

UPORABA informacijsko-komunikacijskih tehnologija u Bosni i Hercegovini

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

2020



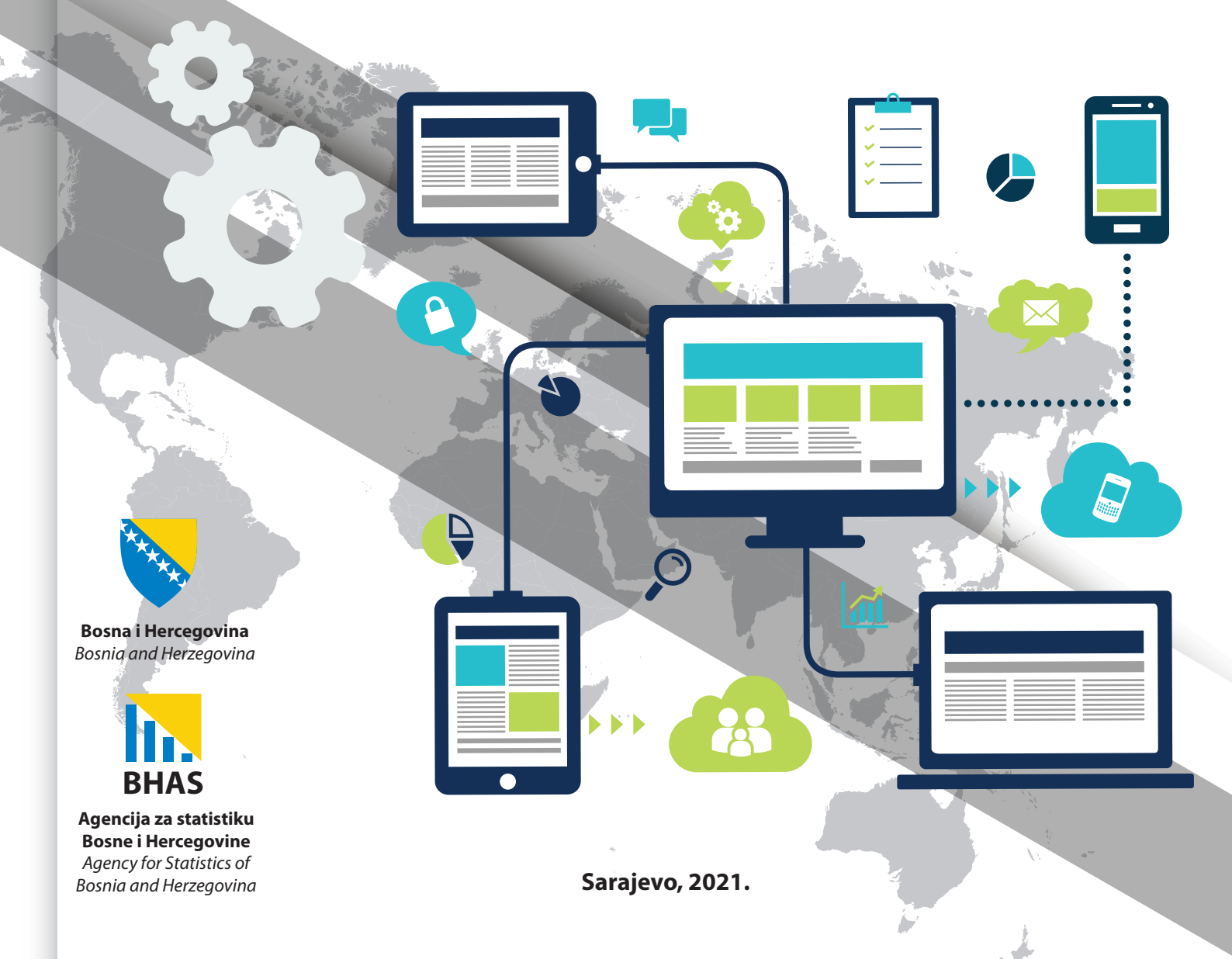
Bosna i Hercegovina
Bosnia and Herzegovina



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

Sarajevo, 2021.



**UPORABA INFORMACIJSKO-
KOMUNIKACIJSKIH TEHNOLOGIJA
U BOSNI I HERCEGOVINI**
*USE OF INFORMATION AND
COMMUNICATION TECHNOLOGIES
IN BOSNIA AND HERZEGOVINA*
2020



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Bosnia and Herzegovina



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

Sarajevo, 2021

Izdaje: Agencija za statistiku Bosne i Hercegovine
Zelenih beretki 26, 71000 Sarajevo
Bosna i Hercegovina
Telefon: +387 33 91 19 11; Faks: +387 33 22 06 22
E-mail: bhas@bhas.gov.ba; Internetska stranica: www.bhas.gov.ba

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Odgovara: v.d. ravnatelj Vesna Ćužić
Person responsible: Vesna Ćužić, Actg. Dir.

Pripremio: Dragan Jovović
Prepared by: Dragan Jovović

Lektura: Amra Kapetanović
Proofreading: Snježana Badnjar

Dizajn naslovnice: Lejla Rakić Bekić
Cover design: Lejla Rakić Bekić

Tehnička priprema: Larisa Hasanbegović
Pre-press and DTP: Larisa Hasanbegović

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UVOD

Razvoj i uporaba informacijsko-komunikacijskih tehnologija transformirali su suvremeno društvo u „informacijsko društvo“. Njegova glavna karakteristika je ta što informacijsko-komunikacijske tehnologije igraju najvažniju ulogu kako u proizvodnji i ekonomiji, tako i u svim ostalim sferama života pojedinca i društva u cjelini.

Uvidjevši značaj ovih tehnologija, Agencija za statistiku Bosne i Hercegovine 2016. godine provela je pilot-istraživanje o korištenju informaciono-komunikacionih tehnologija u poduzećima (IKT-P) kao i istraživanje o korištenju informacijsko-komunikacijskih tehnologija u kućanstvima i pojedinačno (IKT-D).

Svrha ovoga istraživanja je prikazati razinu uporabe računara i ostalih informacijsko-komunikacijskih 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 informacijskog društva.

Koncepti i definicije koje se primjenjuju za IKT istraživanja usklađeni su sa Eurostatovom metodologijom za statistike o Informacijskom društvu, 2020, sa regulativom Europskog parlamenta i Vijeća br. 2019/2152 i 2019/1700 o statistici Zajednice o informacijskom društvu.

Kada je riječ o kućanstvima i pojedincima, referentno razdoblje činila su tri mjeseca koja su prethodila telefonskom intervjuiranju ili posjeti anketara, dok su se pojedina pitanja odnosila na cjelokupnu 2019. godinu.

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

Veličina uzorka za razinu Bosne i Hercegovine je 8 165 kućanstava. Stopa odgovora je 79,1%, odnosno 6 457 kućanstava (stoji stopa odgovora = broj jedinica koje su odgovorile/sa broj jedinica izabran u uzorak).

Podaci su prikupljeni putem telefonskog anketiranja (CATI).

Anketa za poduzeća provedena je na uzorku stratificiranom po veličini i djelatnosti. Okvir uzorka je Statistički poslovni registar. Primijenjen je stratificirani uzorak, veličina uzorka 2 634 poduzeća.

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.

Recognizing the importance of these technologies, statistical institutions in Bosnia and Herzegovina conducted for the first time in 2016 a pilot survey on the use of information and communication technologies (ICT-ENT), as well as survey on the Usage of information and communication technologies in households and by individuals (ICT-HH).

The purpose of this survey is to show the level of use of computers 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, 2020., with the European Parliament and Council Regulation No. 2019/2152 and 2019/1700 on Community Statistics on the Information Society.

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 2019.

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.

The sample size at the level of Bosnia and Herzegovina is 8165 households. The response rate is 79.1%, or 6457 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 2634 enterprises.

Realizirani uzorak 2 276 poduzeća. Stopa odgovora iznosi 86,41%.

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

Istraživanje IKT-P provedeno je na temelju Eurostat smjernica. Koncepti i definicije koji se primijenjuju u istraživanju IKT-P usklađeni su sa EU Metodologijom za statistiku o informacijskom društvu, 2020.

Nadamo se da će ova publikacija pružiti korisnicima dovoljno podataka o trenutnom stanju u oblasti informacijsko-komunikacijskih tehnologija i da će poslužiti kao dobar temelj za planiranje njenog daljeg razvoja.

The realized sample of 2 276 enterprises. The response rate is 86.41%

The data were collected via CATI and survey by mail.

The ICT-ENT survey was conducted according to Eurostat guidelines. Concepts and definitions used in the ICT-ENT survey are in line with the EU Methodology for Statistics on the Information Society, 2020.

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.

