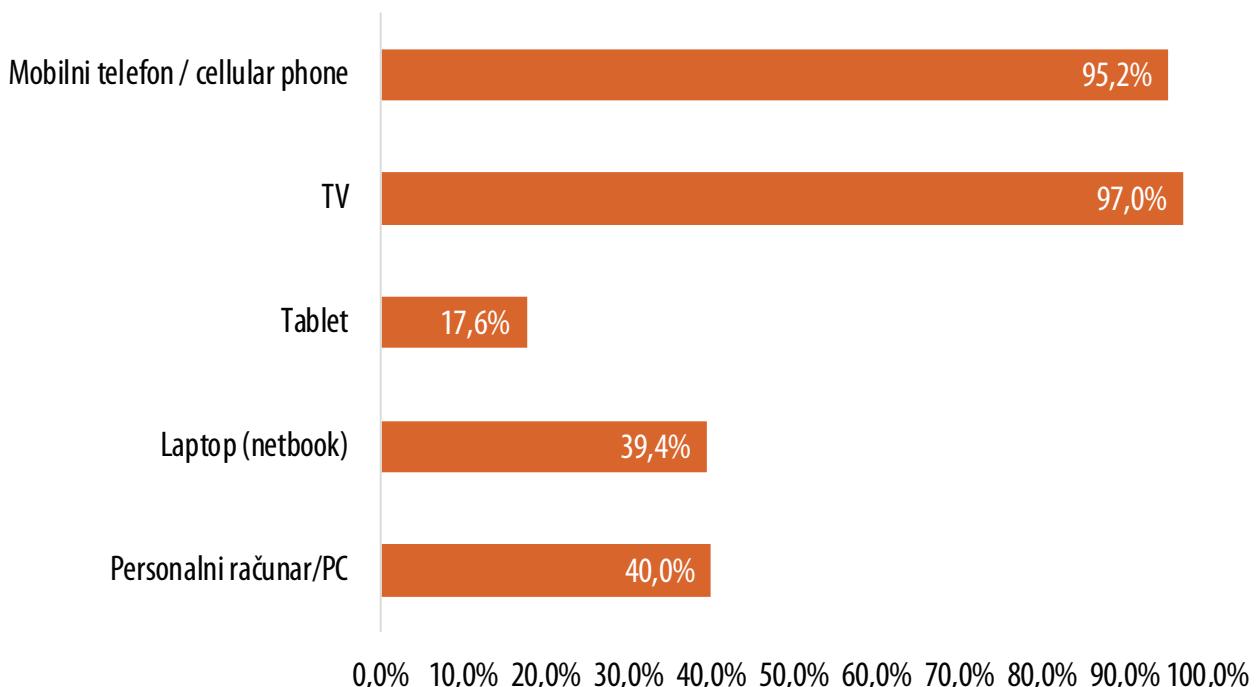
Grafikon 4. Procenat domaćinstava koja imaju pristup računaru, prema mjesecnim neto prihodima domaćinstva, BiH  
 Graph 4 Percentage of households which have access to the computer, according to monthly net income of the household, BiH



Na pitanje koje se odnosi na uređaje kojima domaćinstvo ima pristup, ispitanici su mogli da daju više odgovora. Istraživanje pokazuje da 97% domaćinstva posjeduje TV, a 95,2% domaćinstava posjeduje mobilni telefon.

*On the question relating to devices which household has access, respondents could give more than one answer. The survey shows that 97% of households own a TV and 95.2% of households own a mobile phone.*

Grafikon 5. Uređaji koji su zastupljeni u domaćinstvima (%), Bosna i Hercegovina  
Graph 5 Devices that are in households (%), Bosnia and Herzegovina



## Internet u domaćinstvima

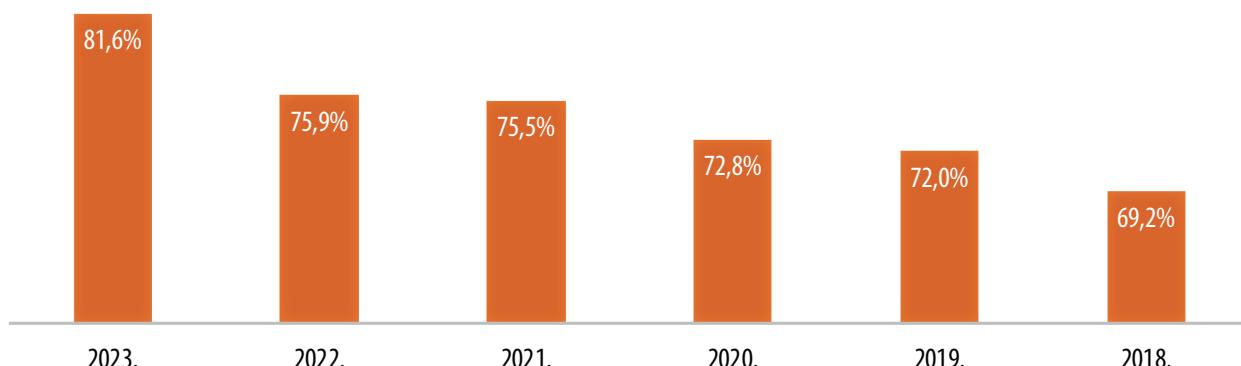
Rezultati istraživanja o upotrebi informaciono-komunikacionih tehnologija u domaćinstvima i pojedinačno (IKT-D) u Bosni i Hercegovine, pokazali su sljedeće:

- domaćinstava imaju pristup internetu: 81,6%,
- domaćinstava nemaju pristup internetu: 18,3%,
- domaćinstavo ne zna da li ima pristup internetu: 0,1%.

**U Bosni i Hercegovini 81,6% domaćinstava ima pristup internetu, što je povećanje od 5,7 procenualnih poena u odnosu na 2022. godinu.**

Grafikon 6. Procenat domaćinstava koja poseduju internet priključak, Bosna i Hercegovina

Graph 6 Percentage of households that own internet connection, Bosnia and Herzegovina



Rezultati istraživanja su pokazali da 96,6% domaćinstava koja imaju djecu ispod 16 godina imaju pristup internetu.

Rezultati istraživanja su pokazali da 75,3% domaćinstava koja nemaju djecu ispod 16 godina, imaju pristup internetu.

## Internet in households

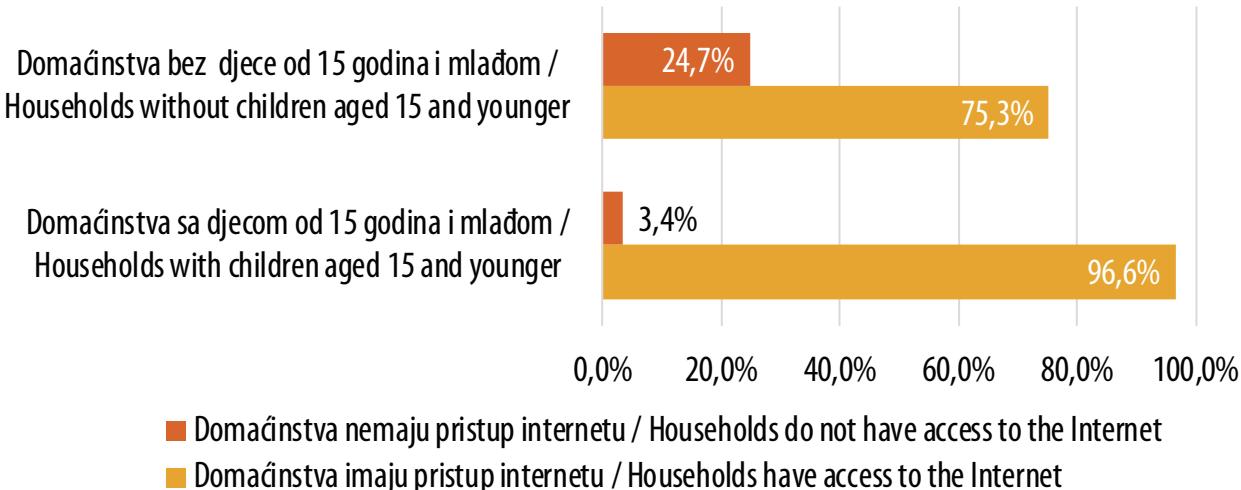
The results of the survey on the use of information and communication technologies in households and individually (ICT-HH) in Bosnia and Herzegovina have shown the following:

- households have access to the Internet: 81.6%
- households do not have Internet access: 18.3%
- households do not know whether it has access to the Internet: 0.1%

**In Bosnia and Herzegovina, 81.6% of households have internet access, an increase of 5.7 percentage points compared to 2022.**

Grafikon 7. Procenat domaćinstava koja imaju pristup internetu, sa djecom od 15 godina i mlađom, BiH

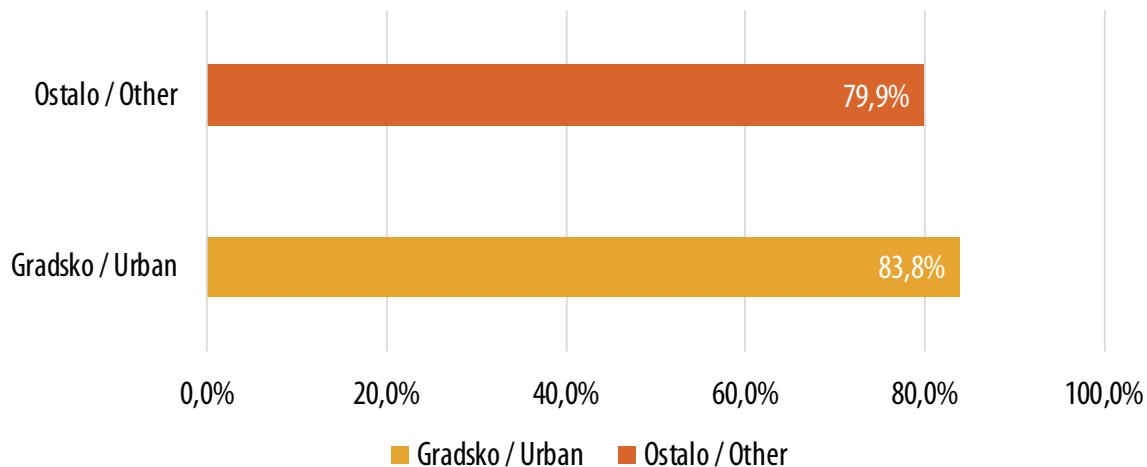
Graph 7 Percentage of households which have access to the Internet, with children aged 15 and younger, BiH



Internet priključak u domaćinstvima varira zavisno o tipu naselja. U gradskim sredinama 83,8% domaćinstava ima internet priključak u ostalim sredinama 79,9%.

*Internet connection in households varies depending on the type of settlement. In urban areas 83.8% of households have internet connection in other areas 79.9%*

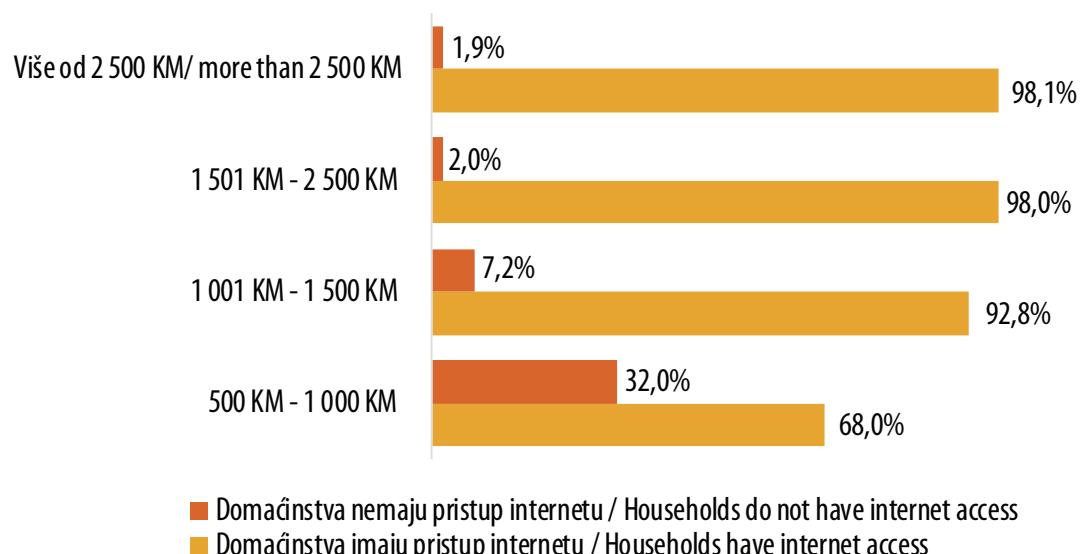
Grafikon 8. Procenat domaćinstava koja poseduju internet priključak u 2023., prema tipu naselja  
*Graph 8 Percentage of households that own internet connection in 2023, by the type of settlement*



Jaz u pristupu domaćinstava internetu vidljiv je u strukturi domaćinstava po mjesecnom dohotku. Pristup internetu većinom imaju domaćinstva sa mjesecnim primanjima većim od 1 000 KM (92,8%), 1 500 KM (98%), odnosno prihodima većim od 2 500 KM (98,1%), dok udio domaćinstava sa primanjima do 1 000 KM iznosi 68%.

*The gap in household access to internet is visible in the structure of households by monthly income. Access to computer mostly have households with monthly income of over 1 000 KM (92.8%), 1 500 KM (98%) and revenue of more than 2 500 KM (98.1%), while the share of households with income up to 1 000 KM is 68%.*

Grafikon 9. Procenat domaćinstava koja imaju pristup internetu, prema mjesecnim neto prihodima domaćinstva, BiH 2023. / Graph 9 Percentage of households which have internet connection, according to monthly net income of the household, BiH 2023



## Pojedinci: upotreba interneta

U Bosni i Hercegovini je 83,4% osoba koristilo internet u posljednja tri mjeseca, 0,6% ispitanika koristilo je internet prije više od tri mjeseca, a 1,7% prije više od godinu dana. Ispitanici koji nikad nisu koristili internet je 14,3%.

Udio korisnika interneta (u posljednja tri mjeseca), prema nivou obrazovanja:

- osobe s višim i visokim obrazovanjem: 98,3%,
- osobe sa srednjim obrazovanjem: 88,6%,
- osobe sa osnovnim ili niže srednjim obrazovanjem: 60,3%.

Udio korisnika interneta (u posljednja tri mjeseca), prema spolu:

- Muškarci: 83,7%,
- Žene: 83%.

## Individuals: us of the Internet

In Bosnia-Herzegovina, 83.4% of persons used the Internet during the last three months, 0.6% of respondents used the internet more than three months ago, and 1.7% more than a year ago. 14.3% of respondents never used the Internet.

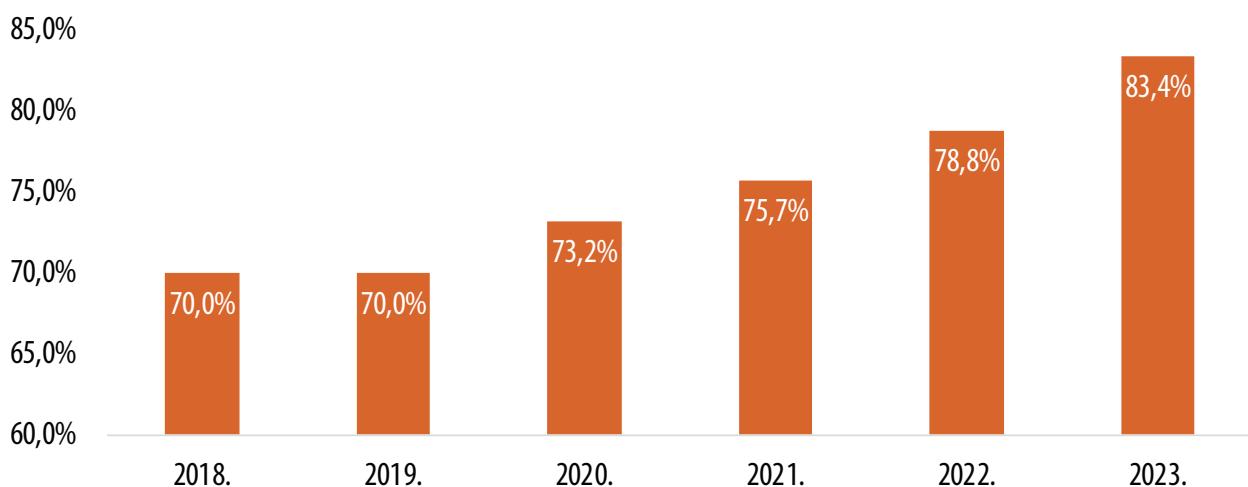
Share of Internet users (in the last three months), by educational attainment level:

- persons with higher education: 98.3%
- persons with secondary education: 88.6%
- persons with primary or lower secondary education: 60.3%

Share of Internet users (in the last three months), by gender:

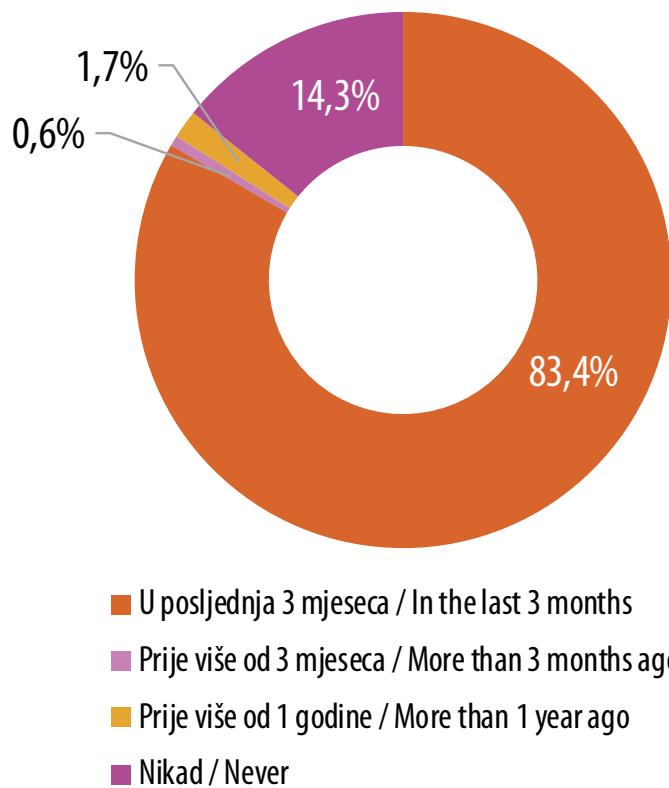
- Males: 83.7%
- Females: 83%

Grafikon 10. Osobe koje su koristile internet u posljednja 3 mjeseca  
Graph 10 Persons who used the Internet in the last 3 months



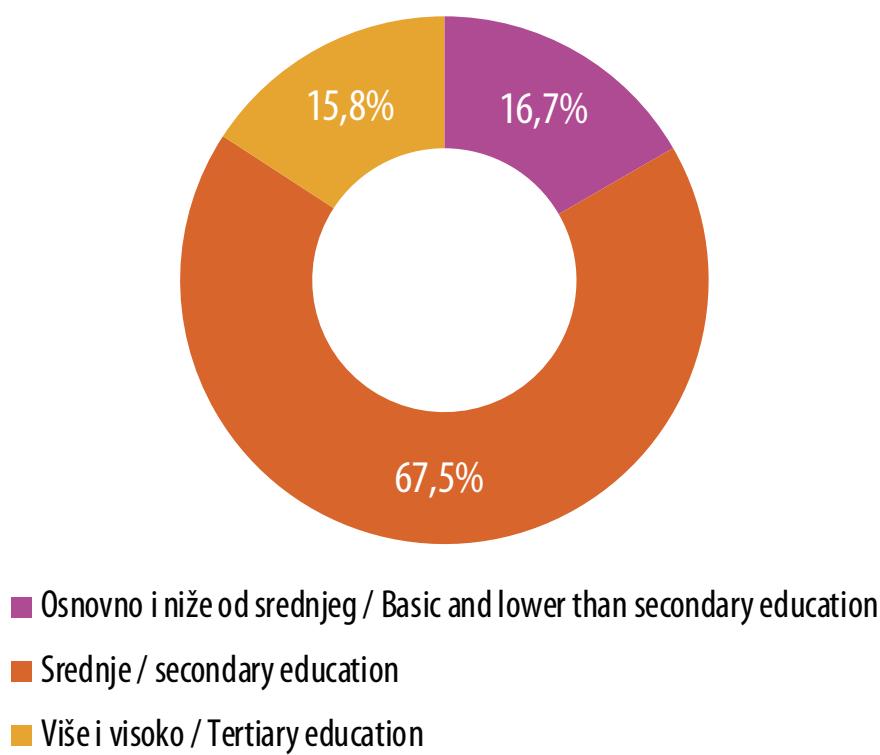
Grafikon 11. Osobe koje su koristile internet, 2023.

Graph 11 Persons who used the Internet, 2023

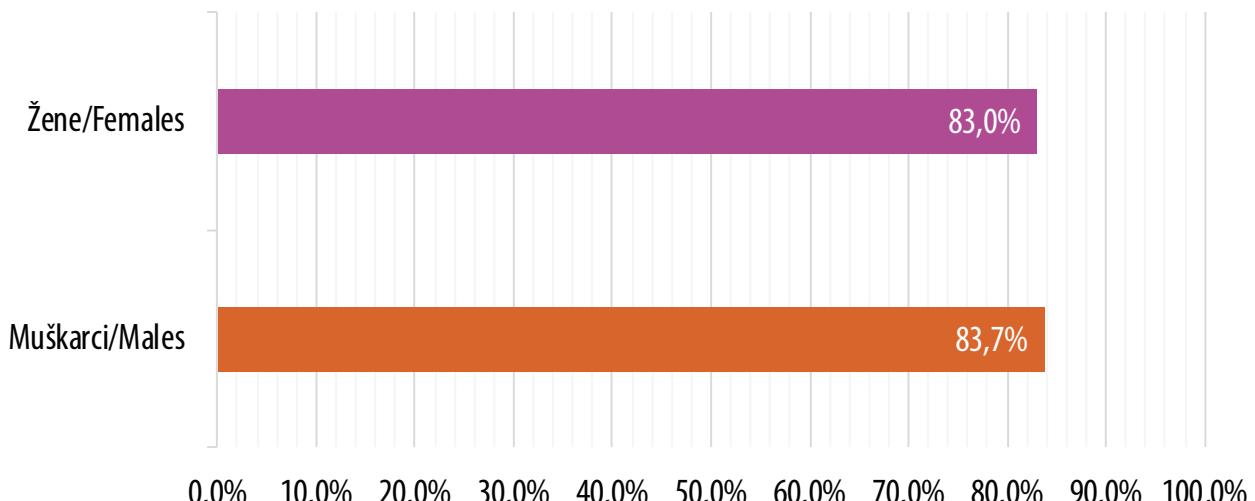


Grafikon 12. Struktura obrazovanja korisnika interneta, 2023.

Graph 12 Structure of education of Internet users, 2023



Grafikon 13. Udio korisnika interneta (u posljednja tri mjeseca), prema spolu 2023.  
*Graph 13 The share of Internet users (in the last three months), by gender 2023*



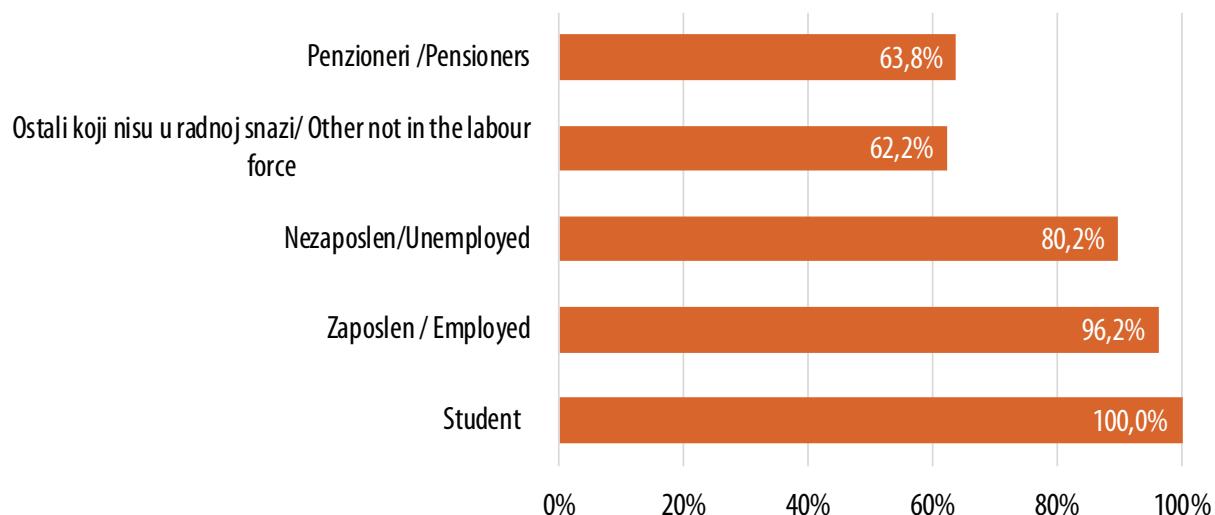
Procenat korisnika interneta u zadnja tri mjeseca, prema radnom statusu:

- 96,2% zaposlenih osoba;
- 89,7% nezaposlenih osoba;
- 100,0% studenata;
- 63,8% penzioneri;
- 62,2% ostali (domaćica, neaktivno stanovništvo i sl)

*The share of Internet users is three months, by to the working status:*

- 96.2% of employed persons;
- 89.7% of unemployed persons;
- 100.0% of students;
- 63.8% of pensioners
- 62.2% of others (*Fulfilling domestic tasks, inactive population, etc.*)

Grafikon 14. Udio korisnika interneta (u posljednja tri mjeseca), prema radnom statusu, Bosna i Hercegovina  
*Graph 14 The share of Internet users (in the last three months), by to employment situation, Bosnia and Herzegovina*



Na pitanje koliko su često, u prosjeku, koristili internet tokom posljedna tri mjeseca, 85,7% ispitanika odgovorilo je: više puta u toku dana.

**Više od 1 380 000 osoba koristi internet više puta u toku dana.**

Rezultati istraživanja pokazali su sljedeće:

- Internet korisnici starosne dobi od 16 do 24 godine, 97,7% ispitanika koristi internet više puta u toku dana;
- Internet korisnici starosne dobi od 25 do 54 godine, 94,8% ispitanika koristi internet više puta u toku dana;
- Internet korisnici starosne dobi od 35 do 44 godine, 92,9% ispitanika koristi internet više puta u toku dana.

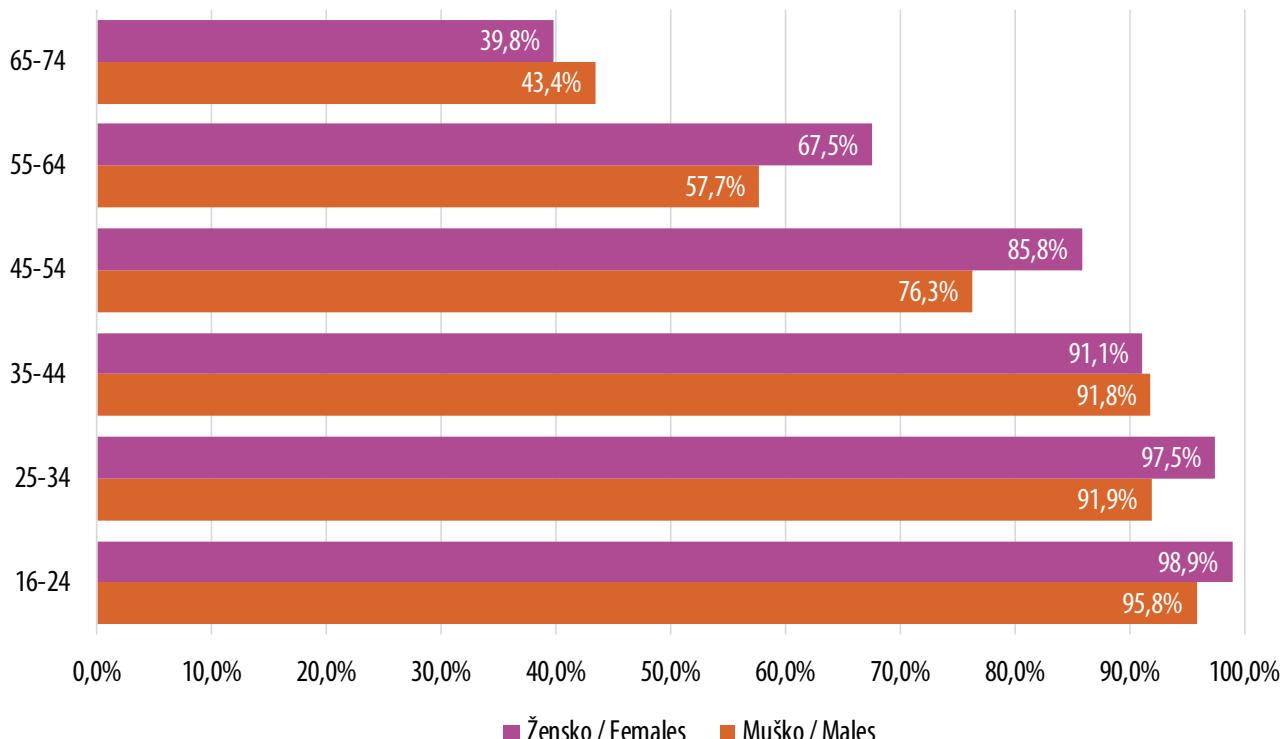
*When asked how often they used the Internet for the last three months on average, 85.7% respondents answered: multiple times during the day.*

***More than 1 380 000 people use the Internet multiple times during the day.***

*The results of the survey showed the following:*

- *Internet users aged 16-24, 97.7% of respondents use the Internet multiple times during the day;*
- *Internet users aged 25-54, 94.8% of respondents use the Internet multiple times during the day;*
- *Internet users aged 35-44, 92.9% of respondents use the Internet multiple times during the day.*

Grafikon 15. Korištenje interneta (više puta u toku dana), prema spolu i starosti, Bosna i Hercegovina, 2023.<sup>1</sup>  
Graph 15 Internet usage (multiple times during the day), by gender and age, Bosnia and Herzegovina, 2023<sup>1</sup>



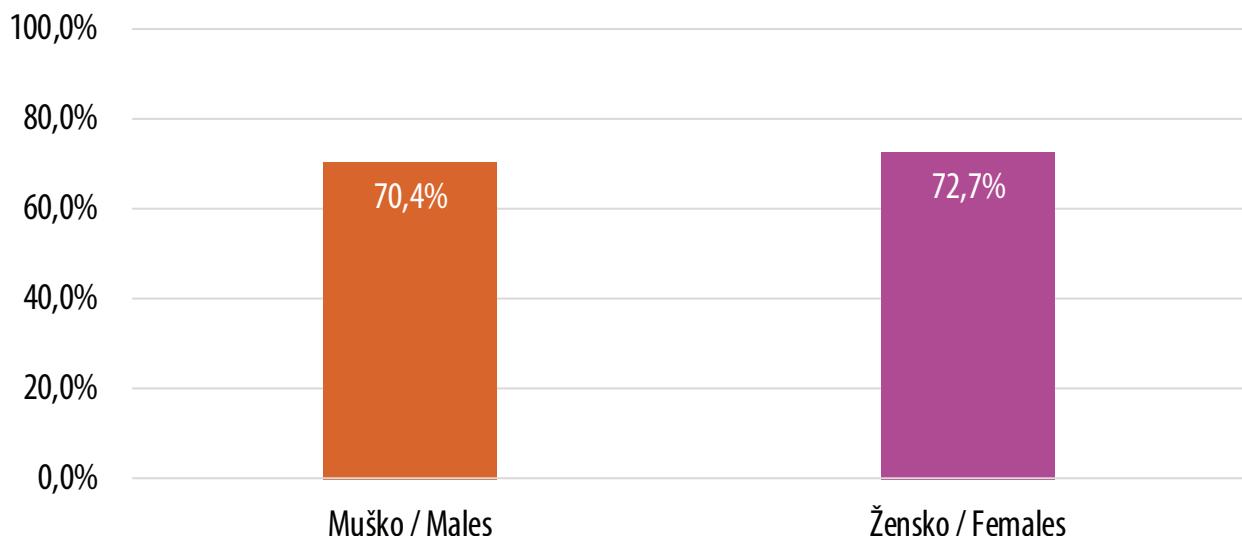
<sup>1</sup> Podaci se odnose na ukupnu populaciju.

<sup>1</sup> Data refer to the total population.

Analiza ispitanika prema spolu pokazuje da internet koristi više puta u toku dana 70,4% osoba muškog spola, a 72,7% osoba ženskog spola koristilo internet više puta u toku dana.

An analysis of respondents by gender shows that Internet usage multiple times during the day, 70.4.% of males and 72.7% females used the Internet multiple times during the day.

Grafikon 16. Udio korisnika interneta (više puta u toku dana) prema spolu, Bosna i Hercegovina, 2023.<sup>2</sup>  
Graph 16 The share of Internet users (multiple times during the day) by gender, Bosnia and Herzegovina, 2023<sup>2</sup>



Ispitanici koji su koristili internet tokom posljednja tri mjeseca, internet su u velikoj mjeri koristili za telefoniranje preko interneta, video pozivi (94,4%), slanje online poruka preko Skypa, Messenger, WhatsAppa, Vibera, itd. (83,1%), čitanje online novina, časopisa (80,9%), učešće na društvenim mrežama, kao što su Facebook i Twitter (69,3%).

Pretraživanje informacija o zdravlju (npr. rane, bolesti, ishrana, poboljšanje zdravlja i sl.)(57%), pronalaženje informacija o proizvodima i uslugama (70,3%), značajan broj ispitanika koristili su internet za slanje / primanje elektronske pošte (e-mail) (54,4%).

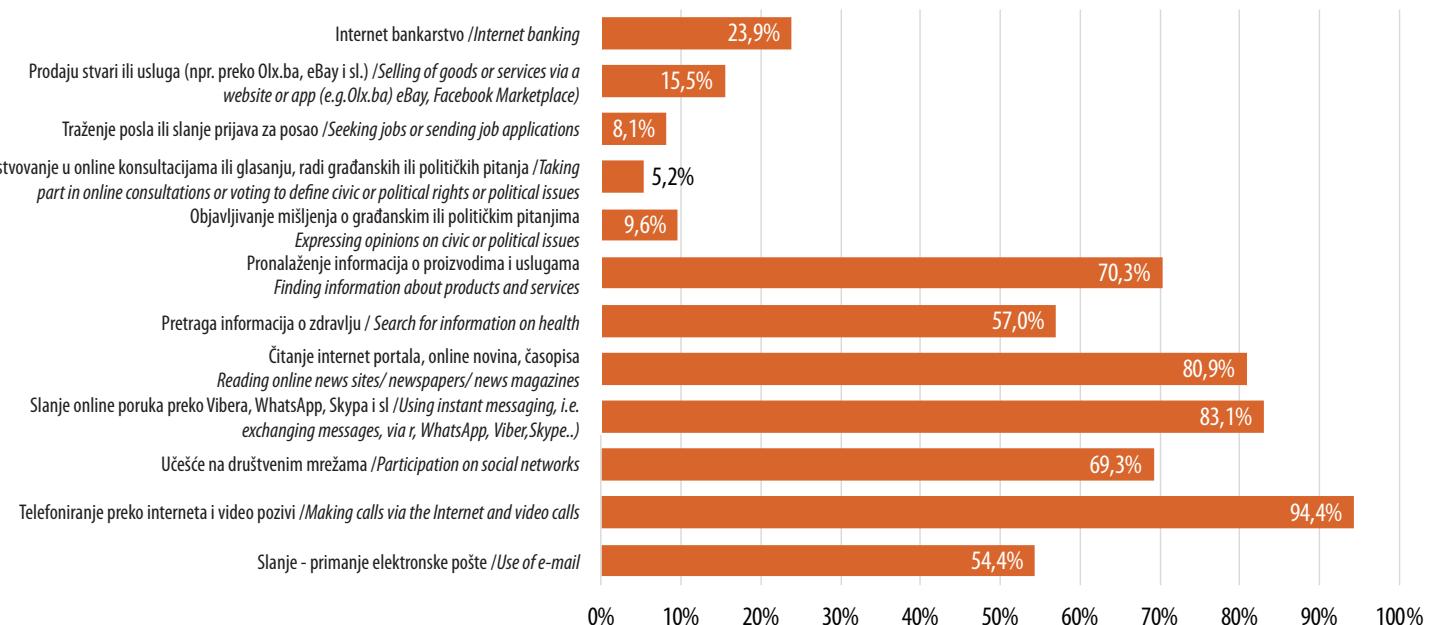
During the last three months, respondents have largely used the Internet for phone calls over the Internet and video calls (94.4%), using instant messaging, i.e. exchanging messages, for example, via Skype, Messenger, WhatsApp, Viber (83.1%), reading online news sites / newspapers / news magazines (80.9%), participating in social networks like Facebook and Twitter (69.3%),

Seeking health-related information (e.g. injuries, diseases, nutrition, improving health, etc.)(57%), finding information about products and services (70.3%), a significant number of respondents used the Internet to Sending / receiving e-mails (54.4%).

<sup>2</sup> Podaci se odnose na ukupnu populaciju.

<sup>2</sup> Data refer to the total population.

Grafikon 17. Tipovi korištenja interneta (u privatne svrhe) u posljednja tri mjeseca u procentima, Bosni i Hercegovini, 2023.<sup>3</sup> /Activities of internet use (for private use) in the last three months, in percentages, Bosnia and Herzegovina 2023<sup>3</sup>



<sup>3</sup> Podaci se odnese na osobe koje koriste internet u posljednja 3 mjeseca.

<sup>3</sup> The data refers to persons who use the Internet in the last 3 months.

Internet populacija od 65 do 74 godine najčešće je koristila internet za telefoniranje preko interneta i video poziva i to sa 81,9 %.

Internet populacija od 16 do 24 godine također je najčešće koristila internet za telefoniranje preko interneta i video poziva (98,6%) te za učešće na društvenim mrežama (95,5%).

Slanje online poruka preko Skypa, Messenger, WhatsAppa, Vibera i sl. najviše je koristila internet populacija od 35 do 44 godine 93,4%.

Usluge internet bankarstva najviše koristi populacija od 25 do 34 godine i on iznosi 42,2%.

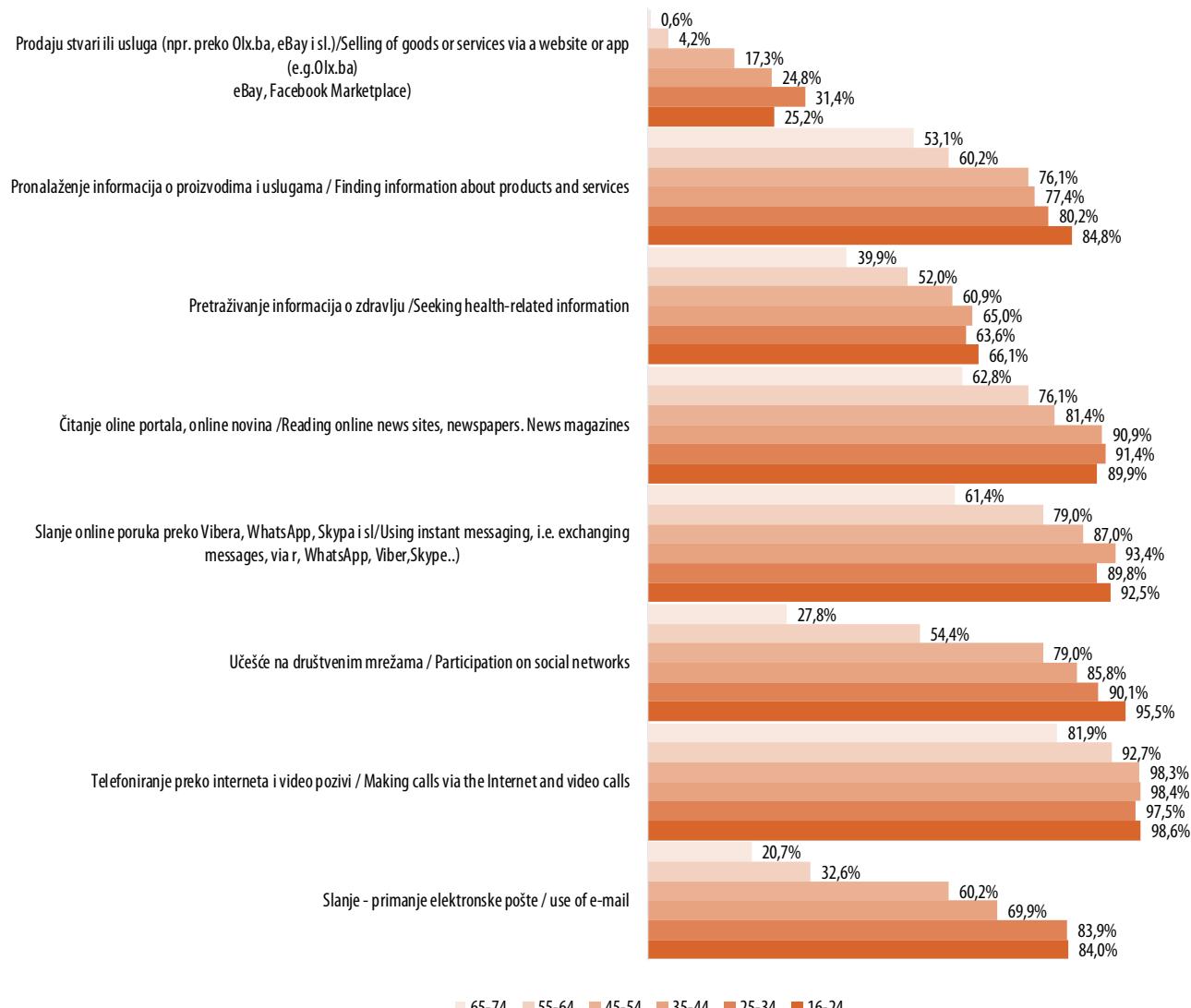
The Internet population of 65 to 74 years is the most common use of the Internet for making calls and internet video calls with 81.9%

Internet population aged 16 to 24, most often used the Internet for making calls and internet video calls with 98.6%, followed by participation in social networks (95.5%).