KUĆANSTVA I POJEDINCI
HOUSEHOLDS AND
INDIVIDUALS

UZORAK

Istraživanja o uporabi informacijsko-komunikacijskih tehnologija u kućanstvima provedeno je na reprezentativnom uzorku od 8 165 kućanstava na teritoriju Bosne i Hercegovine. Stopa odgovora iznosi 79,1%, (6 457 kućanstava).

SAMPLE

The survey on the use of information and communication technologies in households was conducted on a representative sample of 8165 households in the territory of Bosnia and Herzegovina. The response rate is 79,1%, (6,457 households).

Uzorak kućanstva Household sample	Entitet /Entity			Ukupno BiH Total BiH	Gradsko Urban	Ostalo Other	Kućanstva sa i bez djece Households with and without children	
	Federacija BiH Federation of BiH	Republika Srpska Republic of Srpska	Distrikt Brčko Brčko District				Kućanstva sa djecom mlađom od 16 godina Households with children under 16 years of age	Kućanstva bez djece mlađe od 16 godina /Households without children under 16 years of age
Broj odgovora Number of responses	3 442	2 600	415	6 457	3 209	3 248	1 788	4 669
%	53,3	40,3	6,4	100,0	49,7	50,3	27,7	72,3

Isti uzorak koji je upotrebljen kod kućanstava iskorišten je i za anketiranje osoba starosti od 16 do 74 godine koji žive na teritoriju Bosne i Hercegovine, uzorak je obuhvatio 8 165 pojedinca. Stopa odgovora iznosi 79,1% (6 457 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 8 165 individuals. The response rate is 79.1% (6 457 persons).

Uzorak kućanstva Household 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	2 889	3 568	6 457	479	618	979	1 253	1 506	1 622
%	44,7	55,3	100,0	7,4	9,6	15,2	19,4	23,3	25,1

Uzorak osobe Person sample	Ukupno BiH Total BiH	Obrazovna razina 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 (umirovljenici, neaktivni) Other not in the labour force (retired, inactive)
Broj odgovora Number of responses	6 457	1 808	3 886	763	2 032	1 635	213	2 577
%	100,0	28,0	60,2	11,8	31,5	25,3	3,3	39,9

GLAVNI POKAZATELJI

Računari u kućanstvima

(bilo koje vrste: desktop, laptop, netbook, tablet, osim smart phone)

Rezultati istraživanja o uporabi informacijsko-komunikacijskih tehnologija u kućanstvima i pojedinačno (IKT-D) u Bosni i Hercegovine, pokazali su sljedeće:

- 62,2% kućanstava imaju pristup računaru
- 37,8% kućanstava nemaju pristup računaru

MAIN INDICATORS

Computers in households

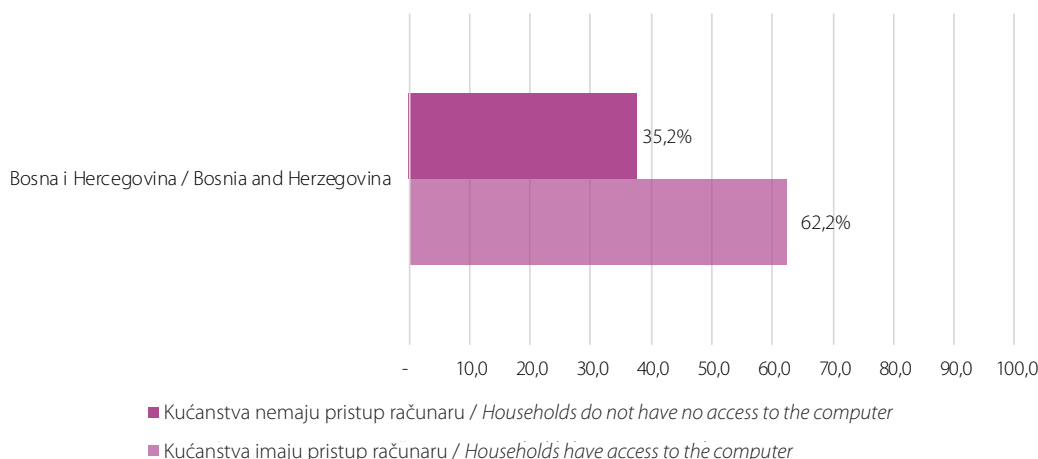
(Any type: desktop, laptop, netbook, tablet, except smartphones)

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

- 62.2% of households have access to a computer
- 37.8% of households do not have computer access

Grafikon 1. Postotak kućanstava koja imaju pristup računaru, BiH

Graph 1. Households access to the computer, BiH

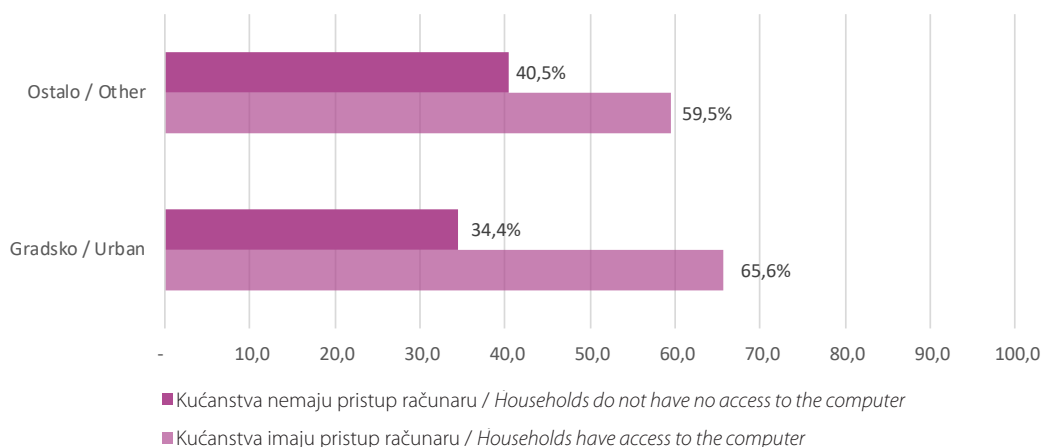


Zastupljenost računara u kućanstvima varira ovisno o tipu naselja. U urbanim sredinama 65,6% kućanstava ima pristup računaru u ostalim dijelovima 59,5%.

The representation of computers in households varies depending on the type of settlement. In urban areas 65.6% of households have access to a computer in other parts 59.5%

Grafikon 2. Postotak kućanstava koja imaju pristup računaru, prema tipu naselja, BiH

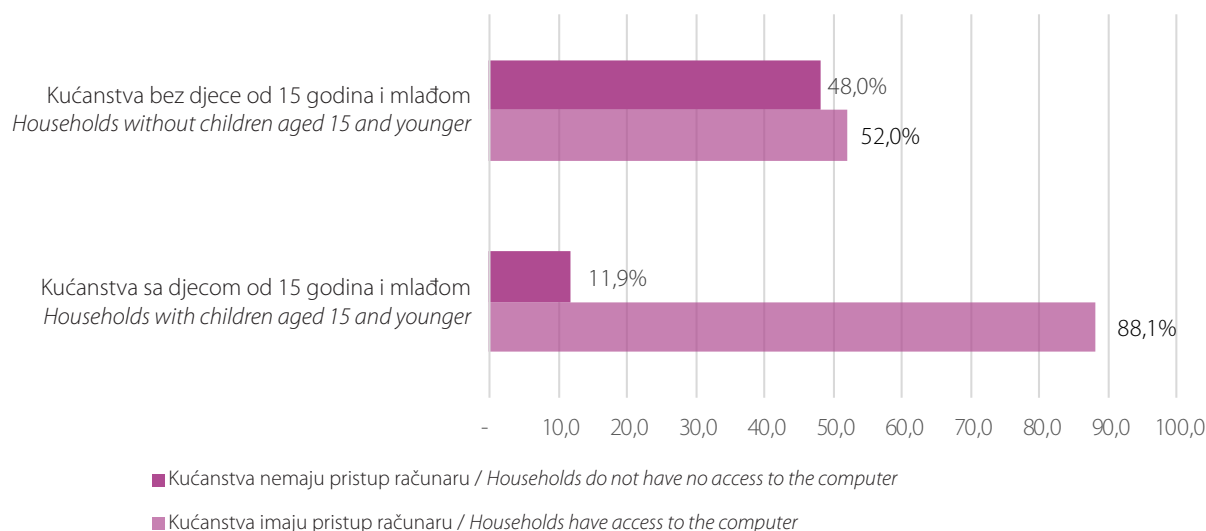
Graph 2. Percentage of households which have access to a computer, by settlement type, BiH



Značajne razlike se mogu primijetiti kada se upoređuje pristup računaru u kućanstvima sa djecom mlađom od 16 godina (88,1%) i kućanstvima bez djece mlađe od 16 godina (52,0%).