Using instant messaging, i.e. exchanging messages, for example, via Skype, Messenger, WhatsApp, Viber was most used by the Internet population of 35 to 44 years, 93.4%

Internet banking services are mostly used by the population of 25 - 34 and it is 42.2%.

**Grafikon 18. Najčešći tipovi korištenja interneta (u privatne svrhe) u posljednja tri mjeseca u procentima, po starosnoj dobi<sup>4</sup> /Graph 18 The most common types of internet use (for private use) in the last three months, in percentages, by age<sup>4</sup>**



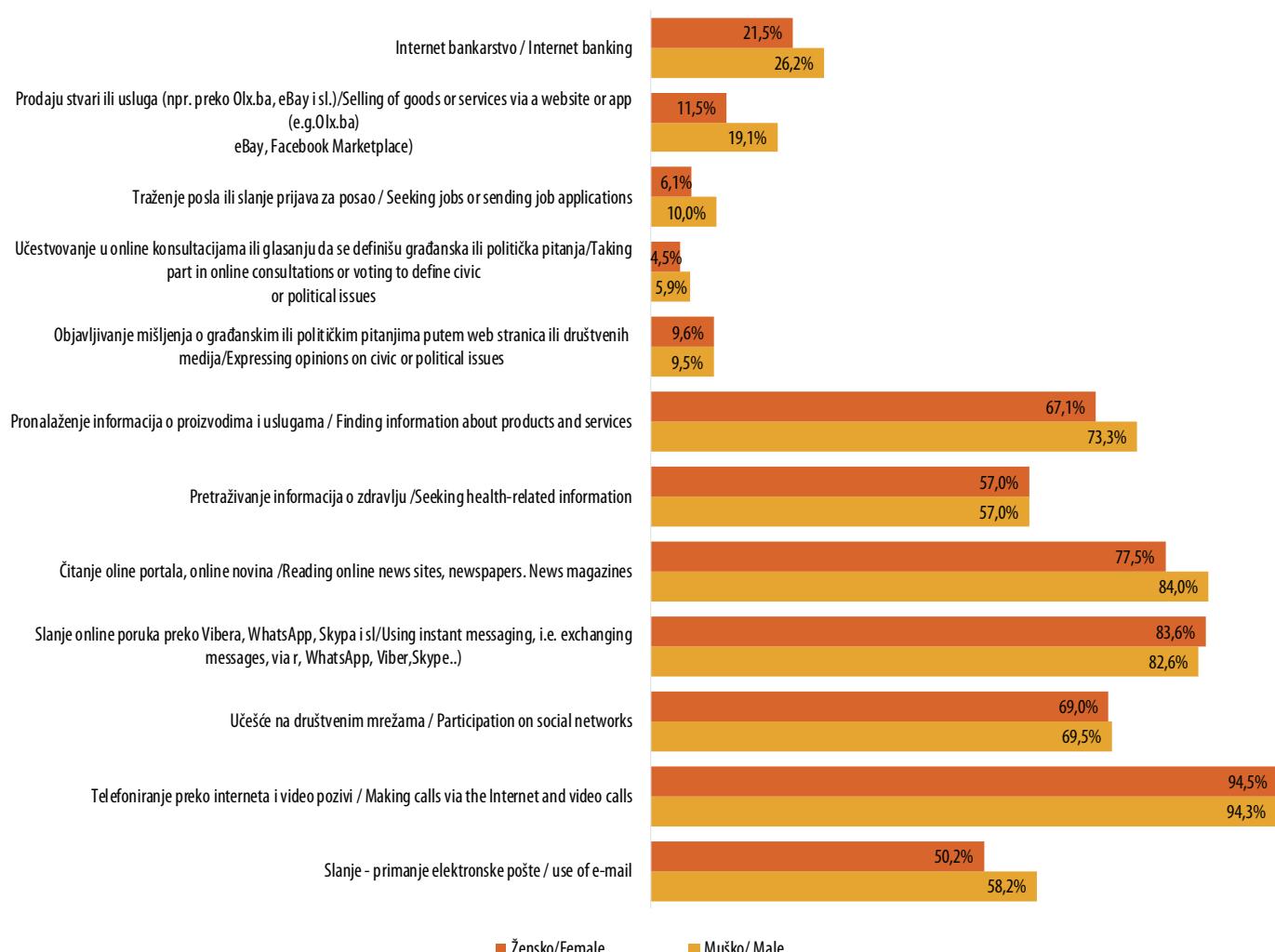
<sup>4</sup> Podaci se odnose na osobe koje koriste internet u posljednja 3 mjeseca.

<sup>4</sup> The data refers to persons who use the Internet in the last 3 months.

Analiza ispitanika prema spolu pokazalo da je 94,3% osoba muškog spola, a 94,5% ženskog spola internet populacije je koristilo internet za telefoniranje preko interneta i video pozive, dok je 82,6% ispitanika muškog spola a 83,6% ženskog spola koristili internet za slanje online poruka preko Skypa, Messenger, WhatsAppa, Vibera, itd.

The analysis of respondents by gender showed that 94.3% of males and 94.5% of females of the Internet population making calls (including video calls) over the internet, while 82.6% of male respondents and 83.6% of females for Using instant messaging, i.e. exchanging messages, for example, via Skype, Messenger, WhatsApp, Viber.

**Grafikon 19. Najčešći tipovi korištenja interneta (u privatne svrhe) u posljednja tri mjeseca, po spolu<sup>5</sup>**  
*Graph 19 The most common types of internet use (for private use) in the last three months, by gender<sup>5</sup>*



<sup>5</sup> Podaci se odnose na osobe koje koriste internet u posljednja 3 mjeseca.

<sup>5</sup> The data refers to persons who use the Internet in the last 3 months.

## Javna uprava

Istraživanje pokazuje da 27,2% ispitanika koji su koristili internet u privatne svrhe, u posljednjih 12 mjeseci, koristili su elektronske servise javne uprave (e-government).

Istraživanje je pokazalo i da je 14,8% internet populacije koristilo internet za dobijanje informacija sa web stranica javnih institucija, 11,9% internet populacije je koristilo internet za pristup ličnim informacijama (npr. podaci o vakcinaciji) dok je 10,5% internet populacije koristilo internet za dobijanje informacija iz javnih baza podataka.

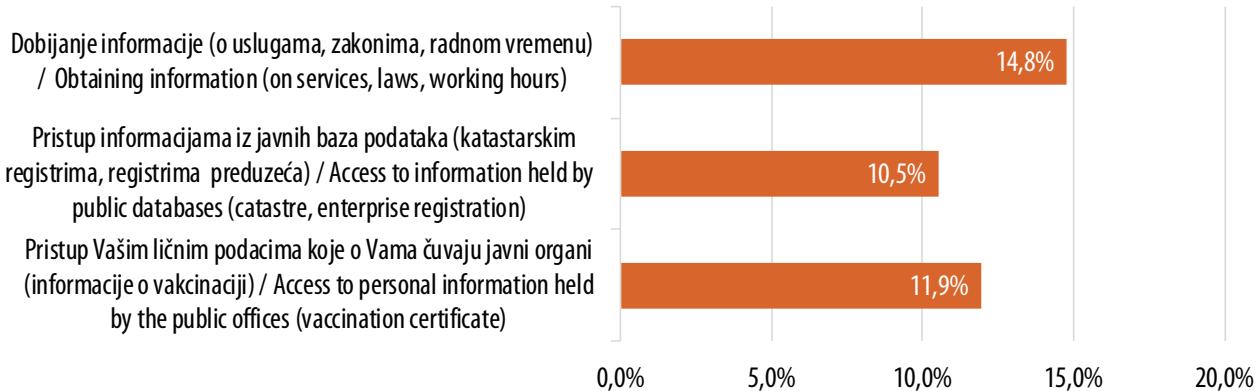
## E-government

The survey shows that 27.2% of respondents who use the Internet for private purposes in the last 12 months, used electronic government services (e-government).

The survey also showed that 14.8% of the internet population used the Internet to obtain information from the public institution's website, 11.9% of the internet population used the internet to access their personal information (for example, vaccination certificate) while 10.5% of the internet population used the internet to access information from the public databases.

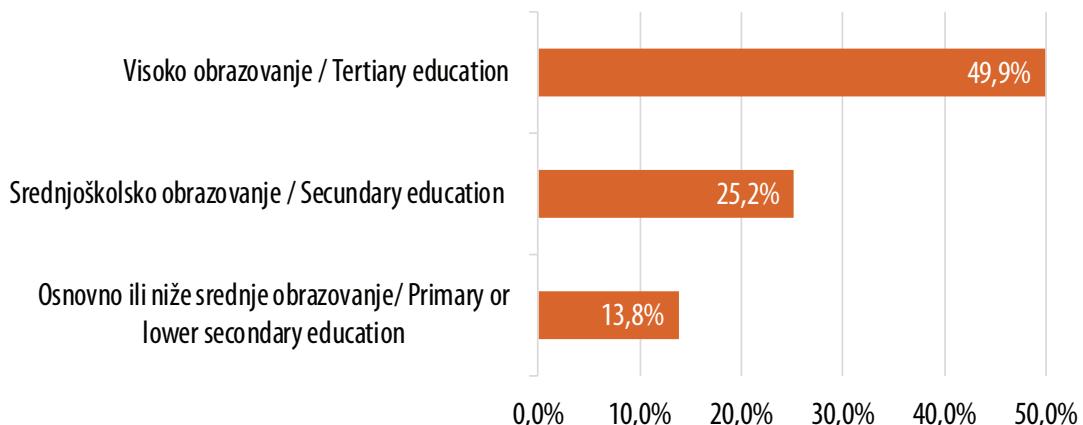
Grafikon 20. Za koju ste od sljedećih usluga javne uprave koristili internet

Graph 20 For which of the following public administration services did you use the Internet

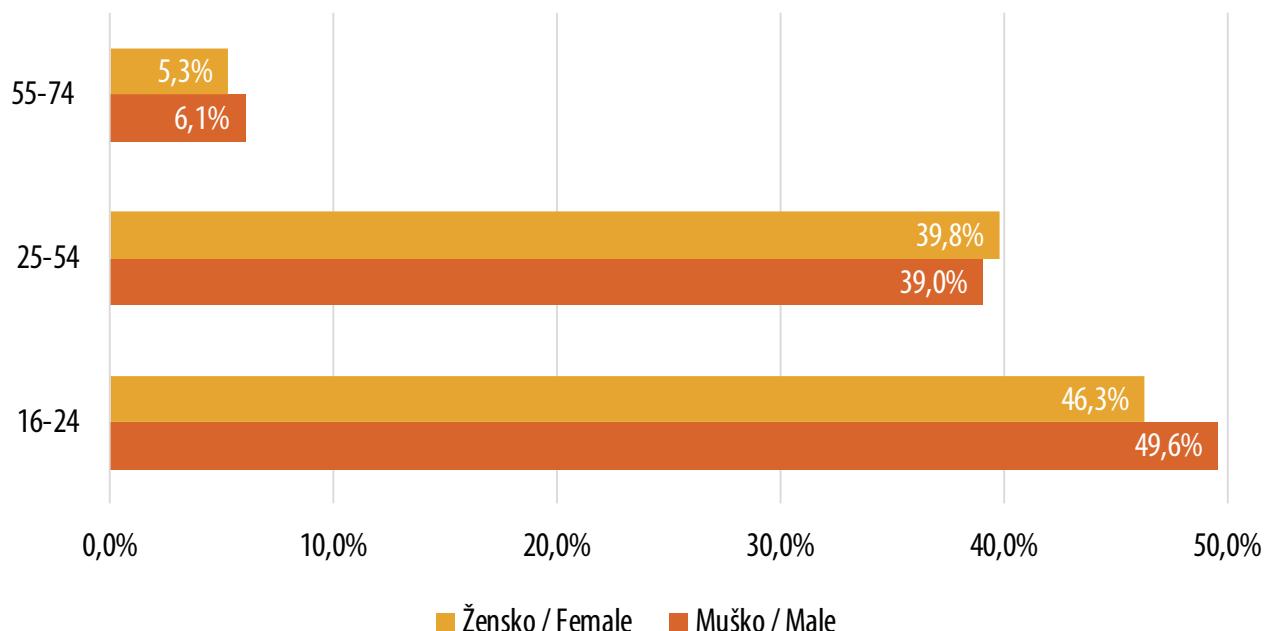


Grafikon 21. Upotreba interneta radi korištenja usluga javne uprave u posljednjih 12 mjeseci, prema nivou obrazovanja

Graph 21 Use of the Internet in order to use services or services of public administration in the last 12 months, by education level



Grafikon 22. Upotreba interneta radi korištenja usluga javne uprave u posljednjih 12 mjeseci, prema spolu i starosti/ Graph 22 Use of the Internet in order to use services or services of public administration in the last 12 months, by sex and age



## Upotreba elektronske identifikacije (eID)

Elektronska identifikacija (eID) je jedan od alata za osiguranje sigurnog pristupa online uslugama i za obavljanje elektronskih transakcija na sigurniji način. Elektronska identifikacija može garantovati nedvosmislenu identifikaciju osobe i osigurava isporuku prave usluge osobi koja na nju zaista ima pravo.

Istraživanje pokazuje da je 6,5% ispitanika koristilo svoju eID za pristup elektronskim (online) uslugama u privatne svrhe u posljednjih 12 mjeseci.

Od ispitanika koji su koristili eID u posljednjih 12 mjeseci, 60,4% je koristilo usluge koje pružaju privredni subjekti (npr. internet bankarstvo), 42,1% je koristilo usluge koje pružaju javni organi (npr. podnošenje poreske prijave).

## Use of internet identification (eID)

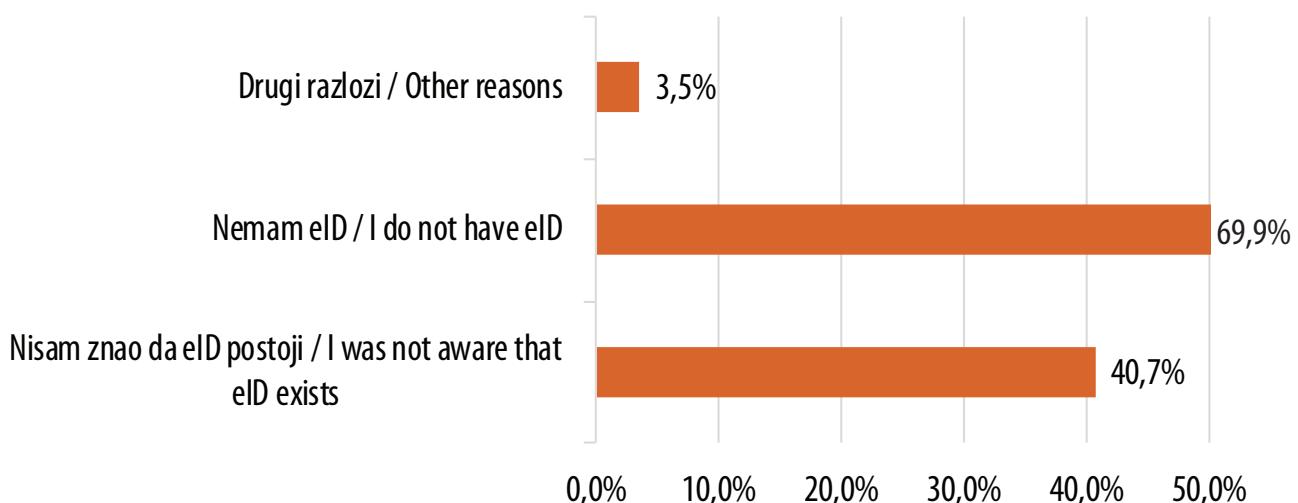
Electronic identification (eID) is one of the tools to ensure secure access to online services and to carry out electronic transactions in a safer way. Electronic identification can guarantee the unambiguous identification of a person and ensures the right service is delivered to the person who is really entitled to it.

The survey shows that 6.5% of respondents used their eID for access to electronic (on-line) services for private purposes in the last 12 months.

Out of respondents who used eID in the past 12 months, 60.4% of them used services provided by companies (such as internet banking), while 42.1% of them used services provided by public offices (such as submitting tax application).

Grafikon 23. Razlozi nekorištenja eID u posljednjih 12 mjeseci

Graph 23 Reasons for not using eID in the last 12



## **Elektronska trgovina<sup>6</sup>**

Kada je riječ o vremenskom okviru u kojem su korisnici interneta kupovali/poručivali robu ili usluge putem interneta, 30,4% internet korisnika obavilo je kupovinu/narudžbu u posljednja tri mjeseca, 10,9% prije više od tri mjeseca (manje od 1 godine), a 7,2% prije više od godinu dana.

Korisnici interneta koji nikad nisu kupovali ili poručivali robu ili usluge putem interneta je 51,5%.

Broj osoba koje su kupile / naručile robu ili usluge putem interneta u posljednjih 12 mjeseci bio je 670 250, što je manje za 1,8 procentualnih poena u odnosu na 2022. godinu.