Huge differences can be observed when comparing computer access in households with children under 16 (88.1%) and households without children under 16 (52.0%).

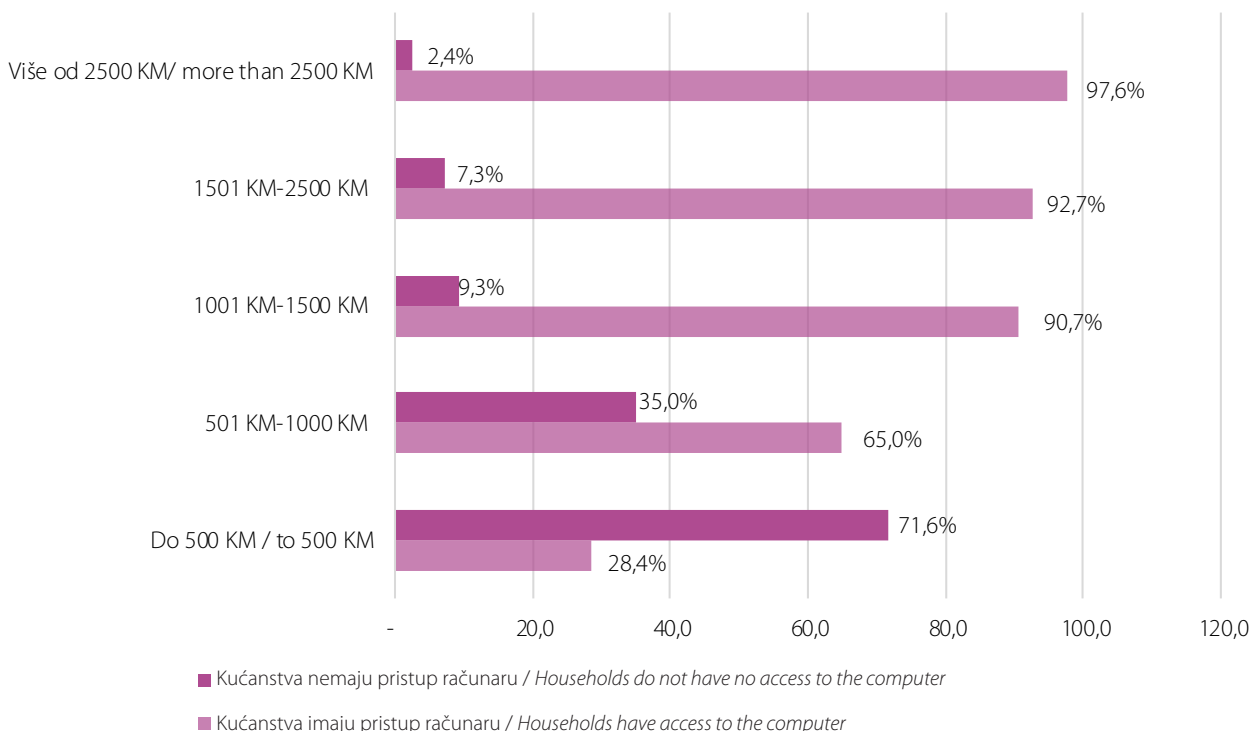
Grafikon 3. Postotak kućanstava koja imaju pristup računaru, sa djecom od 15 godina i mlađom, BIH
Graph 3. Percentage of households which have access to the computer, with children aged 15 and younger, BIH



Jazu pristupu kućanstava računaru vidljiv je u strukturi kućanstava po mjesečnom dohotku. Pristup računaru većinom imaju kućanstva sa mjesečnim primanjima većim od 1 500 KM (92,7%), odnosno prihodima većim od 2 500 KM (97,6%), dok udio kućanstava sa primanjima do 500 KM iznosi svega 28,4,6%.

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 1500 KM (92.7%) and revenue of more than 2,500 KM (97.6%), while the share of households with incomes up to 500 KM is only 28.4%.

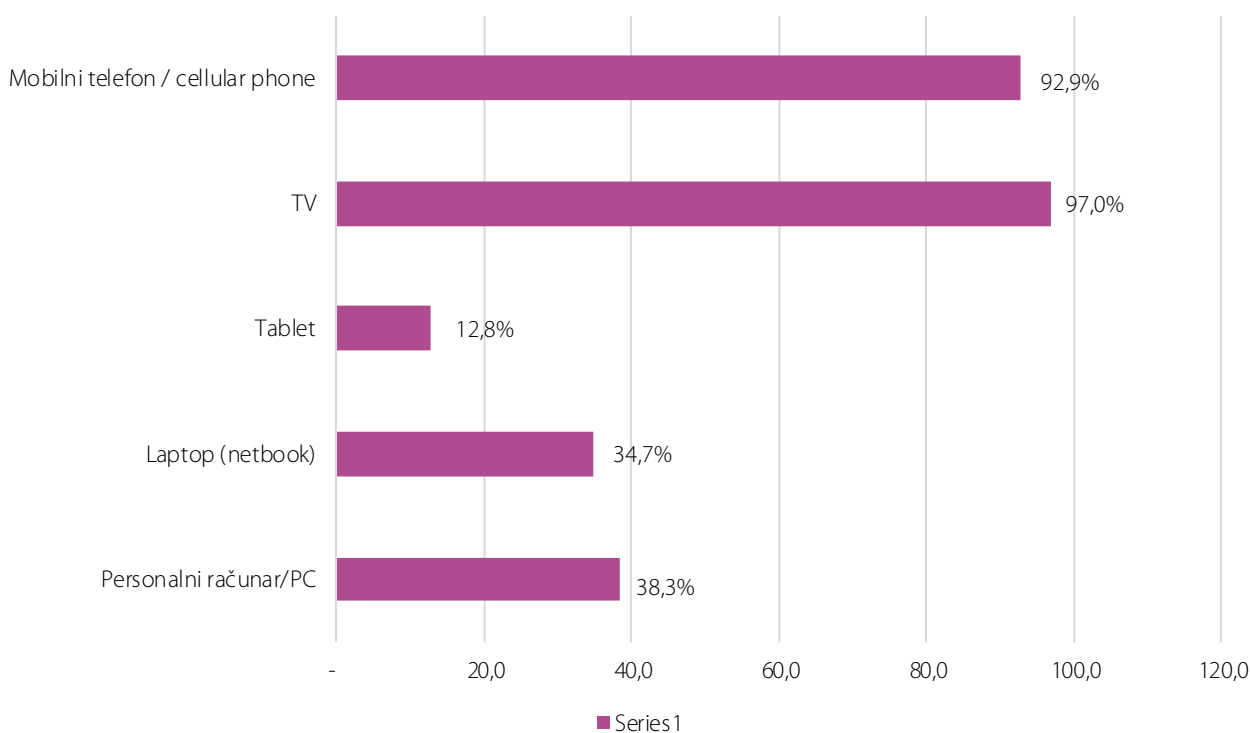
Grafikon 4. Postotak kućanstava koja imaju pristup računaru, prema mjesečnim neto prihodima kućanstva, BIH
Graph 4. Percentage of households which have access to the computer, according to monthly net income of the household, BIH



Na pitanje koje se odnosi na uređaje kojima kućanstvo ima pristup, ispitanici su mogli da daju više odgovora. Istraživanje pokazuje da 97,0% kućanstava posjeduje TV, a 92,9% kućanstava posjeduje mobilni telefon.

On the question relating to devices which household has access, respondents could give more than one answer. The survey shows that 97.0% of households own a TV and 92.9% of households own a mobile phone.

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



Internet u kućanstvima

Rezultati istraživanja o uporabi informacijsko-komunikacijskih tehnologija u kućanstvima i pojedinačno (IKT-D) u Bosni i Hercegovine, pokazali su sljedeće:

- kućanstva imaju pristup internetu: 72,8%
- kućanstva nemaju pristup internetu: 26,9%
- kućanstvo ne zna da li ima pristup internetu: 0,3%

U Bosni i Hercegovini 72,8% kućanstava ima pristup internetu, što je povećanje od 0,8% u odnosu na 2019. godinu.