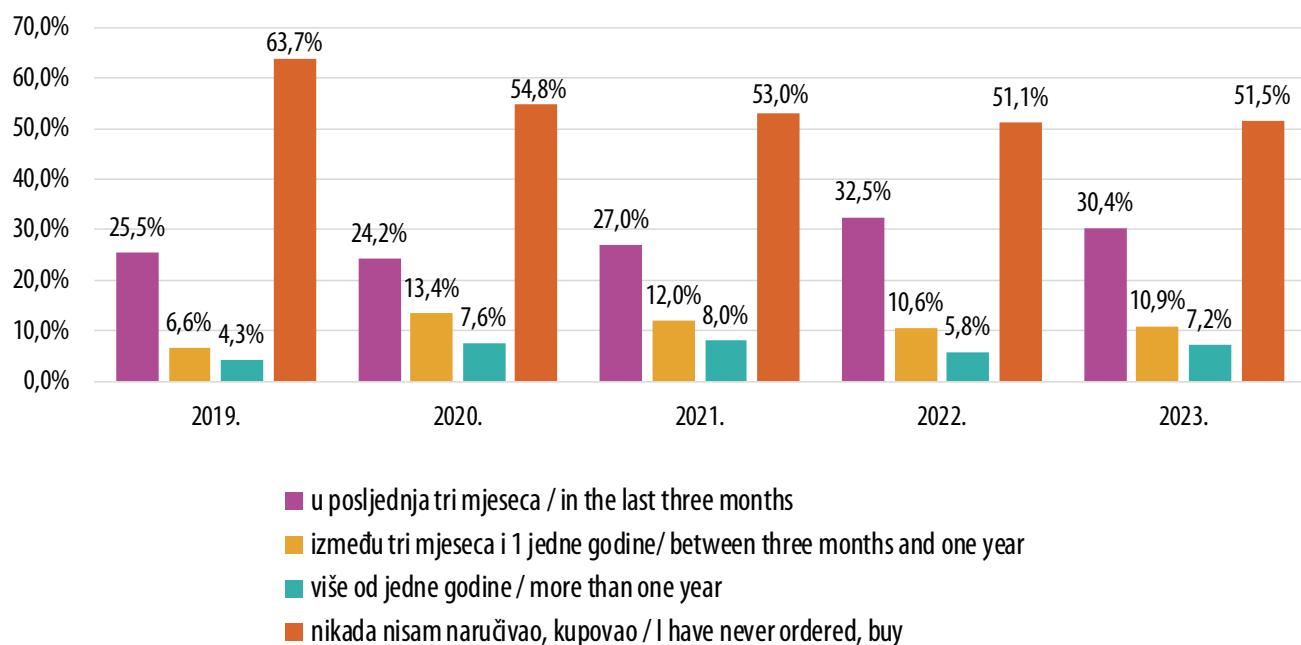
## **E-commerce<sup>6</sup>**

*As for the time frame in which the internet users bought /ordered goods or services over the Internet, 30.4% of users conducted a purchase/order in the last three months, 10.9% between 3 months and a year ago, and 7.2 more than a year ago.*

*The Internet users who never bought or ordered goods or services over the Internet is 51.5%*

*The number of persons who bought / ordered goods or services via the Internet in the last 12 months was 670 250 which is a decrease of 1.8 percentage points compared to 2022*

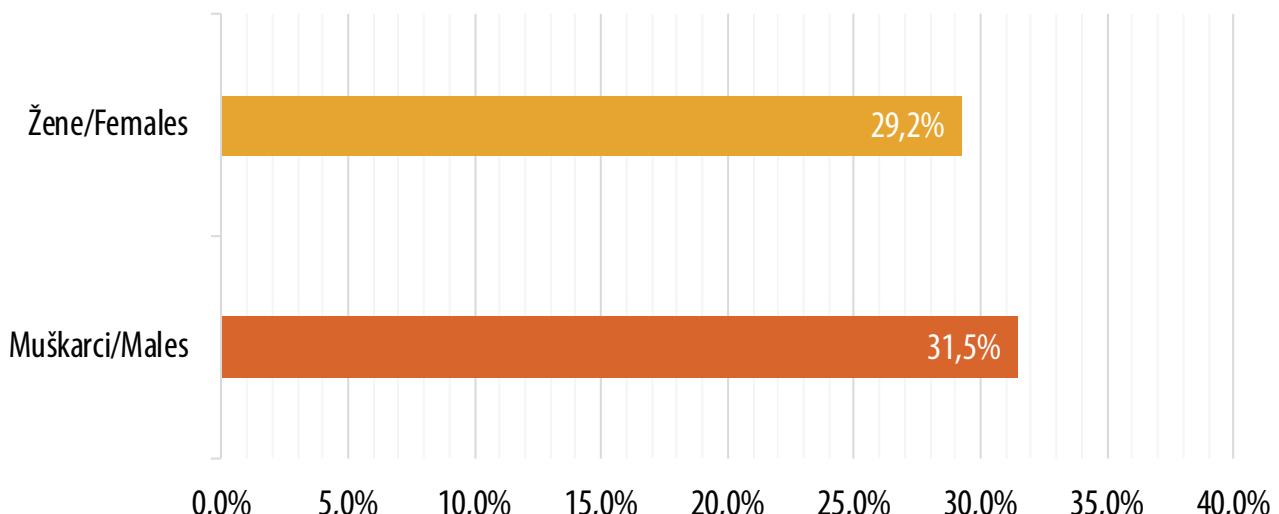
**Grafikon 24. Posljednji put (u privatne svrhe) kupili/naručili robu ili usluge putem interneta u procentima**  
*Graph 24 Last time (for private purposes) they bought/ordered goods or services via the Internet in percent*



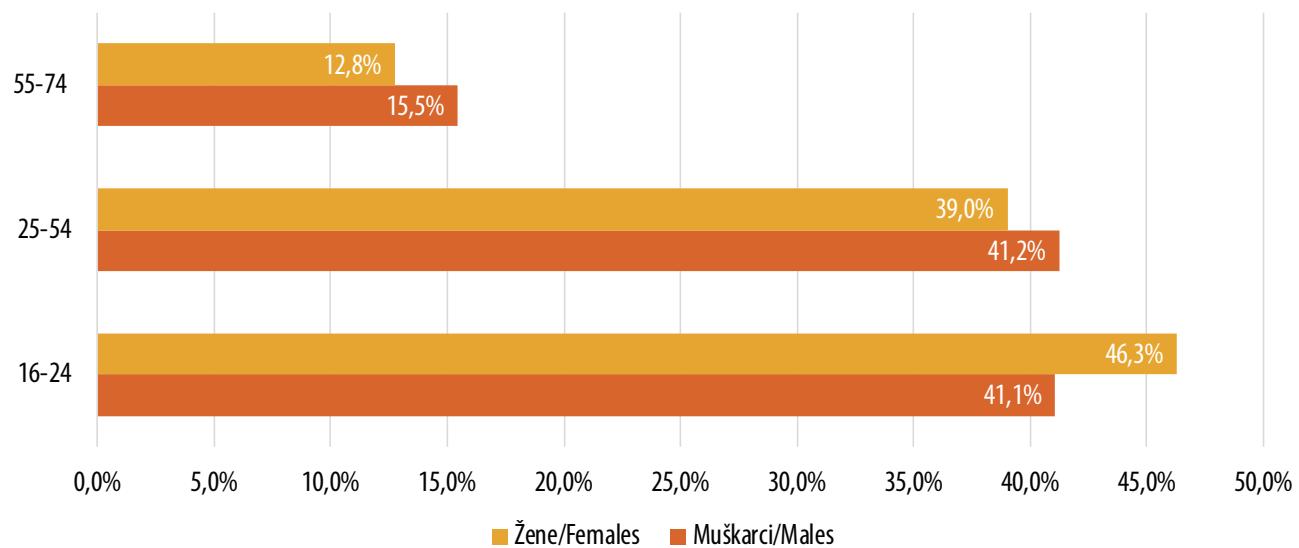
<sup>6</sup> Podaci se odnose na osobe koje su koristile internet posljednjih 12 mjeseci.

<sup>6</sup> The data refer to persons who have used the Internet in the last 12 months.

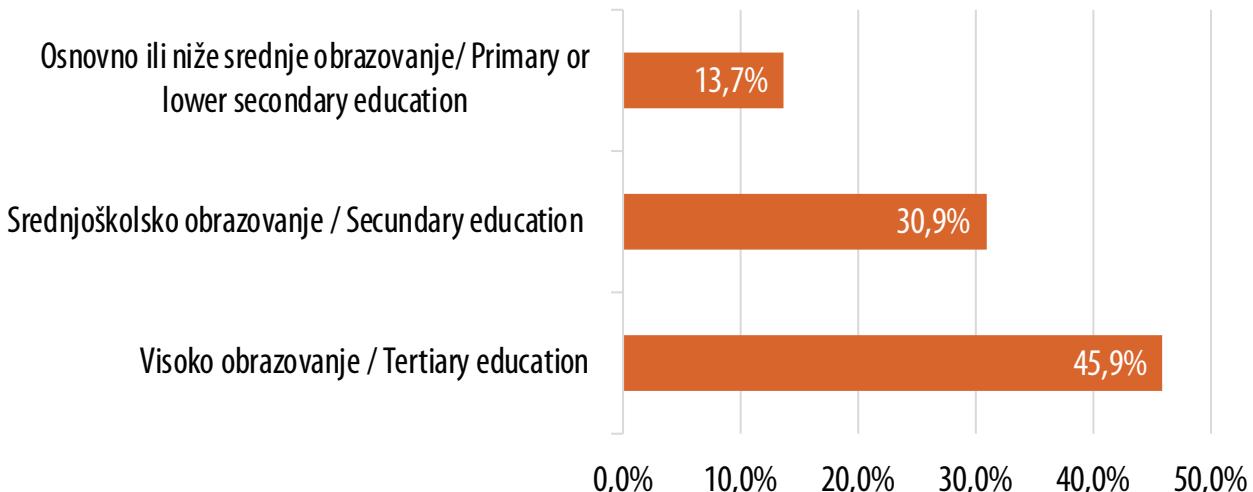
Grafikon 25. Kupili/naručili robu ili usluge putem interneta u posljednja tri mjeseca (u privatne svrhe), prema spolu, 2023. /Graph 25 Bought / ordered goods or services online in the last three months (for private purposes), by gender, 2023



Grafikon 26. Kupili/naručili robu ili usluge putem interneta u posljednja tri mjeseca (u privatne svrhe), prema spolu i starosti, 2023. /Graph 26 Bought / ordered goods or services online in the last three months (for private purposes), by sex and age, 2023



Grafikon 27. Kupili/naručili robu ili usluge putem interneta u posljednja tri mjeseca (u privatne svrhe), prema nivou obrazovanja, 2023. /Graph 27 Bought / ordered goods or services online in the last three months (for private purposes), by education level, 2023



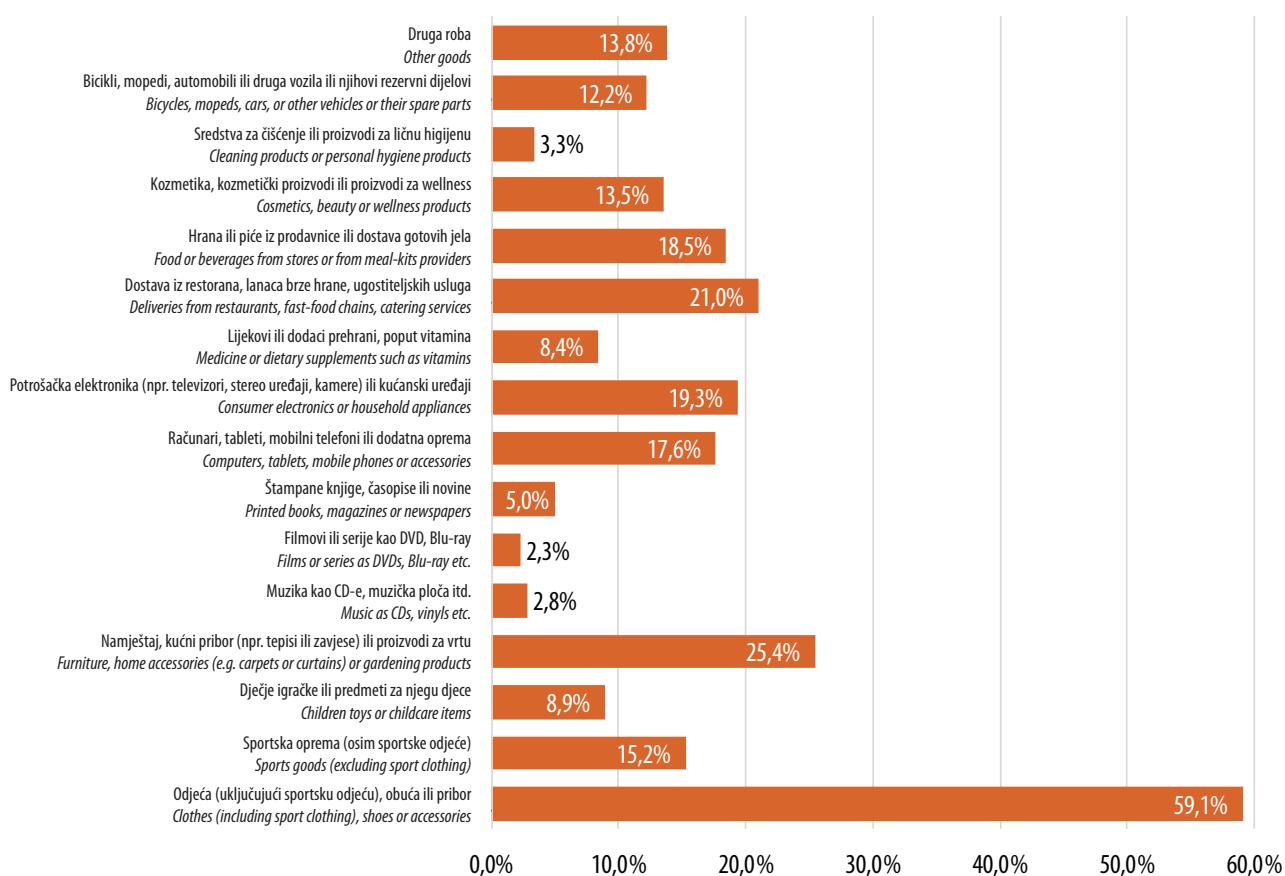
Pojedinci su najčešće naručivali proizvode ili usluge putem interneta u posljednja 3 mjeseca:

- Odjeća (uključujući sportsku odjeću), obuća ili pribor (npr. torbe, nakit) 59,1%;
- Namještaj, kućni pribor 25,4%;
- Dostava iz restorana, lanaca brze hrane, ugostiteljskih usluga 21%;
- Potrošačka elektronika (npr. televizori, stereo uređaji, kamere) ili kućanski uređaji (npr. mašina za pranje veša) 19,3%;
- Hrana ili piće iz prodavnice ili dostava gotovih jela 18,5%;
- Računari, tableti, mobilni telefoni ili dodatna oprema 17,6%;
- Sportska oprema (osim sportske odjeće) 15,2%;

*Most often individuals have ordered products or services online over the last 3 months:*

- Clothes (including sport clothing), shoes or accessories (e.g. bags, jewellery) 59.1%;
- Furniture, household goods 25.4%;
- Deliveries from restaurants, fast-food chains, catering services 21%;
- Consumer electronics (e.g. TV-sets, stereos, cameras) or household appliances (e.g. washing machines) 19.3%;
- Food or beverages from stores or from meal-kits provider 18.5%;
- Computers, tablets, mobile phones or additional equipment 17.6%;
- Sports equipment (except sports clothes) 15.2%;

Grafikon 28. Koju ste vrstu robe ili usluga kupili ili naručili putem interneta u posljednja 3 mjeseca, u privatne svrhe<sup>7</sup>  
Graph 28 What types of goods or services did you buy or order over the Internet for private use in the last 3 months<sup>7</sup>



<sup>7</sup> Podaci se odnose na pojedince koji putem interneta kupovali ili naručivali u posljednjih 3 mjeseca.

<sup>7</sup> Data refer to individuals who have purchased or ordered online in the last 3 months.

Analiza ispitanika prema spolu pokazala je da je 48,4% osoba muškog spola, a 71,7% ženskog spola kupovalo odjeću (uključujući sportsku odjeću), obuću ili pribor (npr. torbe, nakit).

Dostavu gotovih jela preko interneta naručivalo je 21,3% osoba muškog spola, a 20,6% ženskog spola.

Namještaj i kućni pribor preko interneta naručivalo je 25,7% osoba muškog spola, a 25,1% ženskog spola.

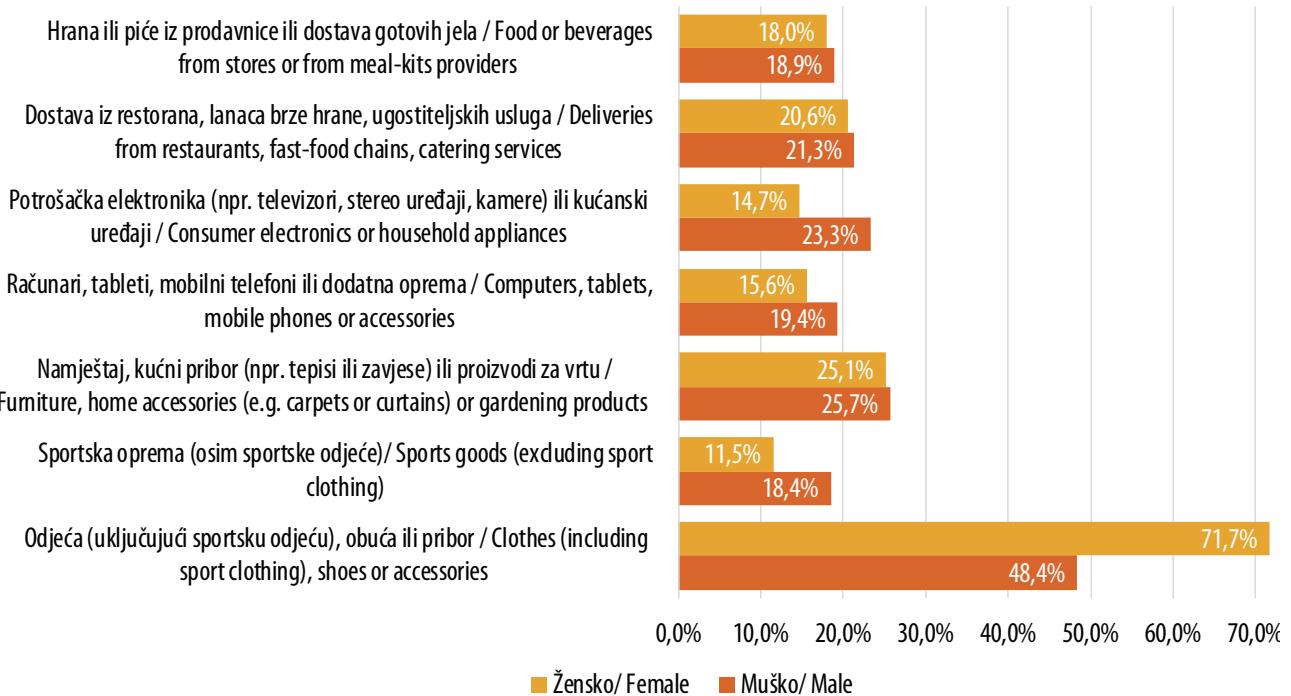
*The analysis of respondents by gender showed that 48.4% of males and 71.7% of females bought Clothing (including sportswear), footwear or accessories (eg bags, jewelry).*

*Food or beverages from stores or from meal-kits providers over the Internet was ordered by 21.3% of males and 20.6% of females;*

*Furniture and home accessories ordered online by 25.7% of males and 25.1% of females.*

**Grafikon 29. Najčešće vrstu robe ili usluga kupili ili naručili putem interneta u posljednja 3 mjeseca, u privatne svrhe, po spolu<sup>8</sup>**

**Graph 29 Most often the type of goods or services did you buy or order over the Internet for private use in the last 3 months, by gender<sup>8</sup>**



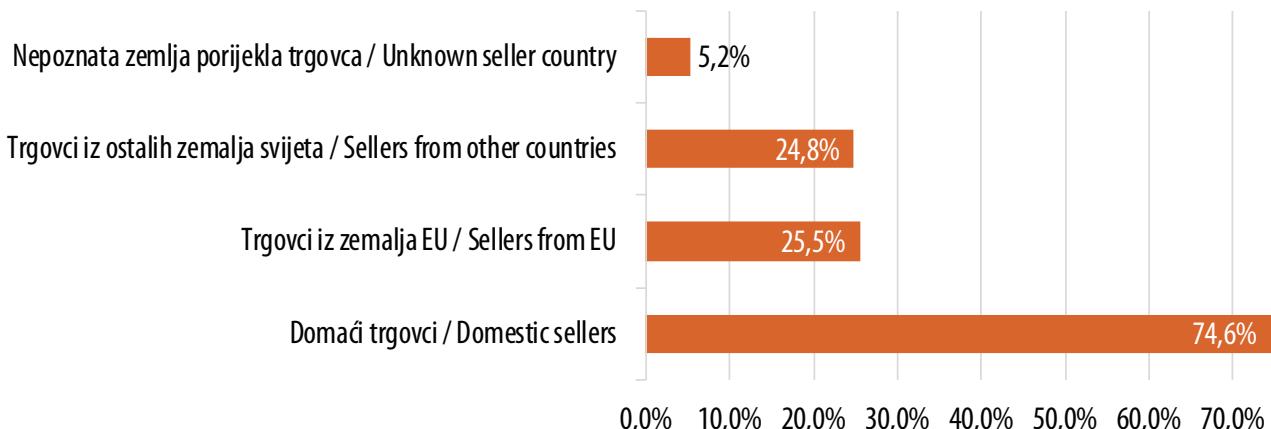
<sup>8</sup> Podaci se odnose na pojedince koji putem interneta kupovali ili naručivali u posljednjih 3 mjeseca.

<sup>8</sup> Data refer to individuals who have purchased or ordered online in the last 3 months.