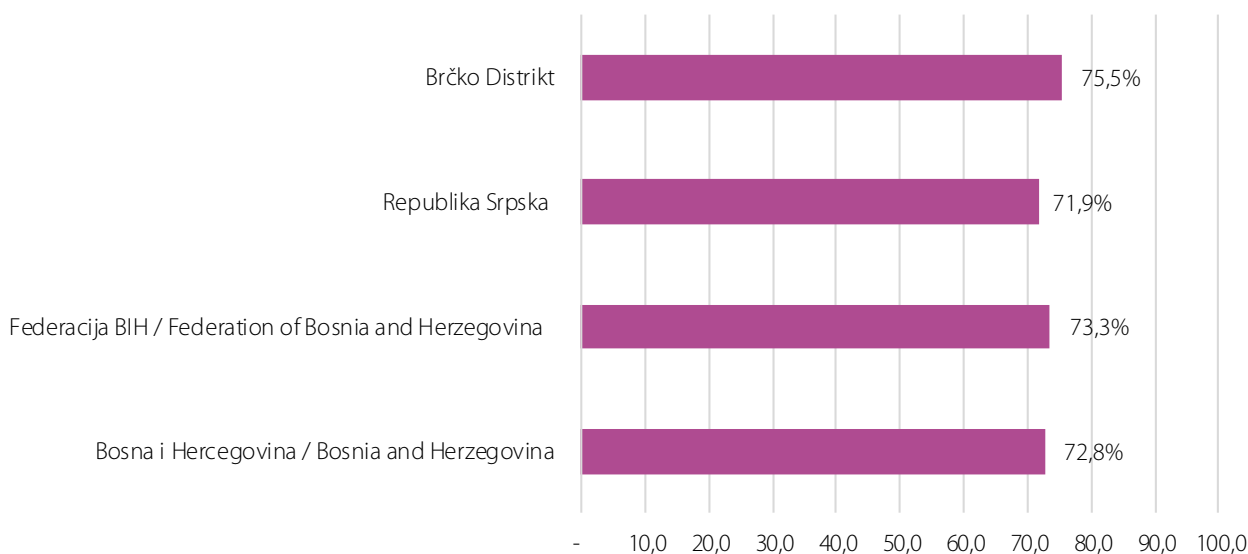
Internet in households

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: 72.8%
- households do not have Internet access: 26.9%
- households do not know whether it has access to the Internet: 0.3%

In Bosnia and Herzegovina, 72.8% of households have internet access, an increase of 0.8% compared to 2019.

Grafikon 6. Postotak kućanstava koja poseduju internet priključak, BIH 2020.
Chart 6. Percentage of households that own internet connection, BIH 2020



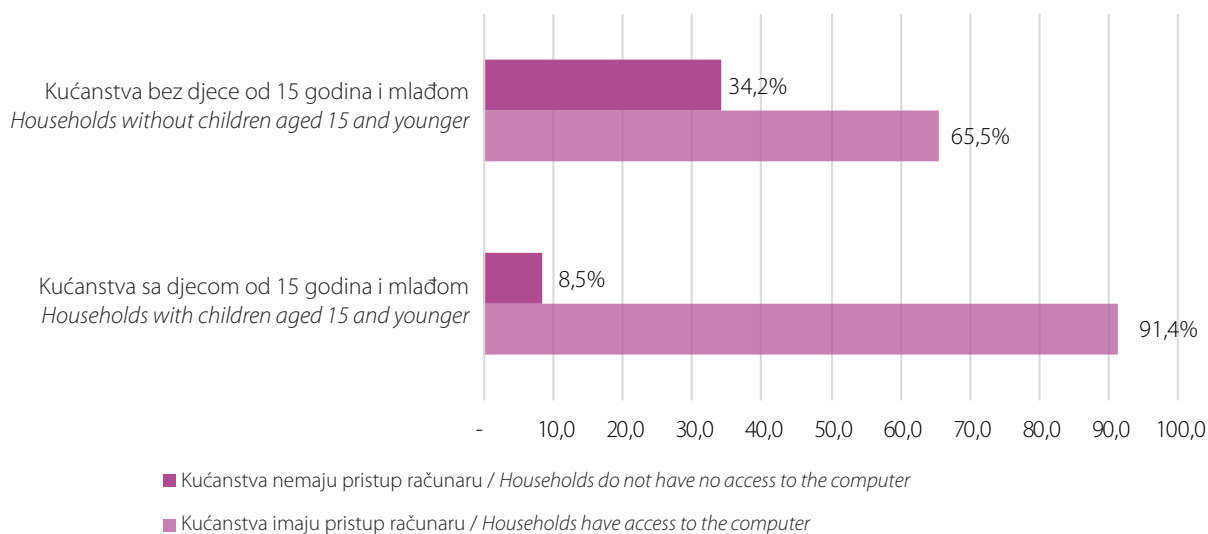
Rezultati istraživanja su pokazali da 91,4% kućanstava koja imaju djecu ispod 16 godina imaju pristup internetu.

Rezultati istraživanja su pokazali da 65,5% kućanstava koja nemaju djecu ispod 16 godina, imaju pristup internetu.

The survey results showed that 91.4% of households with children under 16 have an internet access.

The 65.5% of households have access to the Internet, without children aged under 16.

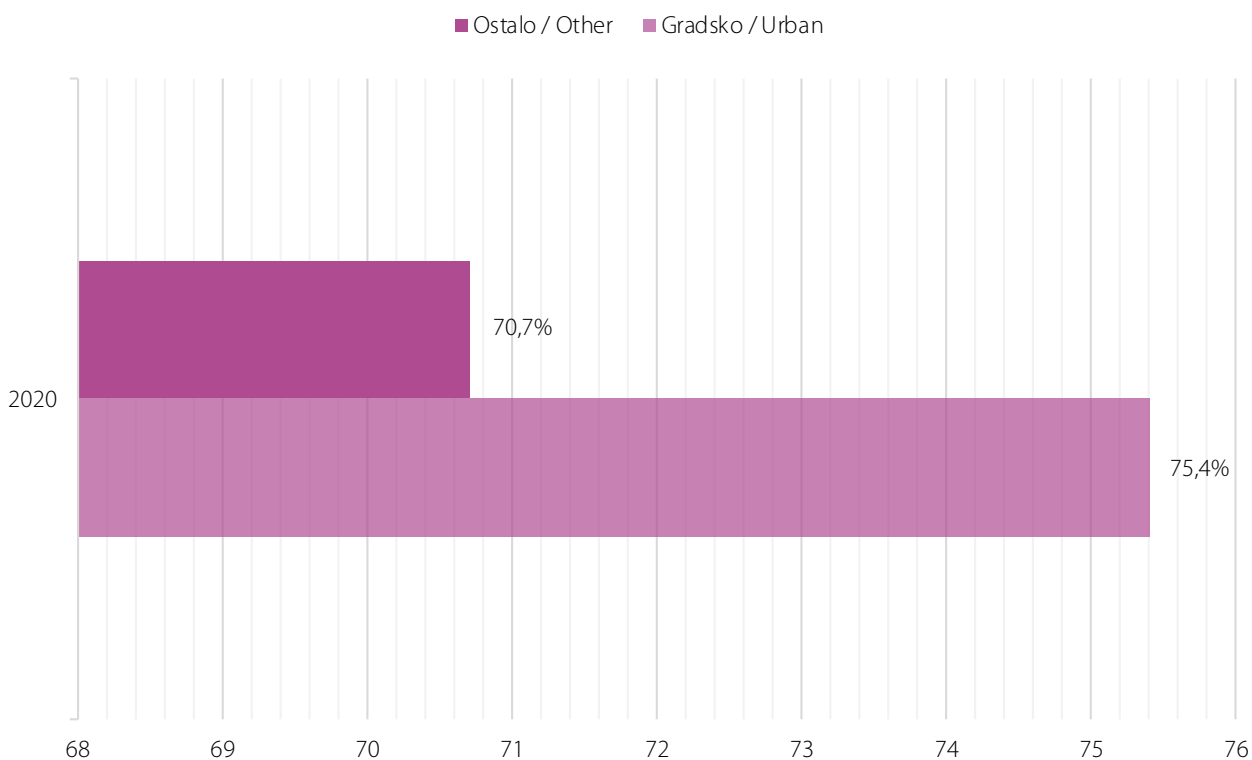
Grafikon 7. Postotak kućanstava koja imaju pristup internetu, sa djecom od 15 godina i mlađom, BiH
Graph 7. Percentage of households which have access to the Internet, with children aged 15 and younger, BiH



Internet priključak u kućanstvima varira ovisno o tipu naselja. U gradskim sredinama 75,4% kućanstava ima internet priključak u ostalim sredinama 70,7,3%.