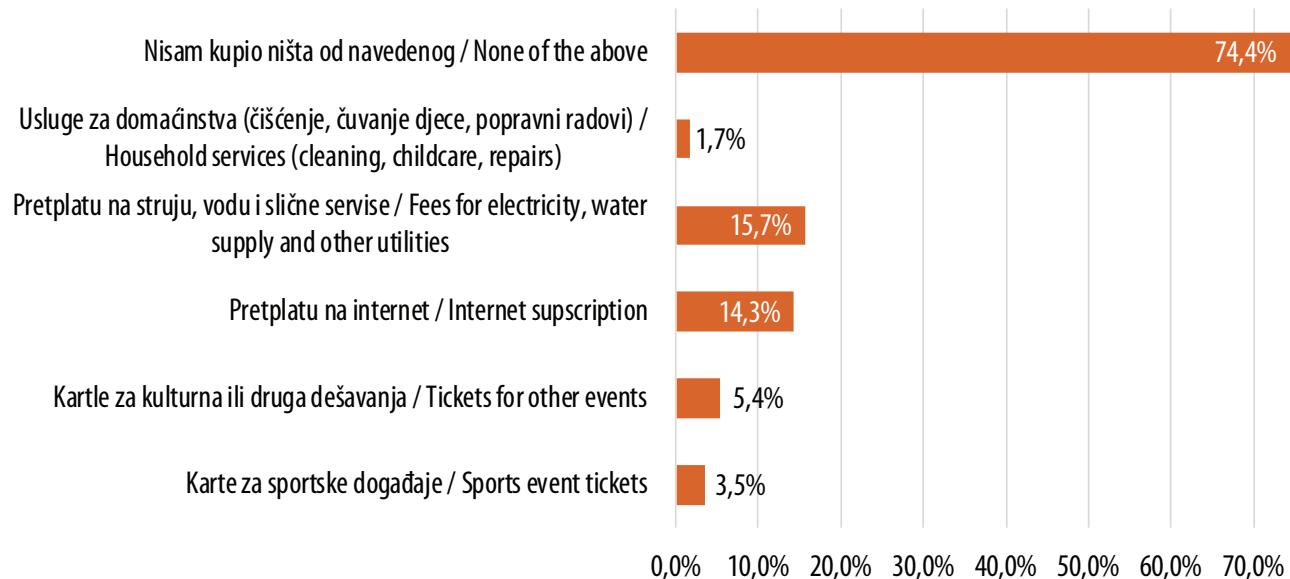
Istraživanje pokazuje da je 74,6% ispitanika koji su naručivali robu preko interneta u posljednja 3 mjeseca, robu naručivali od domaćih trgovaca.

The survey shows that 74.6% of respondents who ordered goods online in the last 3 months, purchased the goods from domestic sellers.

Grafikon 30. Od koga ste kupili pomenute proizvode preko web stranice ili aplikacije, u posljednja 3 mjeseca?<sup>9</sup>  
Graph 30 From whom did you buy aforementioned goods via a website or app in the last 3 months?<sup>9</sup>



Grafikon 31. Da li ste kupili nešto od navedenog preko web stranice ili aplikacije, u posljednja 3 mjeseca?  
Graph 31 Did you buy something from the listed items, via a website or app in the last 3 months?



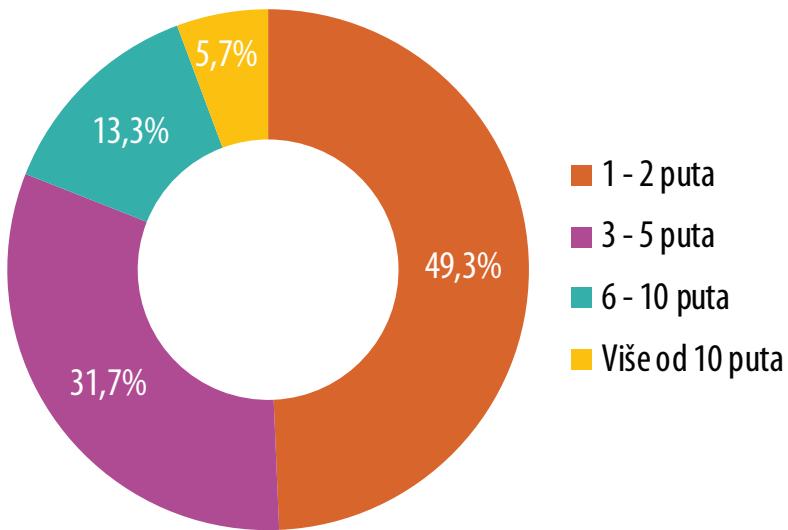
49,3% ispitanika je u prosjeku kupovalo robu ili usluge putem interneta 1 - 2 puta u posljedenja 3 mjeseca.

49.3% of respondents bought goods and services via internet 1 – 2 times in the last 3 months.

<sup>8</sup> Podaci se odnose na pojedince koji nisu putem interneta kupovali ili naručivali u posljednjih 3 mjeseca.

<sup>9</sup> The data refer to individuals who have not bought or ordered online in the last 3 months.

Grafikon 32. Koliko često ste kupovali robu ili usluge putem interneta, u privatne svrhe u posljednja 3 mjeseca?  
Graph 32 How often did you buy goods or services via internet for private purposes in the last 3 months?



79% ispitanika koji su kupovali robu ili usluge preko interneta u posljednjih 12 mjeseci nisu uočili nikakav problem prilikom obavljanja transakcije.

Istraživanje pokazuje da 51,5% ispitanika koji su koristili internet u privatne svrhe, u posljednjih 12 mjeseci, nisu nikad kupili/naručili proizvode ili usluge putem Interneta.

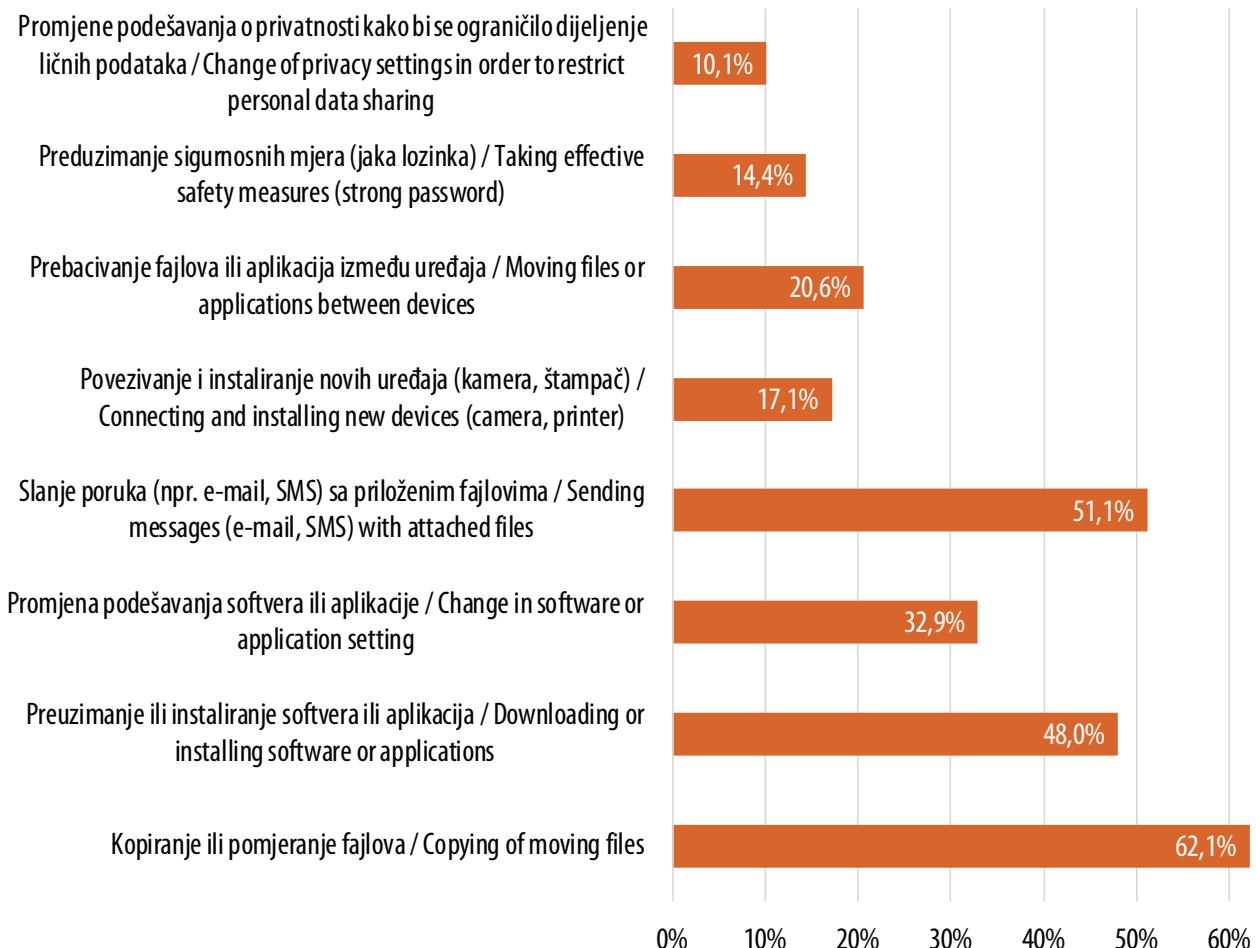
79% of respondents who purchased goods or services via internet in the last 3 months did not encounter any problems during the transaction.

The survey shows that 51.5% of respondents who use the Internet for private purposes in the last 12 months, never bought or ordered over the internet.

## E-vještine

## E-skills

Grafikon 33. E-vještine koje su preduzimane u posljednja 3 mjeseca  
Graph 33 E-skills performed during the last 3 months



Analiza je pokazala da je u posljednja 3 mjeseca 33,9% ispitanika vidjelo informacije ili sadržaj za koji su smatrali da je neistinit ili sumnjiv (npr. Na Facebook-u, Instagram-u, YouTube-u, Twitter-u). Na pitanje da li su provjerili istinitost takvih informacija ili sadržaja, 62,1% ispitanika je odgovorilo "Ne" dok je 37,9% ispitanika odgovorilo "Da".

86,7% ispitanika je odgovorilo da su već znali da informacija nije istinita, te stoga nisu vršili dalje provjere.

The analysis showed that in the last 3 months, 33.9% of respondents encountered information or content that they considered to be untrue or suspicious (eg on Facebook, Instagram, YouTube, Twitter). When asked whether they checked the accuracy of such information or content, 62.1% of respondents answered "No" while 37.9% of respondents answered "Yes".

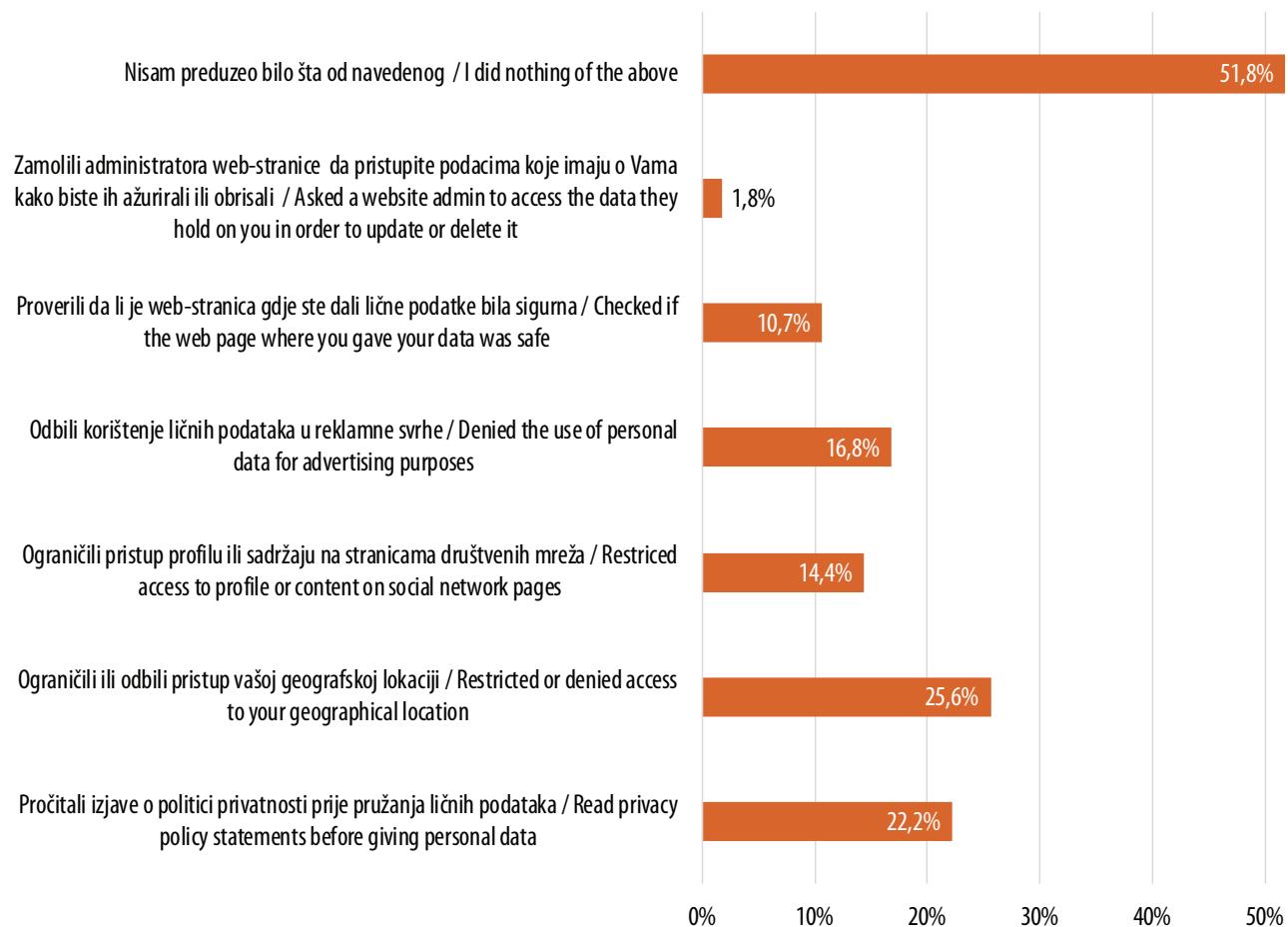
86.7% of respondents answered that they already knew that the information was not true, and therefore did not carry out further checks.

## Privatnost i zaštita ličnih podataka

## Privacy and personal data protection

Grafikon 34. Da li ste preduzeli ikakve aktivnosti kako biste upravljali pristupom svojim ličnim podacima (npr. ime, datum rođenja, broj lične karte, kontakt podaci, broj kreditne kartice, fotografije, geografski položaj) preko interneta u posljednja 3 mjeseca?

*Graph 34 Have you taken any activies to manage access to your personal data (such as name, date of birth, ID number, contact information, credit card number, photos, geographic location) over the Internet in the last 3 months?*



Analiza je pokazala da više od 50% ispitanika koji su u posljednja 3 mjeseca koristili internet ne preduzima nikakve aktivnosti u vezi zaštite privatnosti.

Na pitanje "Da li ste promijenili podešavanja u Vašem internet pretraživaču kako biste spriječili ili ograničili kolačiće na bilo kojem od Vaših uređaja", 19,7% ispitanika je odgovorilo potvrđno.

10,6% ispitanika je navelo da koriste softver koji ograničava mogućnost praćenja njihovih aktivnosti na internetu na bilo kojem uređaju koji koriste.

*The analysis showed that more than 50% of respondents who used the Internet in the last 3 months do not undertake any activities related to privacy protection.*

*To the question "Have you changed the settings in your internet browser to prevent or limit cookies on any of your devices", 19.7% of respondents answered „Yes“.*

*10.6% of respondents indicated that they use software that limits the ability to track their online activities on any device they use.*



**PREDUZEĆA  
ENTERPRISES**



## Uzorak

Istraživanje o upotrebi informaciono-komunikacionih tehnologija u preduzećima provedeno je na reprezentativnom uzorku od 2704 preduzeća na teritoriji Bosne i Hercegovine. Stopa odgovora je 82,6% (2 234 preduzeća).

## Sample

A survey on the use of information and communication technologies in enterprises was conducted on a representative sample of 2704 enterprises in the territory of Bosnia and Herzegovina. The response rate is 82.6% (2 234 enterprises).

Neto uzorak <i>Net sample</i>	10 do 49 zaposlenih <i>10 to 49 employees</i>	50 do 249 zaposlenih <i>50 to 249 employees</i>	250 i više zaposlenih <i>250 and more employees</i>	Ukupno <i>Total</i>
Proizvodnja <i>Manufacture</i>	452	382	126	<b>960</b>
Snabdijevanje električnom energijom, plinom, parom i vodom; upravljanje otpadnim vodama <i>Electricity, gas, steam and electricity supply water; waste management</i>	65	59	22	<b>146</b>
Građevinarstvo <i>Construction</i>	127	104	8	<b>239</b>
Trgovina na veliko i malo <i>Wholesale and retail trade</i>	400	184	57	<b>641</b>
Saobraćaj i skladištenje <i>Traffic and storage</i>	104	42	12	<b>158</b>
Usluge smještaja i ishrane <i>Accommodation services and food</i>	79	36	0	<b>115</b>
Informisanje i komunikacije <i>Information and communication</i>	97	53	11	<b>161</b>
Poslovanje nekretninama <i>Real estate</i>	30	7	0	<b>37</b>
Stručne, naučne i tehničke djelatnosti <i>Professional, scientific and technical activities</i>	101	39	2	<b>142</b>
Administrativne i pomoćne uslužne djelatnosti <i>Administrative and auxiliary service activities</i>	55	30	14	<b>99</b>
Popravak i održavanje računara i komunikacione opreme <i>Repair and maintenance of computers and communication equipment</i>	5	1	0	<b>6</b>
<b>Ukupno <i>Total</i></b>	<b>1.515</b>	<b>937</b>	<b>252</b>	<b>2.704</b>
<b>Od čega IKT sektor <i>ICT sector</i> (26.1+26.4+ 26.8+46.5+58.2+61+62+63.1+95.1)</b>	<b>88</b>	<b>39</b>	<b>8</b>	<b>135</b>

## GLAVNI INDIKATORI

### Internet u preduzećima

Rezultati istraživanja o upotrebi informaciono-komunikacionih tehnologija u preduzećima (IKT-P) u Bosni i Hercegovine, pokazali su sljedeće:

- Da 99,9% preduzeća imaju pristup internetu;
- Od ukupnog broja preduzeća koja imaju pristup internetu, fiksni širokopojasni priključak (npr. ADSL, SDSL, VDSL, kablovske mreže, optičke mreže) posjeduje 99,5% preduzeća.

## MAIN INDICATORS

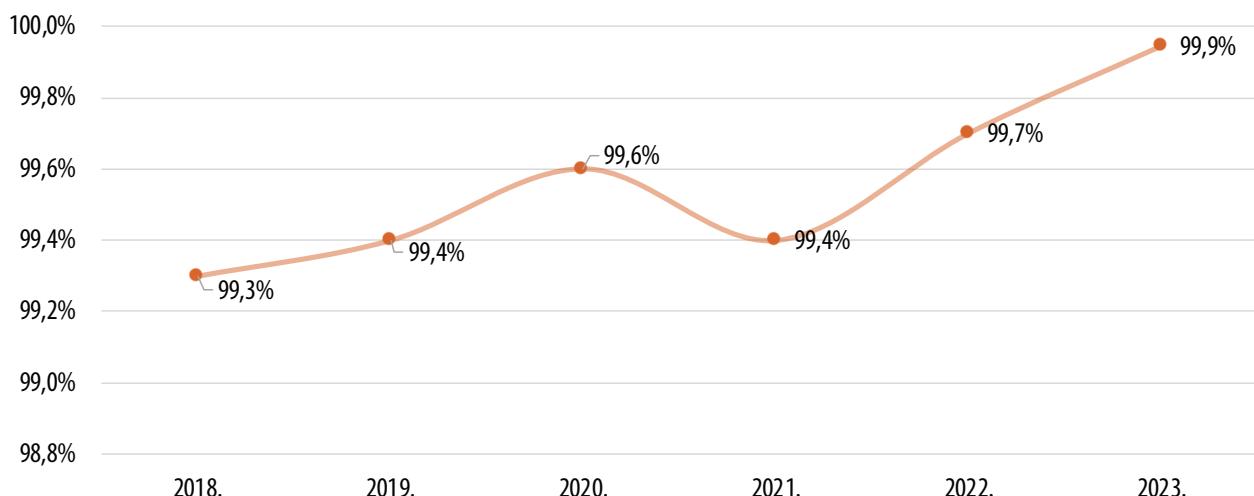
### Internet in enterprises

The results of the survey on the use of information and communication technologies in enterprises (ICT-ENT) in Bosnia and Herzegovina have shown the following:

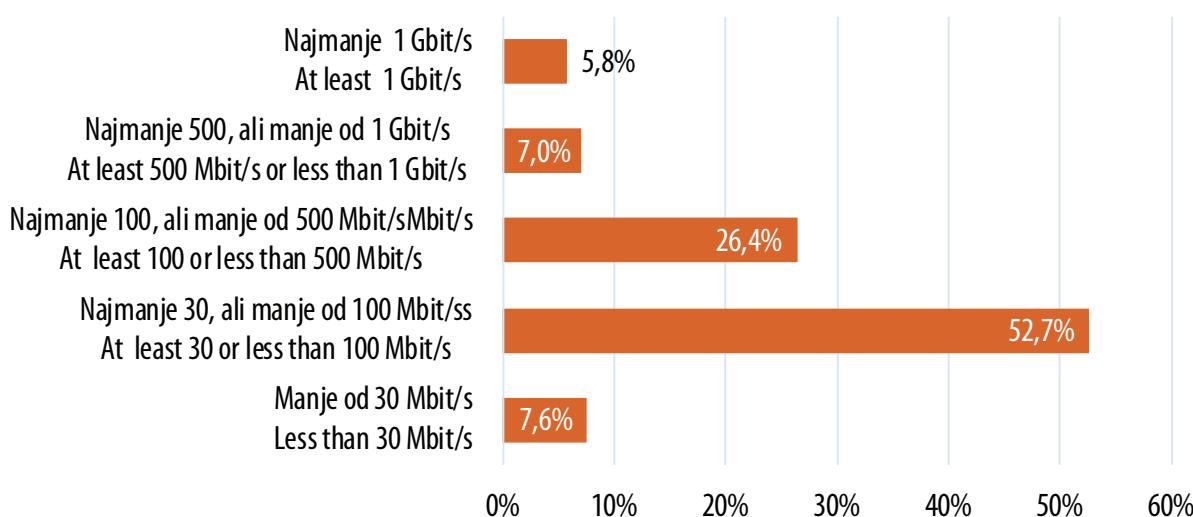
- 99.9% of enterprises have access to the Internet
- Of the total number of companies that have access to the Internet, fixed broadband (eg ADSL, SDSL, VDSL, cable networks, optical networks) uses 99.5% of enterprises.

Grafikon 1. Preduzeća koja imaju pristup internetu, u procentima

Graph 1 Enterprise have internet access, in percent



Grafikon 2. Koja je maksimalna brzina internet konekcije u vašem preduzeću (definisana ugovorom sa internet providerom)? /Graph 2 What is the maximum speed of the Internet connection in your enterprises (defined by agreement with the Internet provider)?

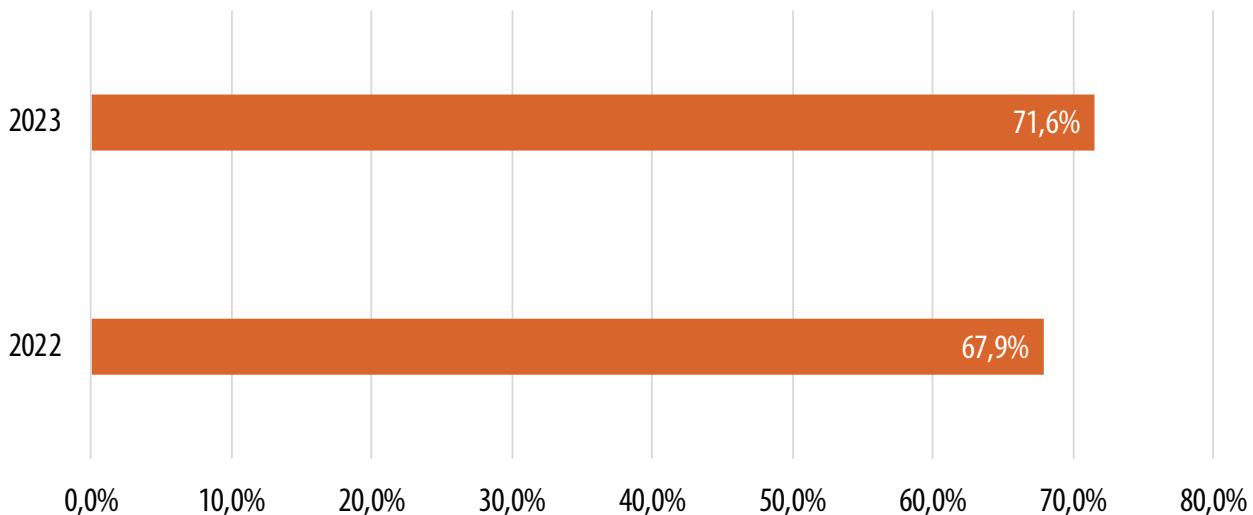


Rezultati istraživanja pokazuju da 71,6% preduzeća osigurava prijenosne uređaje koji omogućavaju mobilnu internet vezu koristeći mobilne telefonske mreže.

*The results of the survey show that 71.6% of enterprises provide portable devices that allow a mobile Internet connection using mobile telephone networks.*

Grafikon 3. Da li vaše preduzeće osigurava prijenosne uređaje koji omogućavaju mobilnu internet vezu, koristeći mobilne telefonske mreže za poslovne potrebe?

*Graph 3 Does your enterprise provide portable devices that allow a mobile connection using mobile telephone networks for business purposes?*

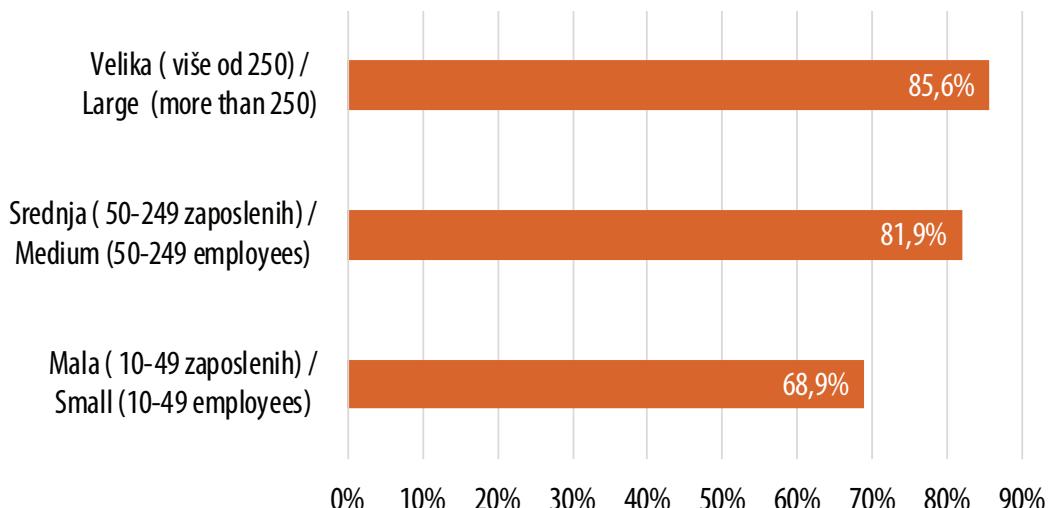


Analiza preduzeća prema veličini pokazuje nam da mobilnu internet konekciju upotrebom prijenosnih uređaja najviše koriste velika preduzeća (85,6%).

*Enterprise analysis by size shows us that the mobile Internet connection using the mobile devices is mostly used by large enterprises (85.6%).*

Grafikon 4. Preduzeća prema veličini, osiguravaju prijenosne uređaje koji omogućavaju mobilnu internet vezu, koristeći mobilne telefonske mreže, za poslovne potrebe 2023.

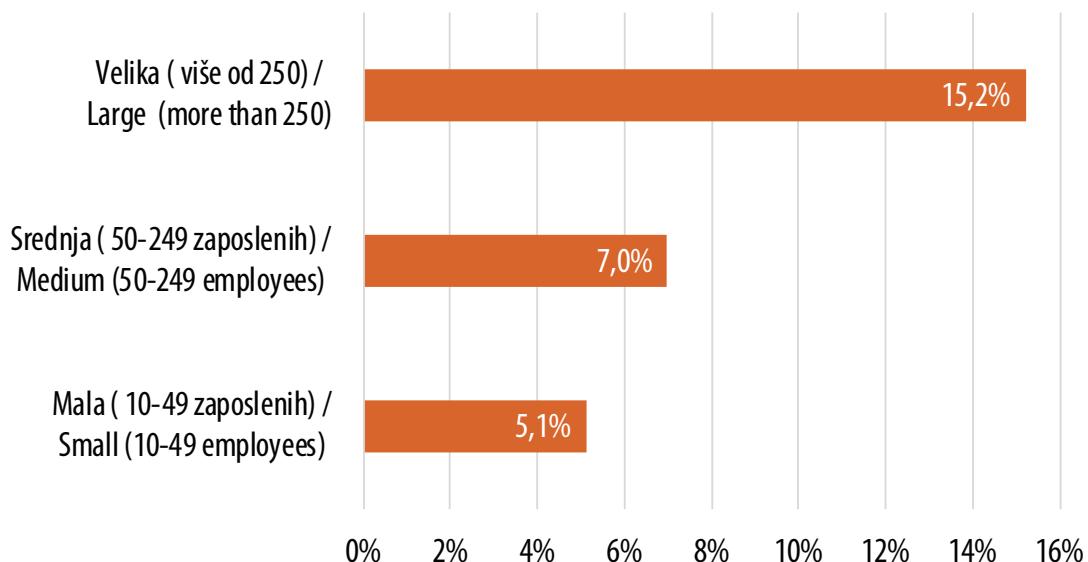
*Graph 4 Enterprises by size, provide portable devices that allow a mobile connection to the internet using mobile telephone networks, for business purposes 2023*



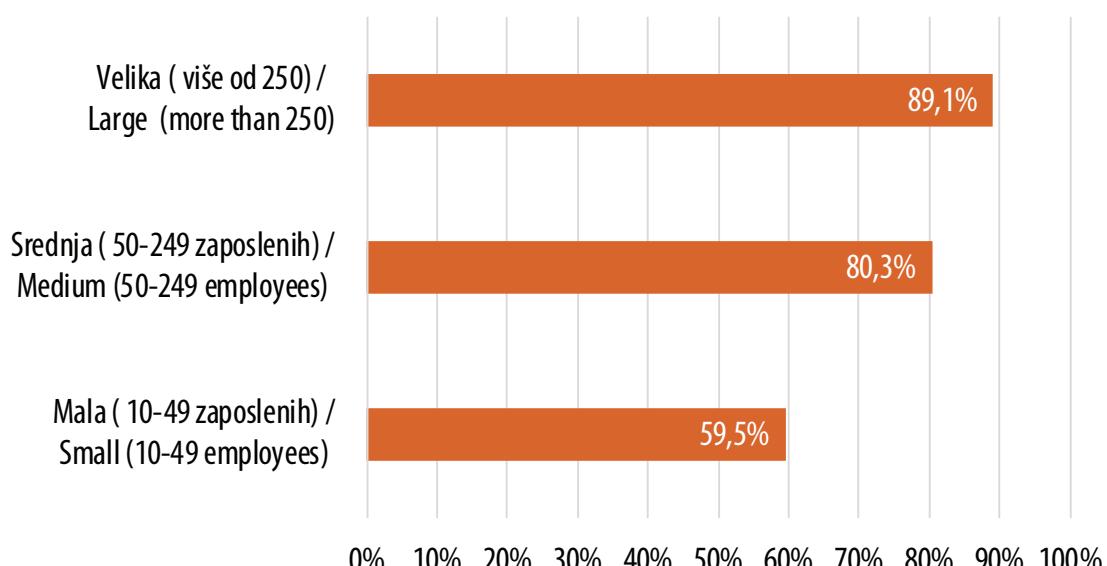
Istraživanje pokazuje da 36,9% preduzeća održava online sastanke (npr. preko Zoom, Skype, MS Teams). Velika preduzeća imaju mobilnu aplikaciju za svoje klijente (15,2%).

The survey shows that 36.9% of enterprises hold online meetings (for example via Zoom, Skype, MS Teams). Large enterprises have mobile application for their clients (15.2%).

Grafikon 5. Preduzeća koja imaju mobilnu aplikaciju za svoje klijente, po veličini preduzeća  
*Graph 5 Enterprises which have mobile application for their clients, by enterprise size*



Grafikon 6. Preduzeća koja imaju svoju web stranicu, po veličini preduzeća  
*Graph 6 Enterprises which have their own web page, by enterprise size*



## Elektronska trgovina

Tokom 2023. godine, 19,7% preduzeća u Bosni i Hercegovini je imalo web prodaju robe ili usluga.

Kada pogledamo strukturu preduzeća prema veličini, dobijamo sljedeće rezultate:

- 25,4% velikih preduzeća je imalo web prodaju robe ili uslugu;
- 26% srednjih preduzeća je imalo web prodaju robe ili usluga;
- 18% malih preduzeća je imalo web prodaju robe ili usluga.

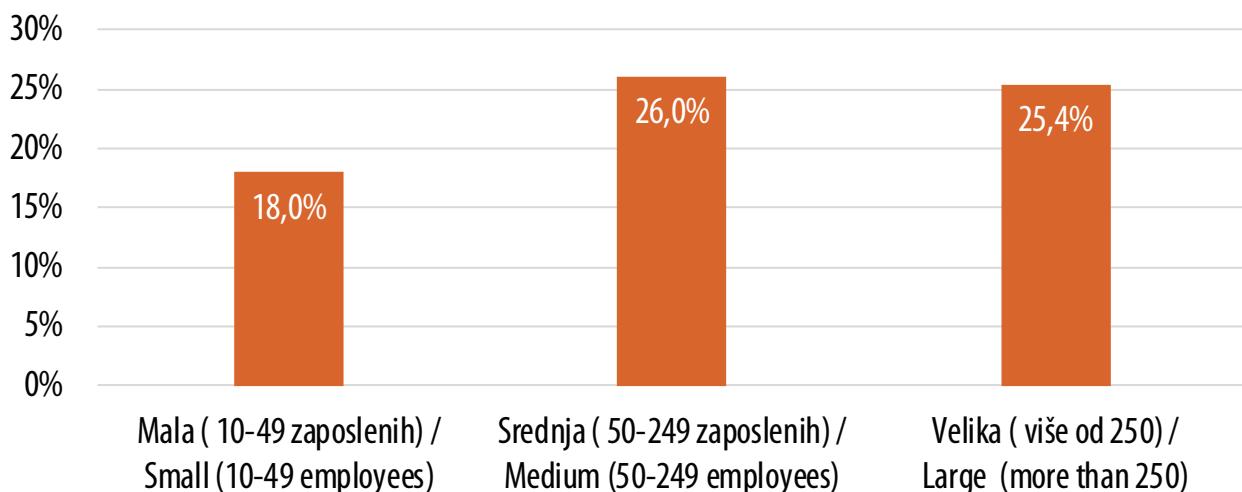
## E-Commerce

*In 2023 year, 19.7% of enterprises in Bosnia and Herzegovina have web sales of goods or services.*

*When we look at the structure of enterprises by size, we get the following results:*

- *25.4% of large enterprises had web sales of goods or services.;*
- *26% of medium-sized enterprises had web sales of goods or services.*
- *18% of small enterprises had web sales of goods or services.*

Grafikon 7. Procenat preduzeća koja su imala web prodaju u 2023. godini, prema veličini preduzeća  
*Graph 7 Percentage of enterprises that had web sales in the year 2023, by enterprise size*



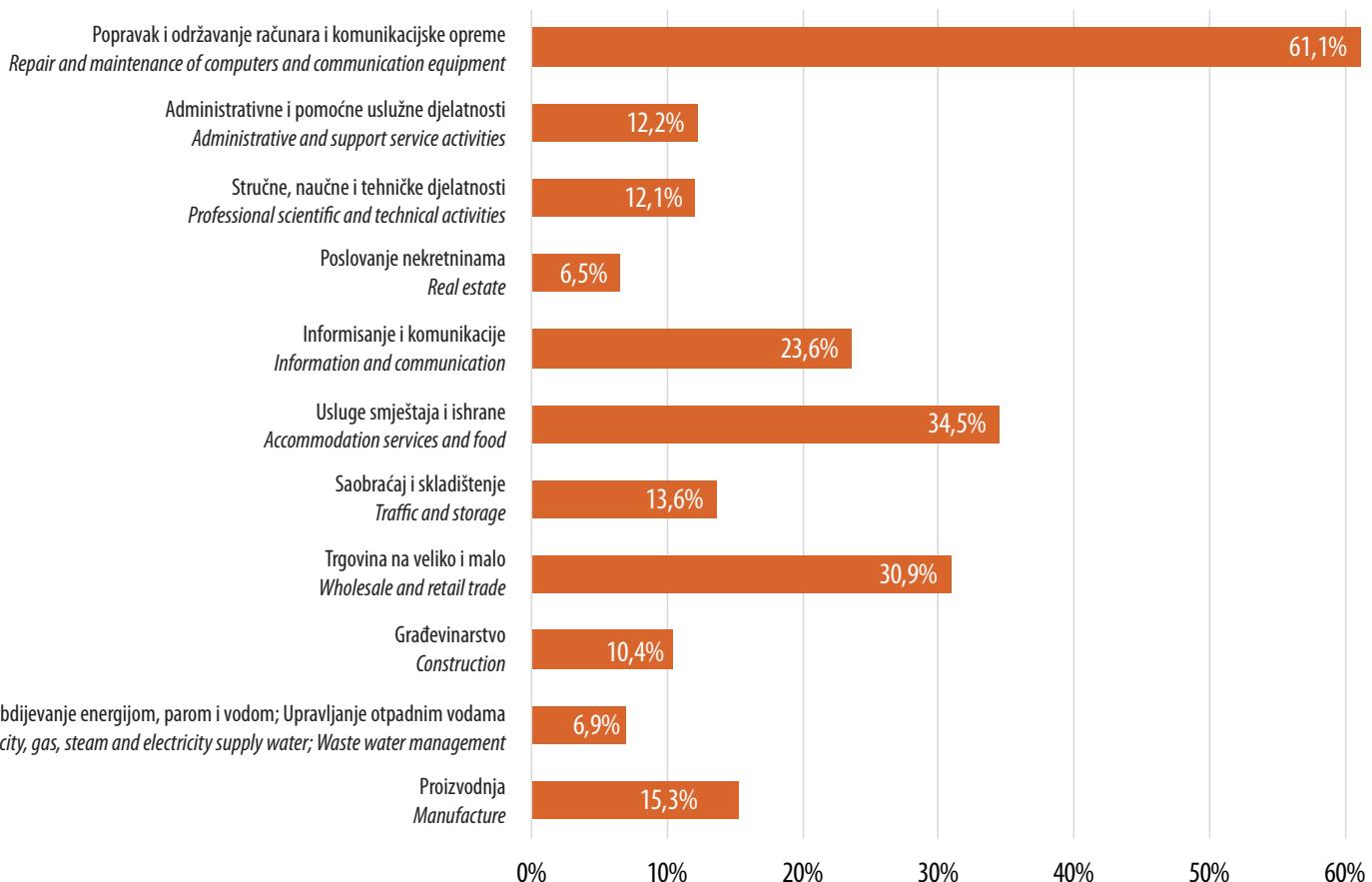
Istraživanje je pokazalo da na pitanje „Da li je vaše preduzeće tokom 2023. godine imalo web prodaju robe ili usluga putem?“:

- vlastite web stranice preduzeća ili aplikacije, 13,6%;
- web stranice e-commerce tržišta ili “aplikacija” koju koristi više preduzeća za trgovinu proizvodima (npr. Booking, eBay, Amazon, Amazon Business, Alibaba, Rakuten, OLX.BA, E-kupi), 12,7%.