Internet connection in households varies depending on the type of settlement. In urban areas 75.4% of households have internet connection in other areas 70.7%

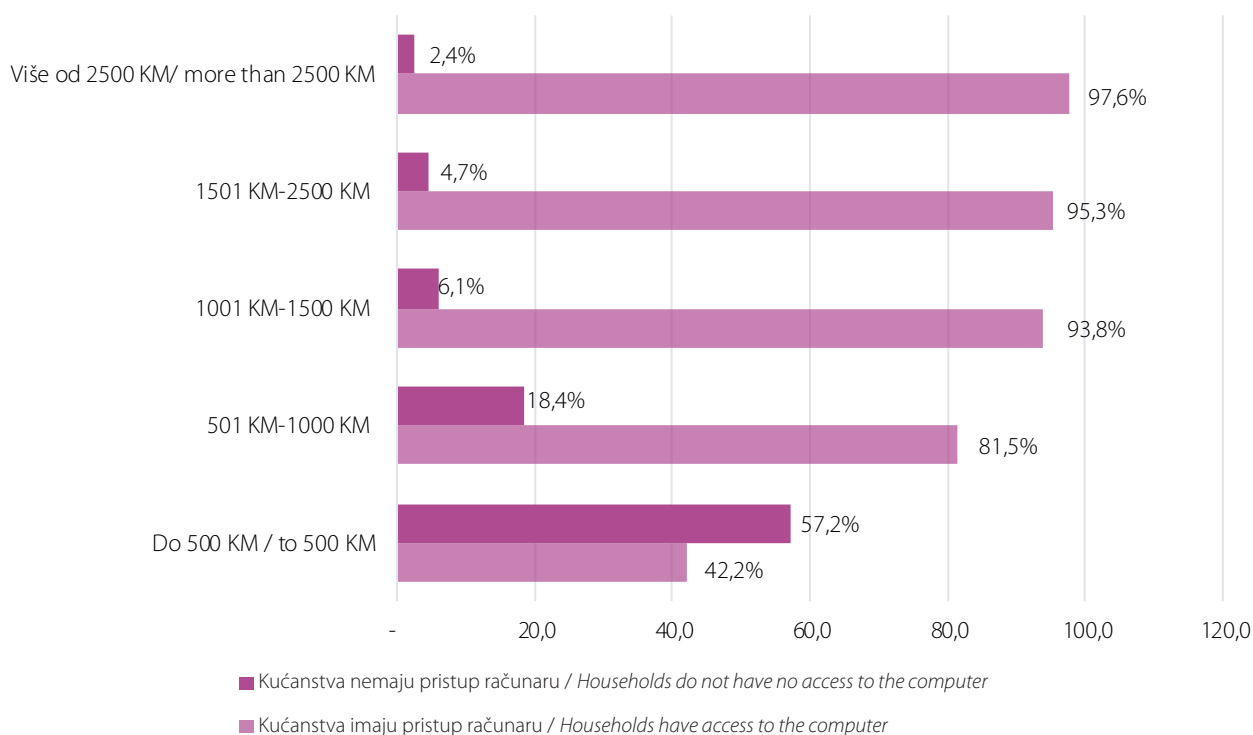
Grafikon 8. Postotak kućanstava koja poseduju internet priključak, prema tipu naselja
Graph 8. Percentage of households that own internet connection, by the type of settlement



Jaz u pristupu kućanstava internetu vidljiv je u strukturi kućanstava po mjesečnom dohotku. Pristup internetu većinom imaju kućanstva sa mjesečnim primanjima većim od 1 000 KM (93,8%), 1500 KM (95,3%), odnosno prihodima većim od 2 500 KM (97,6%), dok udio kućanstava sa primanjima do 500 KM iznosi svega 42,2%.

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 1000 KM (93.8%), 1500 KM (95.3%) and revenue of more than 2,500 KM (97.6%), while the share of households with incomes up to 500 KM is only 42.2%.

Grafikon 9. Postotak kućanstava koja imaju pristup internetu, prema mjesečnim neto prihodima kućanstva, BIH 2020.
Chart 9. Percentage of households which have internet connection, according to monthly net income of the household, BIH 2020



Pojedinci: uporaba računara¹
(Računar je stoni računar, laptop, netbook ili tablet računar)

U Bosni i Hercegovini je 65,7 % osoba u posljednja tri mjeseca koristilo računar, 2,9 % osoba je koristilo računar prije više od tri mjeseca, a 7,6 % prije više od godinu dana. Čak 23,8 % osoba nikada nije koristilo računar.

Za 3,5 % povećao se broj korisnika računara u odnosu na 2019. godinu, za 4,7 % u odnosu na 2018. godinu, a za 5,8% u odnosu na 2017. godinu.

Udio korisnika računara po spolu:

- Muškarci: 69,1%,
- Žene: 62,8%.

Udio korisnika računara prema starosnoj dobi:

- starosne dobi od 16-24: 94,7%,
- starosne dobi od 25-54: 83,8%,
- starosne dobi od 55-74: 38,6%

Individuals: use of computers¹
(Computers are: desktop, laptop, netbook, tablet)

In Bosnia and Herzegovina, in the last three months 65.7% of persons used a computer, 2.9% of persons use the computer more than three months, and 7.6% more than a year ago. Even 23.8% of respondents have never used a computer.

The number of computer users increased by 3.5% compared to 2019, by 4.7% compared to 2018, and by 5.8% compared to 2017.

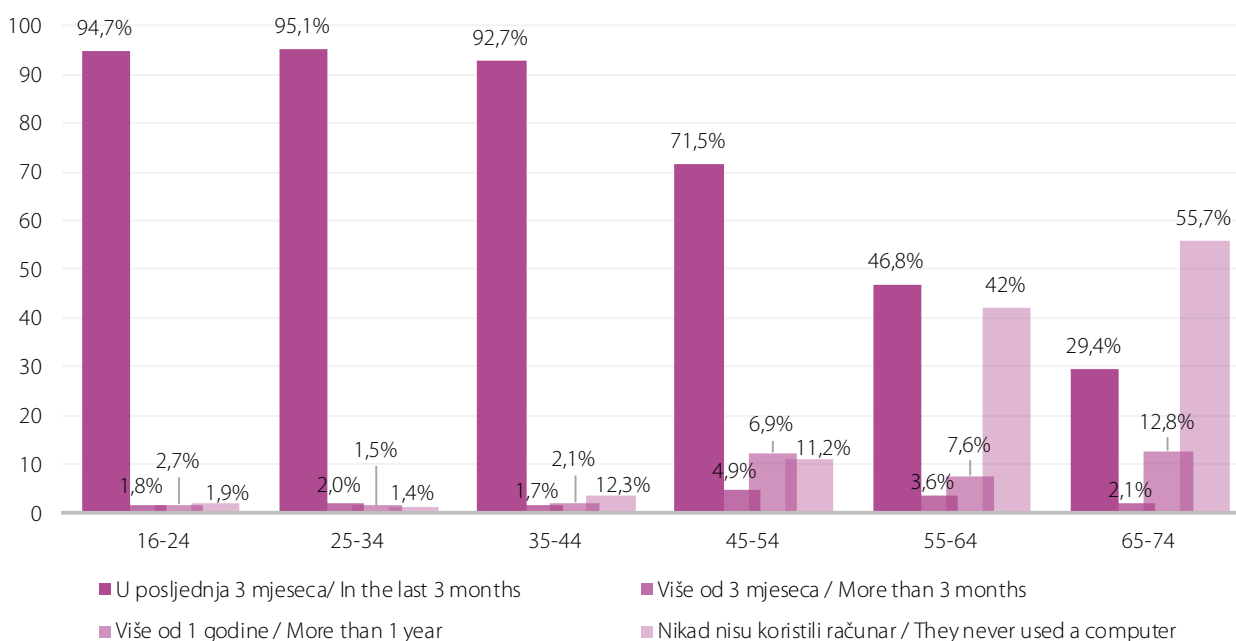
Share of computer users by gender:

- Males: 69.1%
- Females: 62.8%

Share of computer users by age:

- 94.7% of the age of 16-24;
- 83.8% of the age of 25-54;
- 38.6% of the age of 65-74.

Grafikon 10. Postotak korisnika računara , prema starosnoj dobi
Graph 10. Percentage of computer users, by age



Udio korisnika računara (u posljednja 3 mjeseca) prema obrazovnoj razini ispitanika:

- osobe sa višim i visokim obrazovanjem: 92,3%,
- osobe sa srednjim obrazovanjem: 73,1%,
- osobe sa osnovnim ili niže srednjim obrazovanjem: 35,2%.