*Survey showed that to the question “During 2023, did your enterprise have web sales of goods or services Via”:*

- *via own enterprise's websites or apps, 13.6%;*
- *via e-commerce marketplace websites or apps used by several enterprises for trading goods or services (Eg Booking, eBay, Amazon, Amazon Business, Alibaba, Rakuten, OLX.BA, E-kupi.ba), 12.7%*

Grafikon 8. Procenat preduzeća koja su imala web prodaju, prema djelatnosti preduzeća  
Graph 8 Percentage of enterprises that had web sales, by enterprise activity



Ako lociramo kupce prema geografskim lokacijama, preduzeća koja su imala web prodaju u 2023. godini najviše su ostvarili web prodaju sa kupcima:

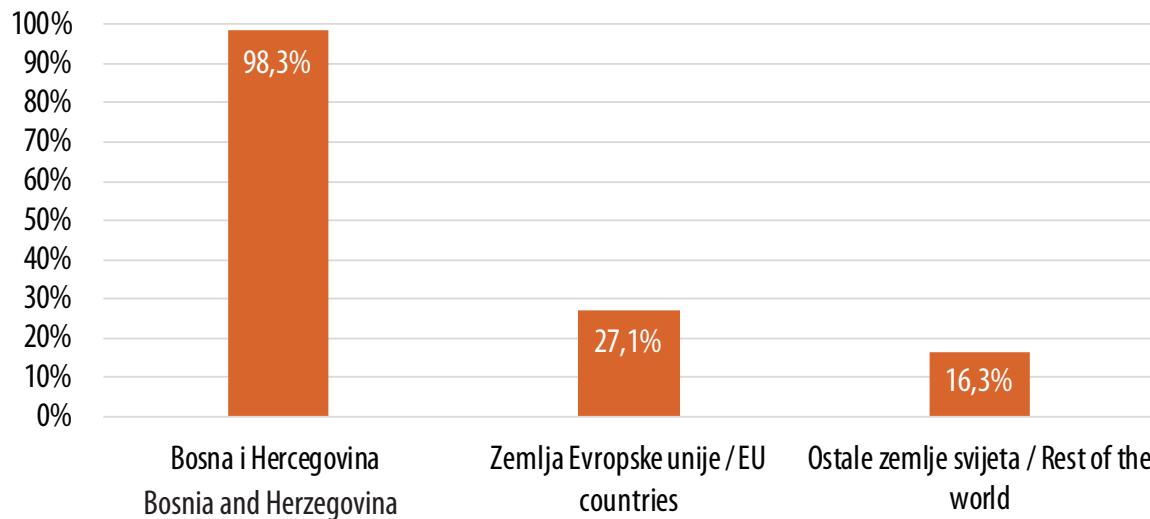
- u Bosni i Hercegovini (98,3%)
- u zemljama EU (27,1%)
- u ostalim zemljama svijeta (16,3%)

If we locate customers by geographical locations, the companies that had web sales in 2023 achieved the most web sales with customers:

- in Bosnia and Herzegovina (98.3%)
- in EU countries (27.1%)
- in other countries of the world (16.3%)

Grafikon 9. Preduzeća ostvarila web prodaju roba i usluga tokom 2023. godine, kupcima lociranim prema geografskim područjima

*Graph 9 The enterprises realized web sales of goods and services during 2023, to customers located by geographical areas*

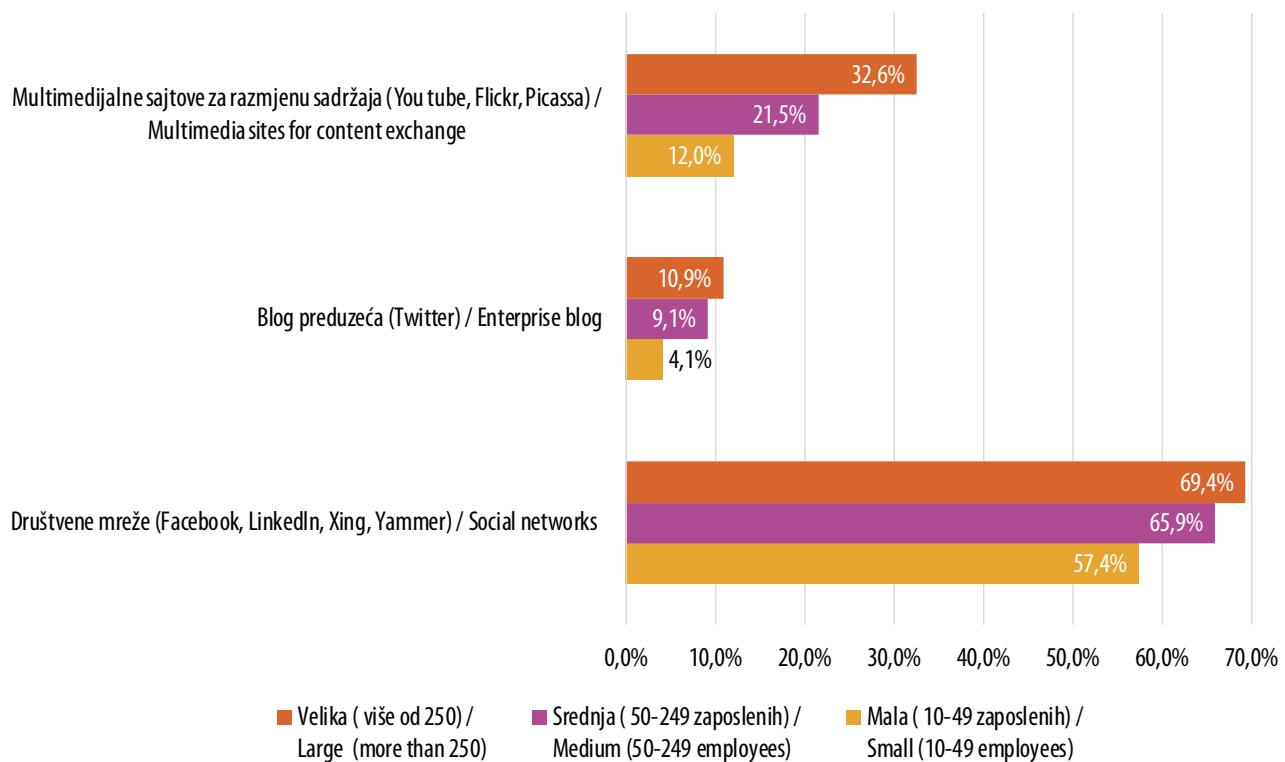


Preko 50% preduzeća ima društvene mreže poput Facebook, Linkedin, Xing, Yammer.

*Over 50% enterprises use social networks such as Facebook, Linkedin, Xing, Yammer*

Grafikon 10. Korištenje društvenih mreža u preduzećima, po veličini preduzeća

*Graph 10 The use of social media by enterprises, by enterprise size*



### Korištenje podataka, dijeljenje, analitika i trgovina

### *Data use, sharing, analytics and trade*

Preduzeća ne koriste u velikoj mjeri poslovne softvere iz ankete.

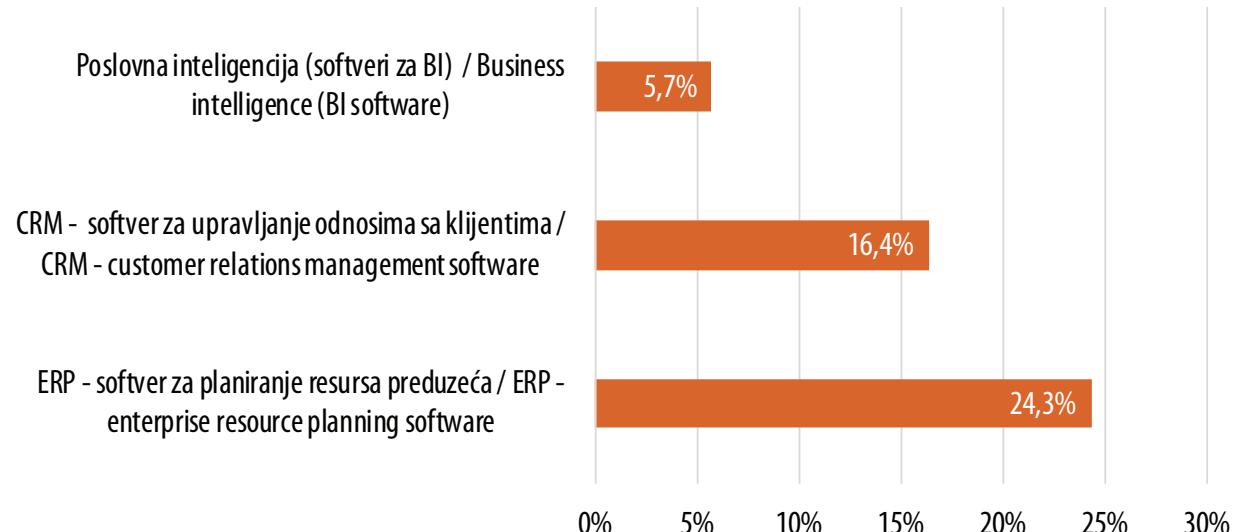
*Business software from the survey is not widely used by businesses.*

Velika preduzeća najviše koriste ERP (61%).

*Large companies mostly use ERP (61%).*

Grafikon 11. Da li preduzeća koriste neka od navedenih softvera

*Graph 11 Do enterprises use any of the following software*



Na pitanje "Da li vaše preduzeće dijeli podatke elektronским putem sa dobavljačima ili kupcima unutar lanca snabdijevanja?", 16,4% preduzeća je odgovorilo potvrđno.

*When asked "Does your company share data electronically with suppliers or customers within the supply chain?", 16.4% of companies answered yes.*

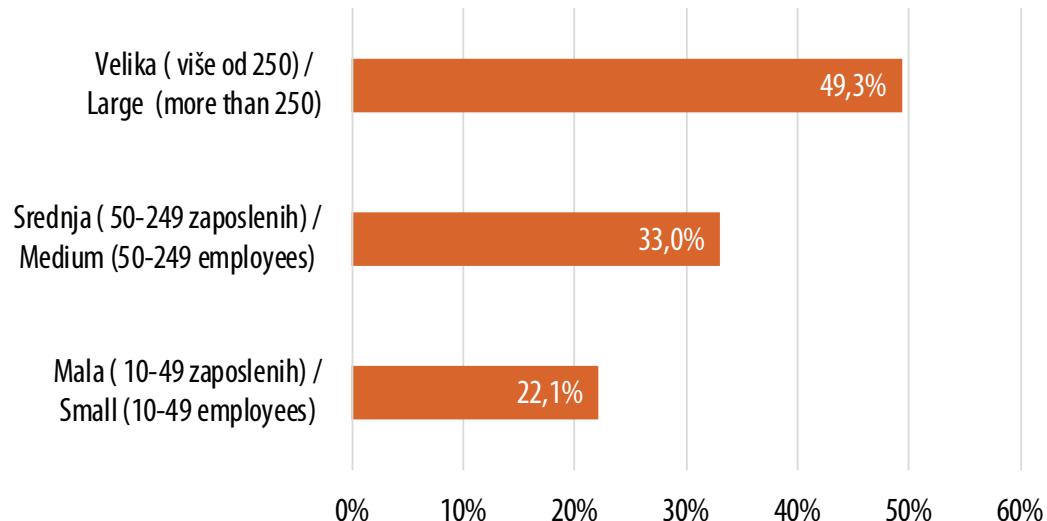
Među njima su najzastupljenija velika preduzeća, i to sa 35,4%.

*Large companies are the most represented among them, with 35.4%.*

Na pitanje „Da li zaposleni u vašem preduzeću vrše analizu podataka (Data analytics)”, 25,1% preduzeća je odgovorilo potvrđno. Među njima je najviše velikih preduzeća.

*To the question "Do employees in your company perform data analysis (Data analytics)", 25.1% of companies answered yes. Most of them are large companies.*

Grafikon 12. Da li zaposleni u preduzećima vrše analizu podataka (Data analytics), po veličini preduzeća  
Graph 12 Do employees in enterprises perform data analysis (Data analytics), by enterprise size



Od preduzeća čiji zaposlenici ne vrše analizu podataka (Data analytics), 13,3% angažuju eksterno preduzeće da to uradi za njih.

Of enterprises whose employees do not perform data analytics, 13.3% hire an external company to do it for them.

## IKT stručnjaci i vještine

IKT vještine se odnose na vještine vezane za, npr. zadatke kao što su: upravljanje online marketingom ili e-trgovinom; upravljanje profilom preduzeća na društvenim mrežama; programski jezici; dizajn ili upravljanje web stranicama ili aplikacijama; upravljanje bazama podataka ili analiza podataka; održavanje računarskih mreža, servera itd.; IT-sigurnost ili upravljanje privatnošću; korištenje ili dizajn određenih softverskih aplikacija; upravljanje telekomunikacionim sistemima i mrežama itd.

Cilj ovog modula je identifikacija neusaglašenosti i nedostataka IKT stručnjaka na tržištu rada.

Samo 17,6% preduzeća je odgovorilo da zapošljava IKT stručnjake. Velika preduzeća imaju najviše zaposlenih IKT stručnjaka.

## *ICT experts and skills*

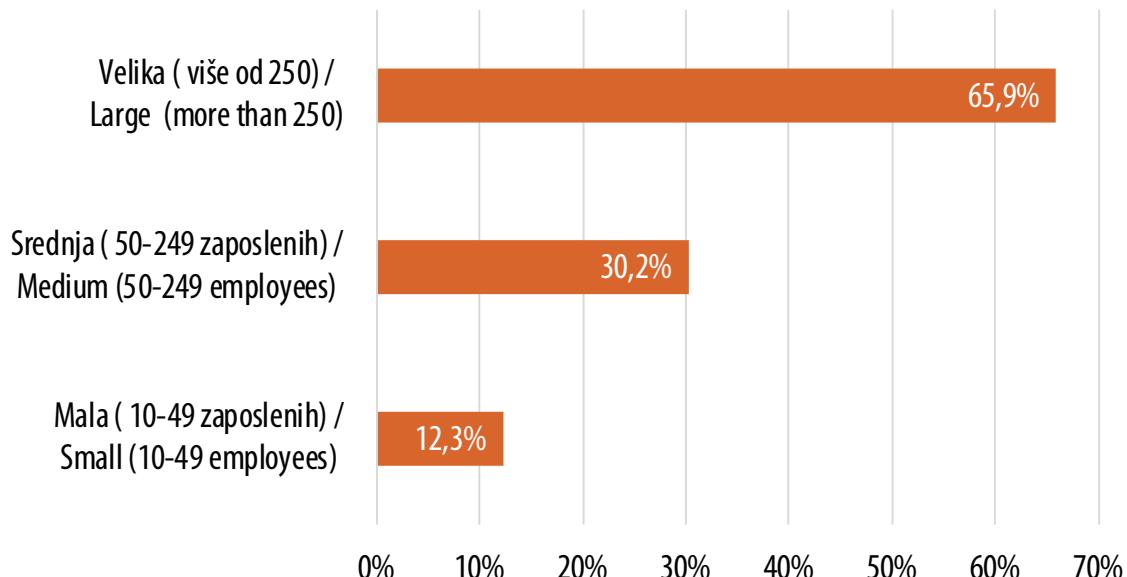
*ICT skills refer to skills related for instance to tasks such as: management of online marketing or e-commerce; management of enterprise's social media profile; programming languages; design or management of websites or apps; management of databases or data analysis; maintenance of computer networks, servers, etc.; IT-security or privacy management; use or design of specific software applications; management of telecommunications systems and networks etc.*

*Aim of this module is to identify mismatches or shortages of ICT specialists in the labour market.*

*Only 17.6% enterprises employs ICT experts. Large enterprises have the largest number of employed ICT experts.*

Grafikon 13. Da li preduzeća zapošljavaju IKT stručnjake, po veličini preduzeća?

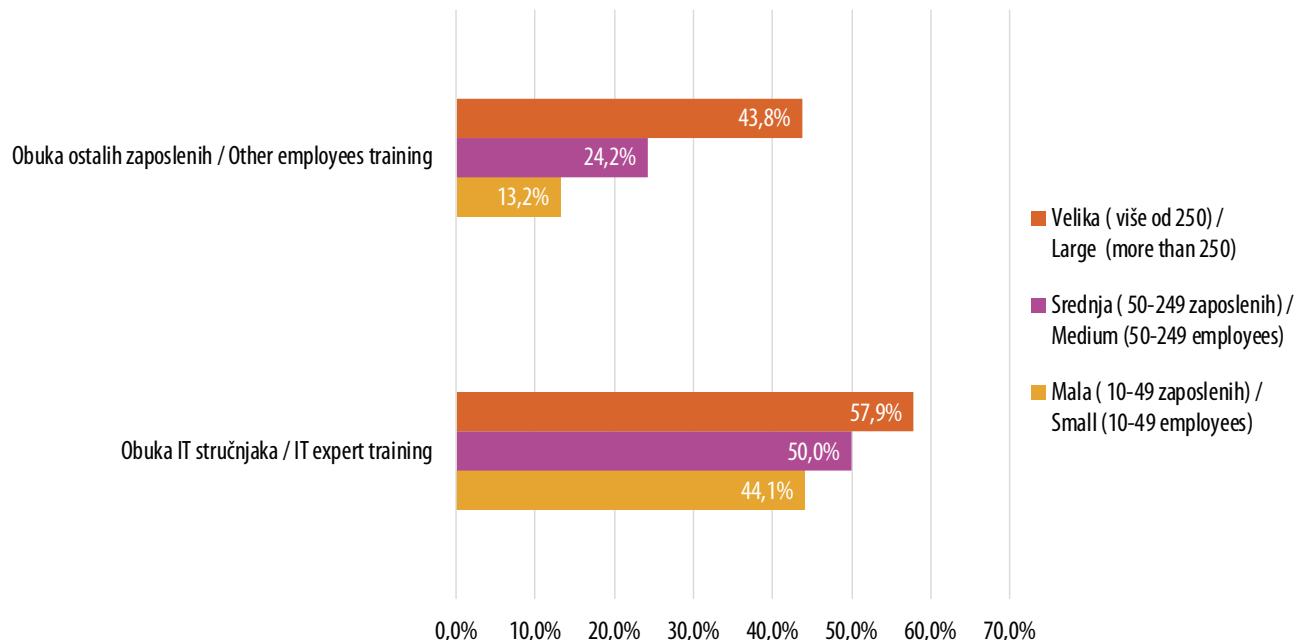
Graph 13 Do enterprises employ ICT experts, by enterprise size



Velika preduzeća su organizovala najviše obuka za razvijanje IKT vještina, kako za IT stručnjake, tako i za ostale zaposlenike.

*Large enterprises organized the most trainings for developing ICT skills, for IT experts, as well as for other employees.*

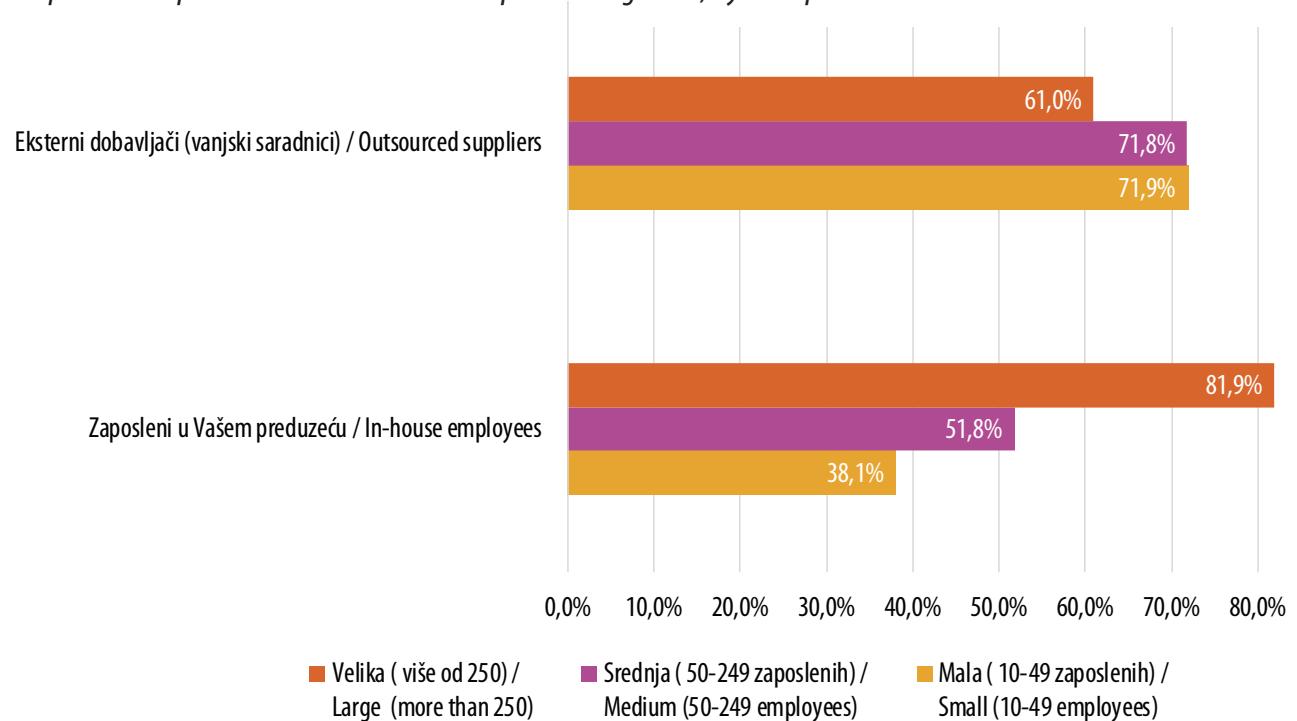
**Grafikon 14. Pružanje obuka zaposlenim radi razvoja IKT vještina, po veličini preduzeća**  
*Graph 14 Trainings provided to employees for developing ICT skills, by enterprise size*



Istraživanje je pokazalo da, kako veličina preduzeća raste, tako raste broj interno zaposlenih IT stručnjaka.

*The survey shows that, as enterprise size increases, so does increase the number of in-house IT experts.*

**Grafikon 15. Ko obavlja IKT funkcije u preduzeću tokom 2023. godine, po veličini preduzeća**  
*Graph 15 Who provided ICT services in enterprise during 2023, by enterprise size*



## Upotreba cloud usluga

Cloud servisi podrazumijevaju IKT servise kojima se pristupa putem interneta radi upotrebe softvera, prostora za skladištenje podataka i sl.

Servisi imaju sljedeće karakteristike:

- nalaze se na serverima pružalaca usluga (providera);
- mogu da se upotrebljavaju na zahtjev korisnika;
- plaćaju se na osnovu načina upotrebe, kapaciteta prostora.

20,7% preduzeća plaća Cloud servise.

## Using Cloud Computing Services

*Cloud services include ICT services that are accessed via the Internet for use software, storage space, etc.*

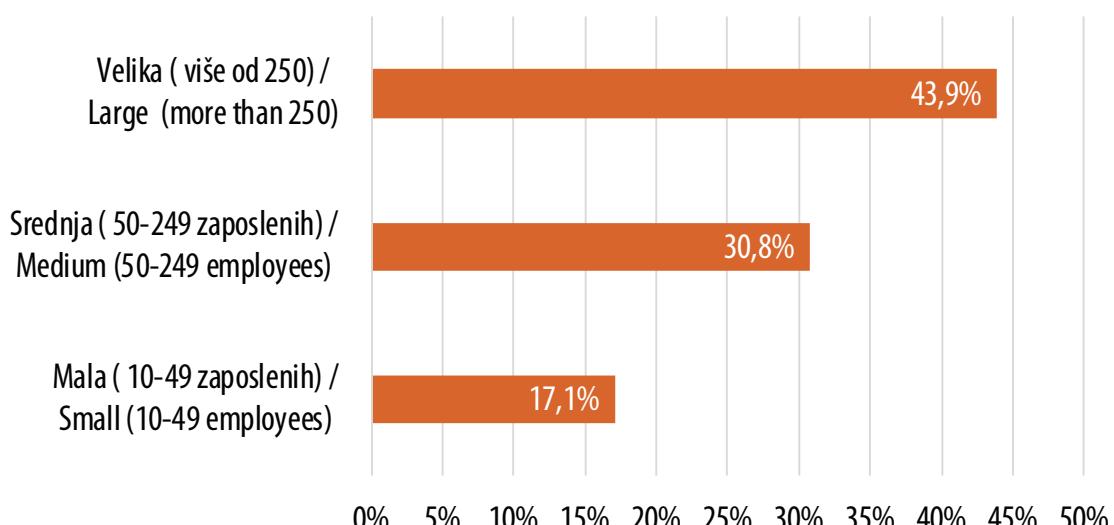
*The services have the following characteristics:*

- *they are located on the servers of service providers;*
- *they can be used at the request of the user;*
- *they are paid on the basis of usage, space capacity.*

*20.7% of enterprises pay for Cloud services.*

Grafikon 16. Da li vaše preduzeće plaća usluge cloud servisa putem interneta?

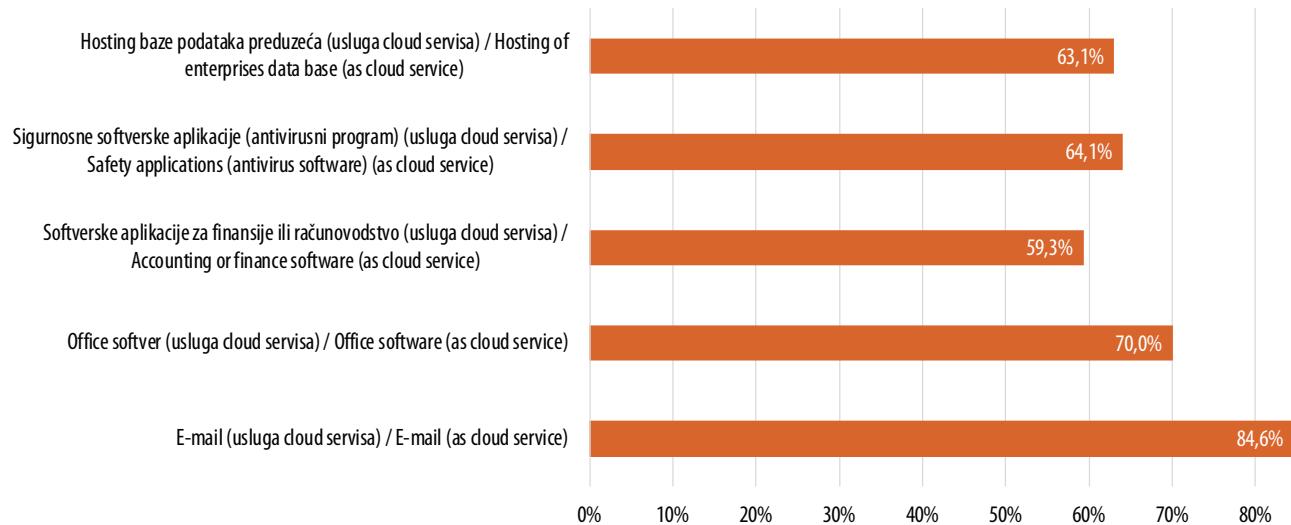
Graph 16 Does your enterprise pay for cloud services online?



Od preduzeća koja plaćaju Cloud servise, najzastupljenija plaćena usluga (84,6%) je e-mail kao usluga cloud servisa.

*Of the enterprises which pay for Cloud services, the largest share (84.6%) is E-mail as a cloud service.*

Grafikon 17. Da li vaše preduzeće kupuje neku od sljedećih usluga cloud servisa koje se koriste putem interneta?  
Graph 17 Does your enterprise purchase any of the following cloud services that are used over the Internet?



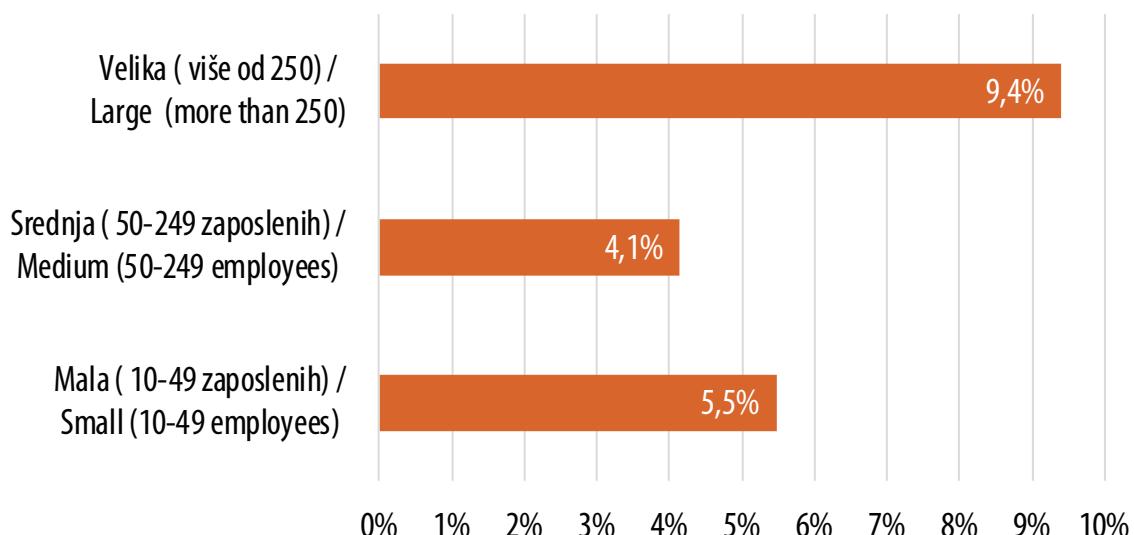
## Vještačka inteligencija

## Artificial intelligence

Samo 5,4% preduzeća, u prosjeku, je odgovorilo da koristi vještačku inteligenciju.

*Only 5.4% of enterprises, in average, answered that they use artificial intelligence.*

Grafikon 18. Preduzeća koja koriste vještačku inteligenciju, po veličini preduzeća  
*Graph 18 Enterprises using artificial intelligence, by enterprise size*



Od preduzeća koja koriste vještačku inteligenciju, 89,6% ih koristi analizu pisanih jezika (npr. text mining).

*Of the enterprises that use artificial intelligence, 89.6% use written language analysis (eg text mining).*

## Fakture

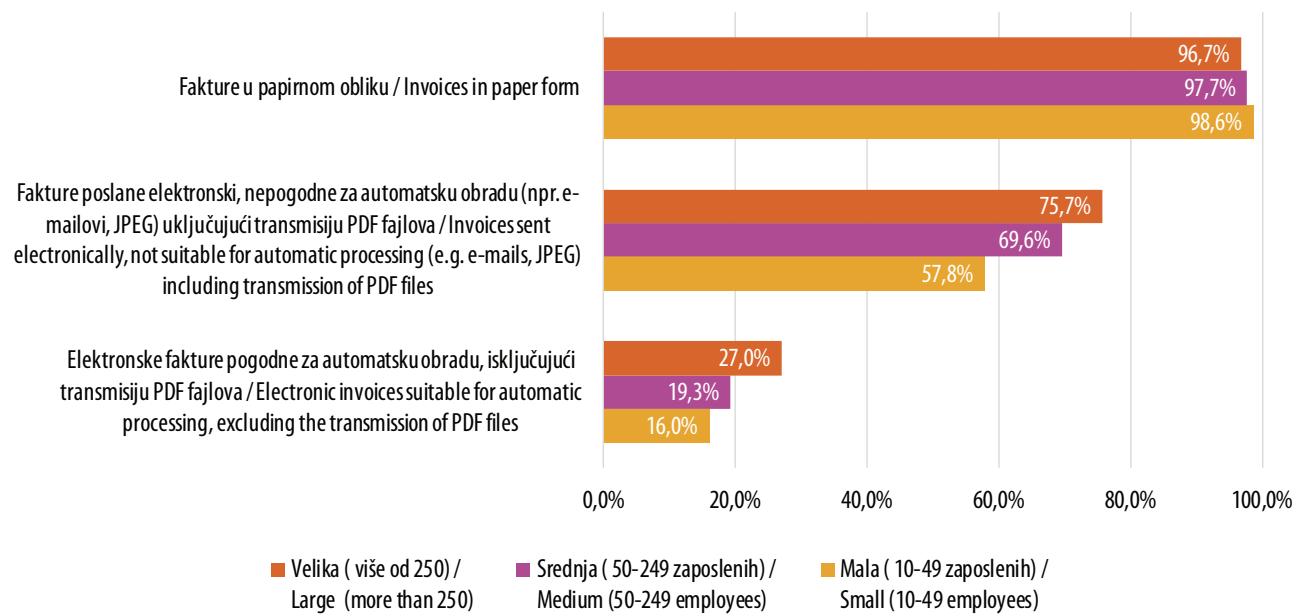
Istraživanje pokazuje da gotovo sva preduzeća šalju tradicionalne papirne fakture.

## Invoices

*Research shows that almost all companies send traditional paper invoices.*

Grafikon 19. Da li je vaše preduzeće poslalo bilo koju od sljedećih vrsta faktura u 2023. godini, po veličini preduzeća?

*Graph 19 Did your enterprise send any of the following types of invoices in 2023, by enterprise size*



## IKT RJEČNIK

### Definicije

**IKT** (informacione i komunikacione tehnologije) su softveri i hardveri upotrijebljeni za komuniciranje podacima (npr. računar, telefaks, internet, fiksni i mobilni telefon).

**Broadband** su širokopojasne tehnologije ili veze koje omogućavaju brz prijenos podataka. Komunikacioni sistem čiji nosilac (npr. optički kabl) prenosi umnožene podatke u isto vrijeme, a svaki pojedinačni podatak modeliran je na posebnoj frekvenciji.

**ADSL (Asymmetric Digital Subscriber Line)** Širokopojasna digitalna transmisiona tehnologija koja koristi postojeću telefonsku liniju i dopušta istovremeno slanje podataka i komunikaciju glasom. Veći dio opsega služi za slanje podataka korisniku, a brzine se kreću do 6 Mbps.

**Bit (Binary Digit)** Najmanja jedinica informacije kojom rukuje računar Bit se prikazuje sa 1, ili 0 u binarnom prikazu, ili true, odnosno false u logičkom prikazu. Grupa od 8 bita čini 1 bajt.

**E-government** je elektronski kontakt preko interneta sa tijelima vlasti i javnim uslugama. Ne uključuju ručno kucane e-mailove. Saradnja i odnosi sa tijelima vlasti i javnim uslugama uključuje web stranice koje sadrže građanske obaveze (npr. porezne prijave, obaveze o kretanju), prava (npr. socijalne beneficije), službeni dokumenti (lične karte, rodni list), javne obrazovne usluge (javne biblioteke, informacije o upisu u javne škole, fakultete), usluge javnog zdravstva (koje uključuju usluge javnih bolnica).

**E-trgovina** su transakcije koje se provode preko mreža računara baziranih na internetskom protokolu te preko ostalih računarskih mreža. Primanje narudžbi, dobara i usluga ostvaruje se putem navedenih mreža, ali samo plaćanje i konačna isporuka dobara i usluga mogu biti provedeni online ili offline. Narudžbe primljene telefonom, telefaksom ili ručno pisanim elektronskim porukama ne smatraju se e-trgovinom.

**Računari** uključuju personalne računare (PC), prijenosne računare (laptop), tablete i ostale prijenosne uređaje (npr. smartphones).

**CRM (Customer Relationship Management)** Predstavlja proces ili metodologiju koja se koristi kako bismo više naučili o potrebama i navikama naših potrošača i da bismo razvili čvršće veze s njima. CRM sadrži više tehnoloških komponenti, ali je CRM u organizacionom smislu skup procesa koji će pomoći da se sakupe neophodne informacije o potrošačima, prodaji, marketinškoj efikasnosti,

## ICT GLOSSARY

### Definitions

**ICT** (*Information and Communication Technology*) are software and hardware used for data communication (e.g. computer, fax, the internet, landline and mobile phone).

**Broadband** are technologies or connections that enable rapid transmission of data. A communication system whose carrier (eg, optical cable) transmits multiplied data simultaneously, and each individual data is modulated on a particular frequency.

**ADSL (Asymmetric Digital Subscriber Line)** Broadband digital transmission technology that uses an existing telephone line and allows simultaneous data transmission and voice communication. Most of the bandwidth is used to send data to the user, and the speed ranges up to 6 Mbps.

**Bit (Binary Digit)** The smallest piece of information that the computer handles. Bit is displayed with 1, or 0 in the binary view, or true, and false in the logical view. A group of 8 bits makes 1 byte.

**E-government** is an electronic contact via the Internet with government authorities and public services. It does not include hand-written e-mails. Cooperation and relations with authorities and public services include websites that contain civil obligations (e.g. tax returns, movement obligations), rights (e.g. social benefits), official documents (ID cards, birth certificates), public educational services (public libraries, information on enrollment in public schools, faculties), public health services (which include public hospital services).

**E-commerce** are transactions conducted over an internet protocol-based networks and over other computer-mediated networks. Goods and services are ordered via these networks, but the payment and the delivery of the goods or services may be conducted on-line or off-line. Orders received via telephone, facsimile, or manually typed e-mails are not considered e-commerce.

**Computers** include personal computers (PCs), portable computers (laptops), tablets and other portable devices (e.g., smartphones).

**CRM (Customer Relationship Management)** It represents a process or methodology used to learn more about the needs and habits of consumers and to develop tighter relationships with them. CRM contains several technological components, but CRM is an organizational set of processes that assists in gathering the necessary information on consumers, sales, marketing efficiency, consumer reactions and market

reakcijama potrošača i tržišnim trendovima. CRM pomaže poslovno korištenje tehnologije i ljudskih resursa kako bi se stekao uvid u ponašanje i vrijednost potrošača.

**ERP (Enterprise Resource Planning)** je skraćenica od Enterprise Resource Planning i sastoji se od jednog ili više skupova softverskih aplikacija koje integriraju informacije i procese u nekoliko poslovnih funkcija unutar poduzeća. ERP softver se može instalirati i koristiti u hardverskom kapacitetu preduzeća ili se može koristiti kao usluge računarstva u oblaku. Obično ERP integriše planiranje, nabavku, prodaju, marketing, odnos sa klijentima, finansije i ljudske resurse. Smatra se da preduzeća koriste ERP softver ako koriste sve ili samo jedan skup softverskih aplikacija (modula).

**Download** Elektronski transfer informacija sa udaljenog računara na vaš računar. Preuzimanje datoteka sa anonimnog FTP-a jeste popularan način pribavljanja besplatnog softvera u javnom vlasništvu.

**DSL (Digital Subscriber Line)** Vrsta brze internet konekcije korištenjem standardnih telefonskih parica. Može biti i vrsta broadband konekcije.

**xDSL, ADSL** Prijenos koji se vrše putem internet mreža zasnovanih na protokolu i putem ostalih kompjuterskih mreža. Roba i usluge se naručuju putem tih mreža, ali isplata i konačno dostavljanje robe ili usluge može da se provodi na mreži ili izvan mreže (offline). Narudžbe koje se primaju putem telefona, faksa ili maila ne ulaze u kategoriju elektronske trgovine.

**E-mail** Elektronski prijenos poruke, uključujući tekst i priloge, s jednog na drugi računar koji su locirani unutar ili izvan organizacije. To uključuje elektronsku poštu putem interneta ili drugih računarskih mreža.

**Cloud computing** se odnosi na IKT usluge koje se koriste preko interneta za pristup softverima, računarskoj snazi, kapacitetima memorije i sl.

**Big data analiza** se odnosi na korištenje tehnologija, tehnika i softverskih alata, za dubinsko prikupljanje podataka ili teksta, mašinsko učenje, itd. radi analize podataka prikupljenih iz izvora u vašem vlastitom preduzeću ili drugih izvora.

trends. CRM helps business use technology and human resources to gain insight into the behavior and value of consumers.

**ERP (Enterprise Resource Planning)** is, in short, a software system that tracks all aspects of enterprises business. The implemented ERP system is able to integrate the business of various parts of the enterprise (such as accounting, sales, production, etc.) into one single entity. This creates a system through which it is possible, on the one hand, to manage all human and material resources, and on the other, to plan, develop and monitor business processes and procedures.

**Download** Electronic transfer of information from a remote computer to your computer. Downloading anonymous FTP files is a popular way to get free public domain software.

**DSL (Digital Subscriber Line)** A type of fast internet connection using standard telephone pairs. It can also be a type of broadband connection.

**xDSL, ADSL etc.** Transfers made via Internet networks based on the protocol and through other computer networks. Goods and services are ordered through these networks, but payment and final delivery of goods or services can be carried out online or off-line. Orders received by phone, fax or e-mail are not considered e-commerce.

**E-mail** Electronic message transmission, including text and attachments, from one computer to another located inside or outside the organization. This includes an electronic mail via the Internet or other computer networks.

**Cloud computing** refers to ICT services that are used over the internet to access software, computing power, storage capacity etc.

**Big data analysis** refers to the use of technologies, techniques or software tools such as data or text mining, machine learning, etc., for analysing big data extracted from your own enterprise's data sources or other data sources.