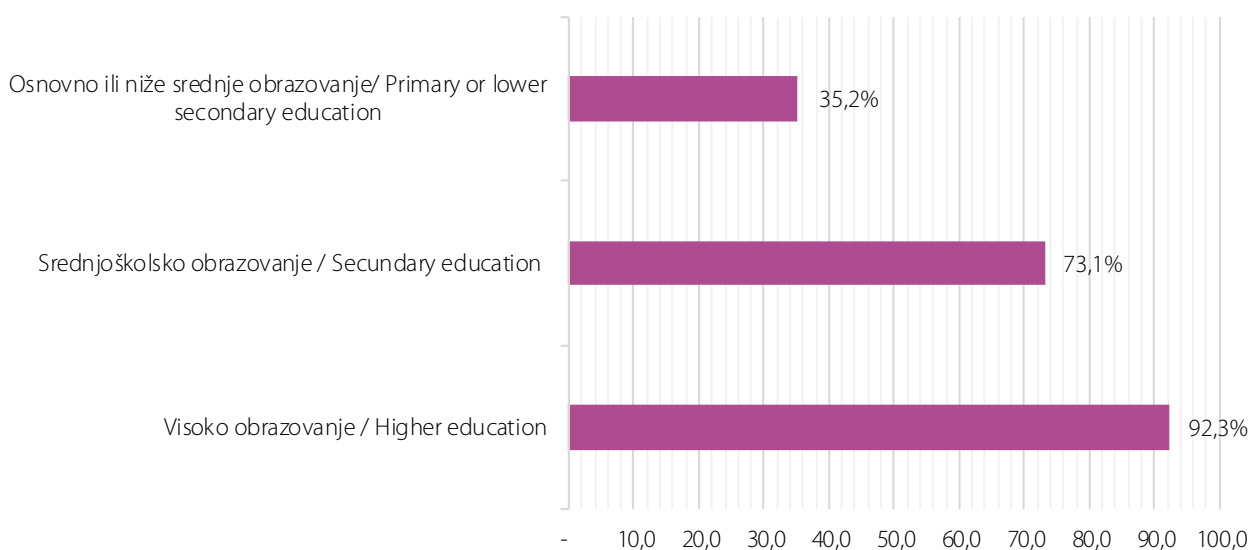
Share of computer users (in the last three months), by educational attainment level:

- persons with higher education: 92.3%
- persons with secondary education: 73.1%
- persons with primary or lower secondary education: 35.2%

¹ Referentno razdoblje I tromjesečje 2020.

¹ Reference period I quarter 2020

Grafikon 11. Udio korisnika računara (u posljednja tri mjeseca), prema razini obrazovanja, Bosna i Hercegovina
Graph 11. The share of comuter users (in the last three months), by education level, Bosnia and Herzegovina



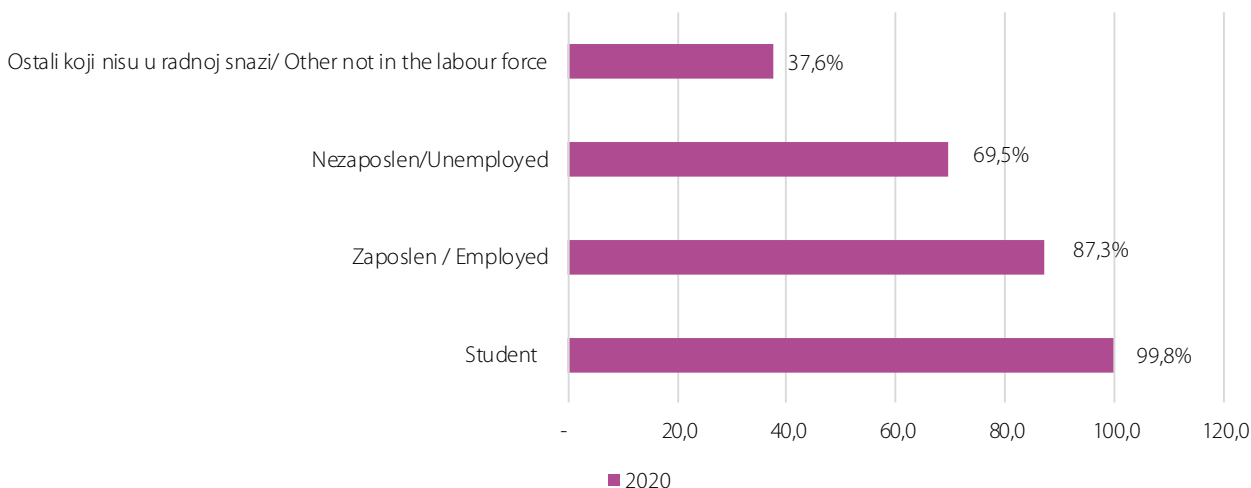
Udio korisnika računara (u posljednja 3 mjeseca) prema radnom statusu ispitanika:

- Studenti: 99,8%,
- Zaposleni: 87,3%,
- Nezaposleni: 69,5%,
- Ostali (umirovljenici, neaktivni i sl.): 37,6%

Share of computer users (in the last three months), by to employment situation:

- Student: 99.8%
- Employed: 87.3%
- Unemployed: 69.5%
- Other not in the labour force (retired, inactive, etc.): 37.6%

Grafikon 12. Udio korisnika računara (u posljednja tri mjeseca), prema radnom statusu, Bosna i Hercegovina
Graph 12. The share of compute users (in the last three months), according to the working status, Bosnia and Herzegovina



Pojedinci: uporaba interneta

U Bosni Hercegovini je 73,2 % osoba koristilo internet u posljednja tri mjeseca, 1,1 % ispitanika koristilo je internet prije više od tri mjeseca, a 2,5 % prije više od godinu dana. Ispitanici koji nikad nisu koristili internet je 23,1 %.

Za 3,2 % povećao se broj korisnika interneta u odnosu na 2019. i 2018. godinu, a za 8,3 % u odnosu na 2017. godinu.

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

- osobe s višim i visokim obrazovanjem: 94,9%,
- osobe sa srednjim obrazovanjem: 80,9%,
- osobe sa osnovnim ili niže srednjim obrazovanjem: 43,9%

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

- Muškarci: 77,8%,
- Žene: 69,3%

Individuals: use of the Internet

In Bosnia-Herzegovina, 73,2% of persons used the Internet during the last three months, 1.1% of respondents used the internet more than three months ago, and 2.5% more than a year ago. 23.1% of respondents never used the Internet.

The number of Internet users increased by 3.2% compared to 2019 and 2018, and by 8.3% compared to 2017 year.

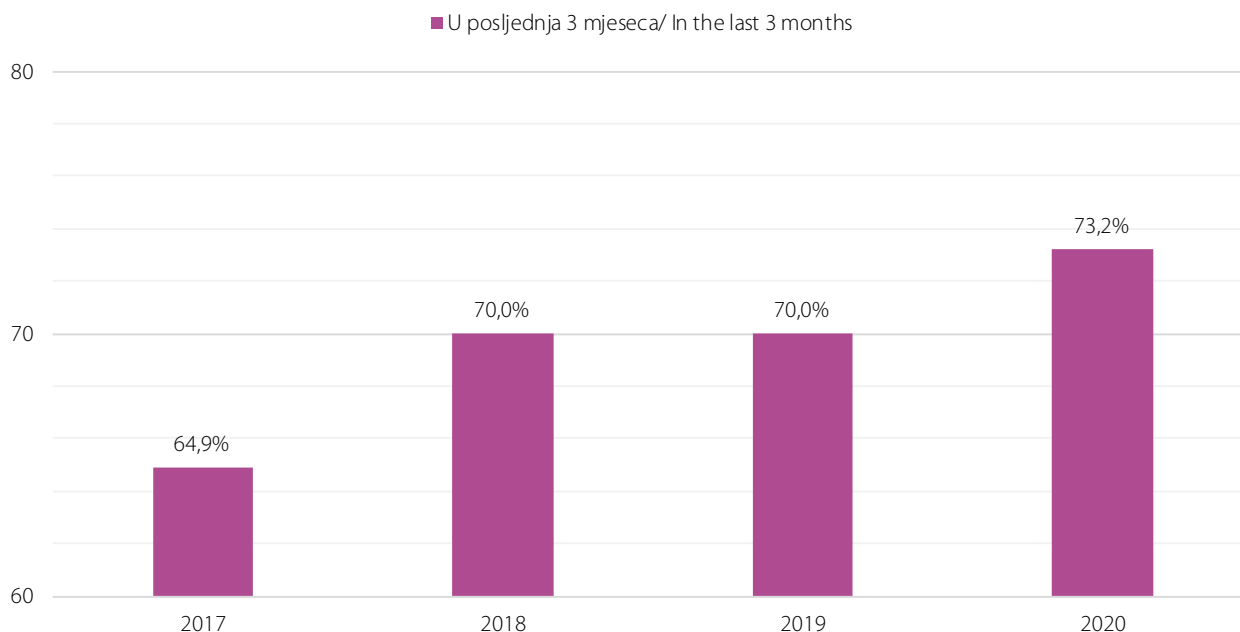
Share of Internet users (in the last three months), by educational attainment level:

- persons with higher education: 94.9%
- persons with secondary education: 80.9%
- persons with primary or lower secondary education: 43.9%

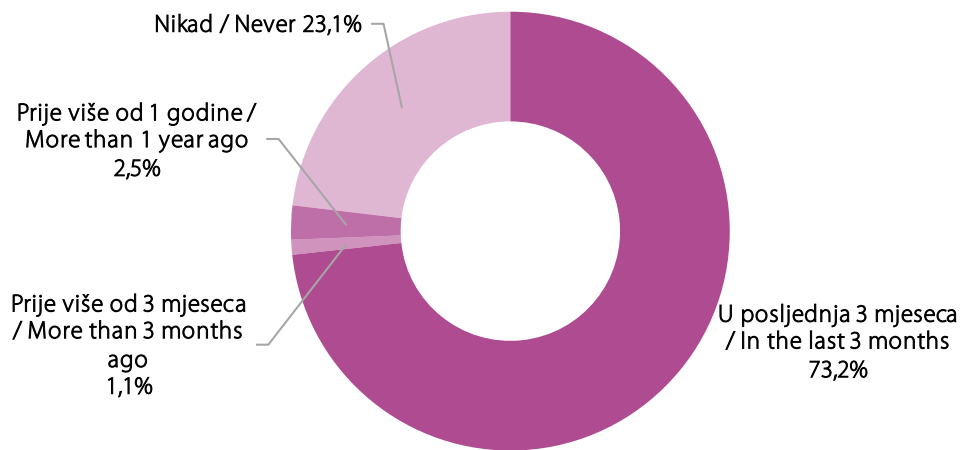
Share of Internet users (in the last three months), by gender:

- Males: 77.8%
- Females: 69.3%

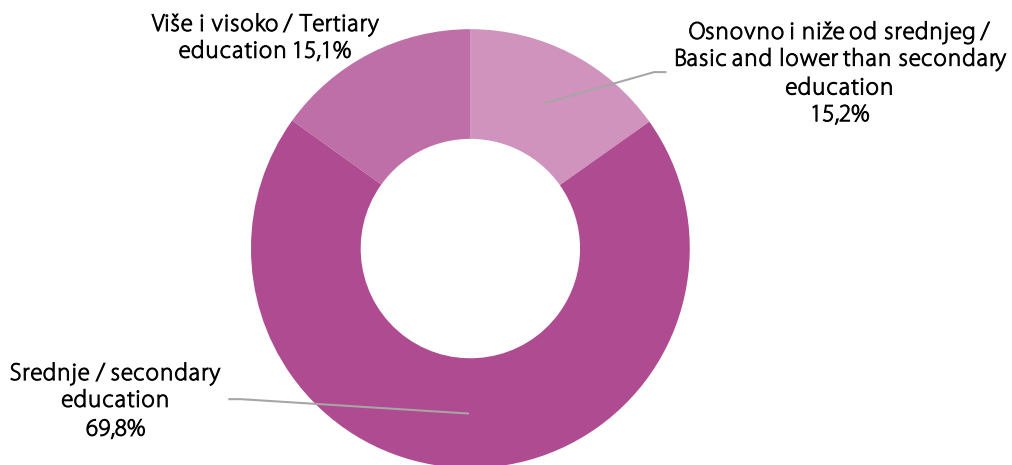
Grafikon 13. Osobe koje su koristile internet u posljednja 3 mjeseca
Chart 13. Persons who used the Internet in the last 3 months



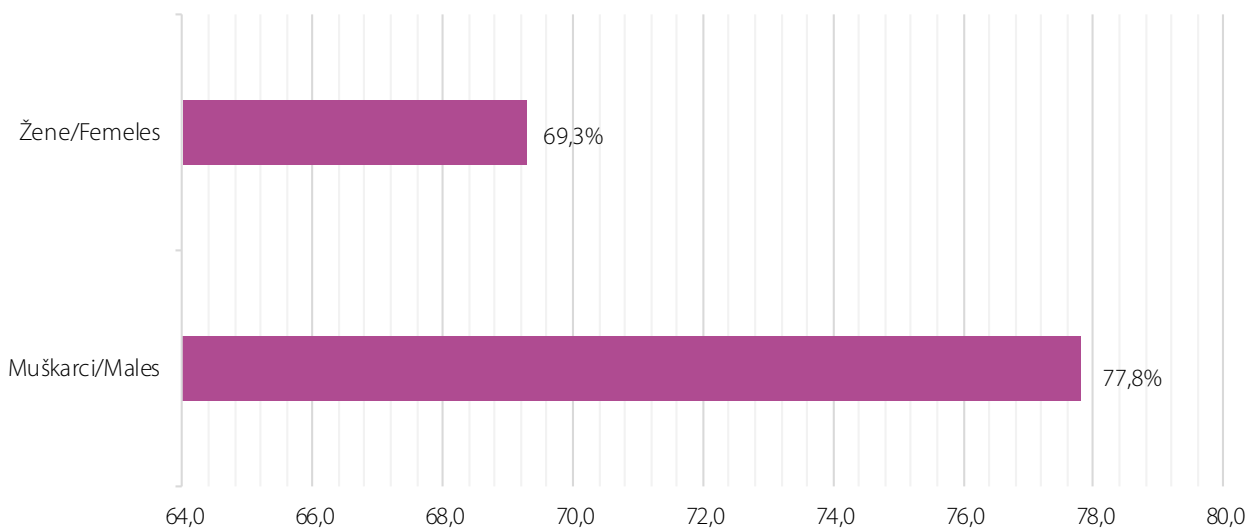
Grafikon 14. Osobe koje su koristile internet, 2020.
Chart 14. Persons who used the Internet, 2020



Grafikon 15. Struktura obrazovanja korisnika interneta, 2020.
Chart 15. Structure of education of Internet users, 2020



Grafikon 16. Udio korisnika interneta (u posljednja tri mjeseca), prema spolu 2020.
Chart 16. The share of Internet users (in the last three months), by gender 2020



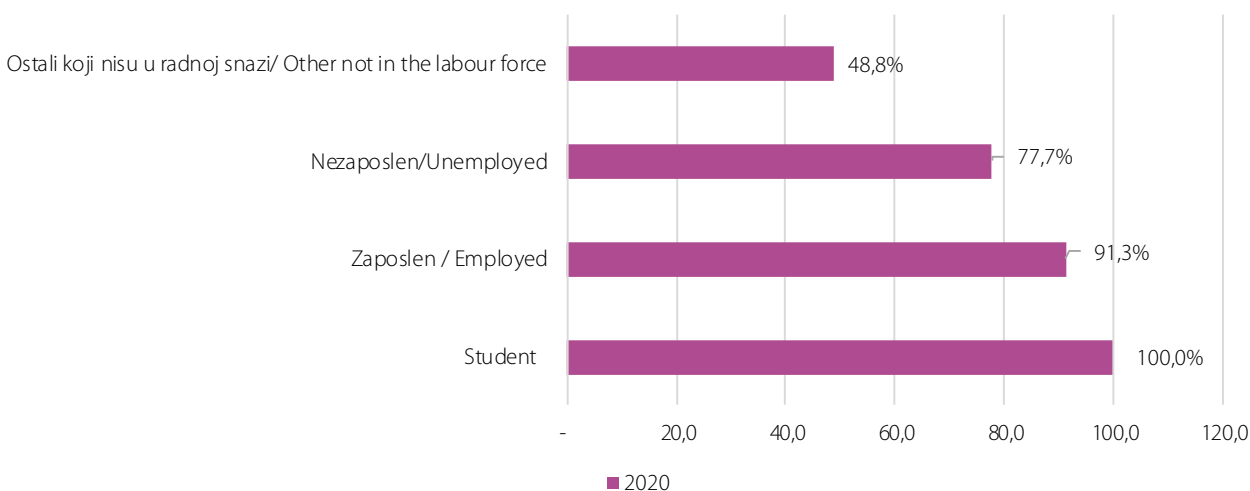
Postotak korisnika interneta u zadnja tri mjeseca, prema radnom statusu:

- 91,3% zaposlenih osoba;
- 77,7% nezaposlenih osoba;
- 100,0% studenata;
- 48,8% ostalih (umirovljenici, neaktivne osobe)

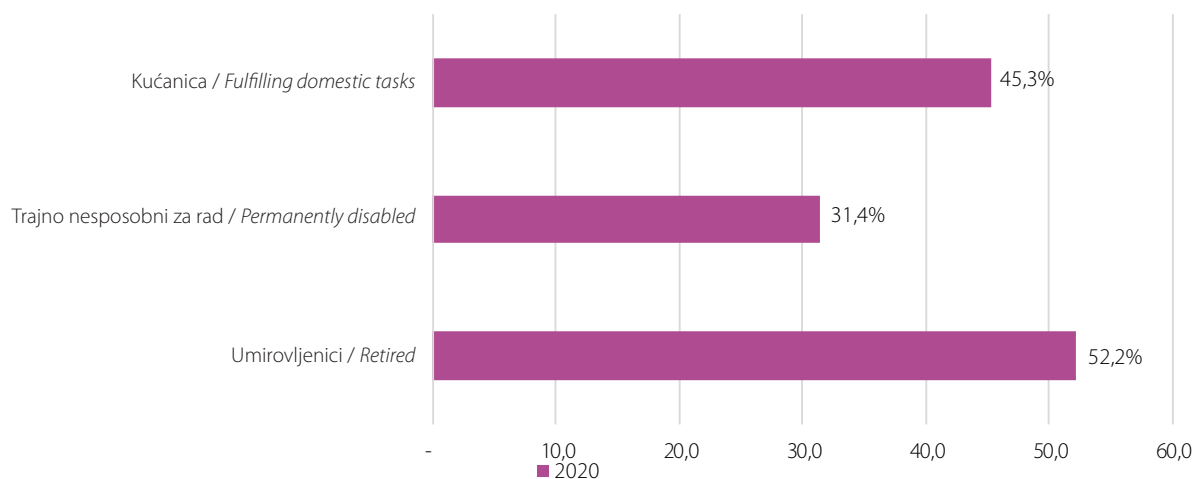
The share of Internet users is three months, by to the working status:

- 91.3% of employed persons;
- 77.7% of unemployed persons;
- 100.0% of students;
- 48.8% of others (pensioners, inactive persons)

Grafikon 17. Udio korisnika interneta (u posljednja tri mjeseca), prema radnom statusu, Bosna i Hercegovina
Chart 17. The share of Internet users (in the last three months), by to employment situation, Bosnia and Herzegovina



Grafikon 18. Udio korisnika interneta (u posljednja tri mjeseca), ispitanici koji nisu u radnom statusu, Bosna i Hercegovina:
Chart 18. The share of Internet users (in the last three months), Other not in the labour force respondents, Bosnia and Herzegovina



Na pitanje koliko su često, u prosjeku, koristili internet tijekom posljednja tri mjeseca, 92,1% ispitanika odgovorilo je: svakog dana ili skoro svakog dana.

Više od 1 390 000 osoba koristi internet svaki dan ili skoro svakog dana.

Rezultati istraživanja pokazali su sljedeće:

- Internet korisnici starosne dobi od 16 do 24 godine, 98,8% ispitanika koristi internet svaki dan ili skoro svaki dan;
- Internet korisnici starosne dobi od 25 do 54 godine, 94,4% ispitanika koristi internet svaki dan ili skoro svaki dan;
- Internet korisnici starosne dobi od 55 do 74 godine, 84,1% ispitanika koristi internet svaki dan ili skoro svaki dan.

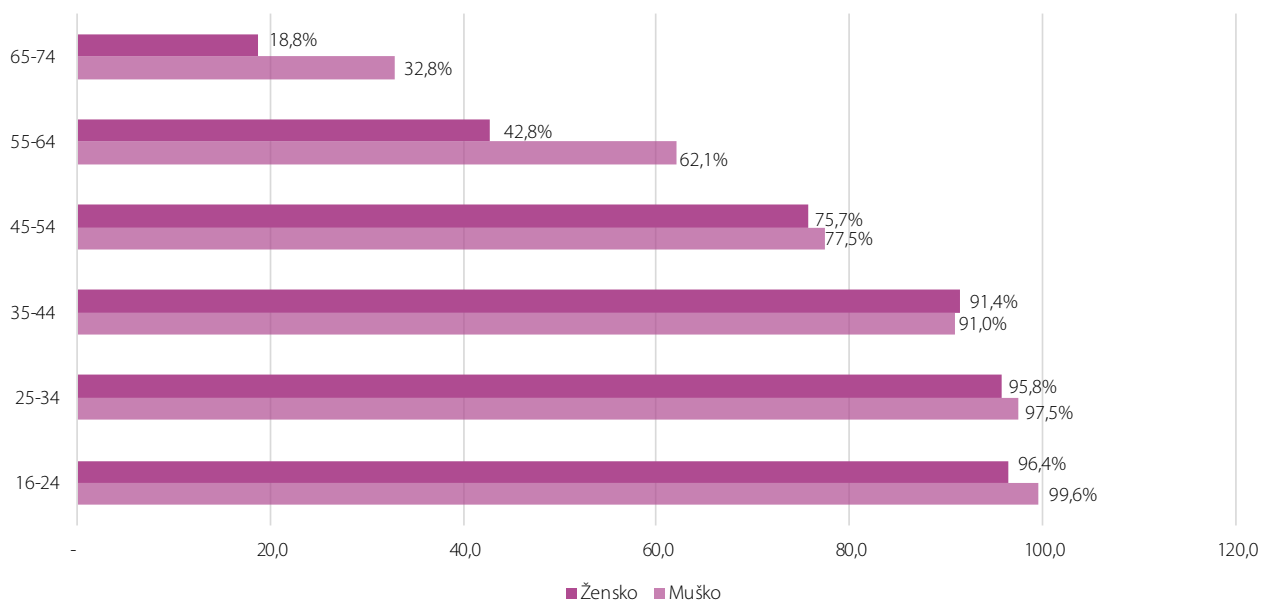
When asked how often they used the Internet for the last three months on average, 92.1% respondents answered: every day or almost every day.

More than 1 390 000 people use the Internet every day or almost every day.

The results of the survey showed the following:

- *Internet users aged 16-24, 98.8% of respondents use the Internet every day or almost every day;*
- *Internet users aged 25-54, 94.4% of respondents use the Internet every day or almost every day;*
- *Internet users aged 55-74, 84.1% of respondents use the Internet every day or almost every day.*

Grafikon 19. Korištenje interneta (svaki dan ili skoro svaki dan), prema spolu i starosti, Bosna i Hercegovina, 2020.²
Chart 19. Internet usage (every day or almost every day), by gender and age, Bosnia and Herzegovina, 2020²



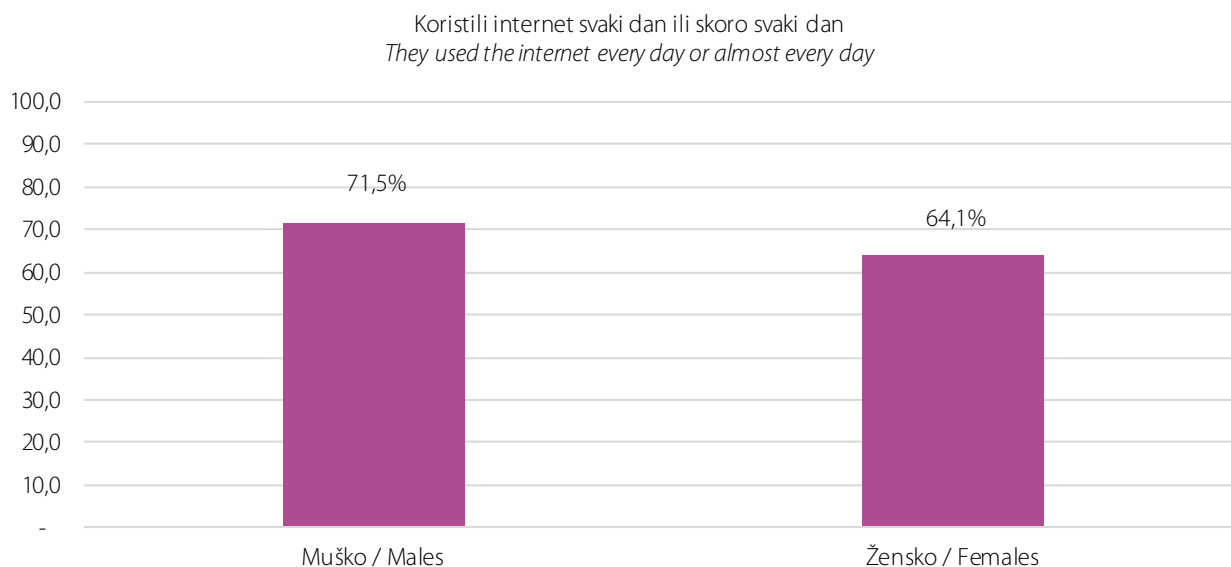
Analiza ispitanika prema spolu pokazuje da internet koristi svaki dan ili skoro svaki dan 71,5% osoba muškog spola, a 64,5% osoba ženskog spola koristilo internet svaki dan ili skoro svaki dan.

An analysis of respondents by gender shows that Internet usage every day or almost every day, 71.5% of males and 64.5% females used the Internet every day or almost every day.

² Podaci se odnose na osobe koje koriste internet u posljednja 3 mjeseca.

² The data refers to persons who use the Internet in the last 3 months

Grafikon 20. Udio korisnika interneta (svaki dan ili skoro svaki dan) prema spolu, Bosna i Hercegovina, 2020.
Chart 20. The share of Internet users (every day or almost every day) by gender, Bosnia and Herzegovina, 2020



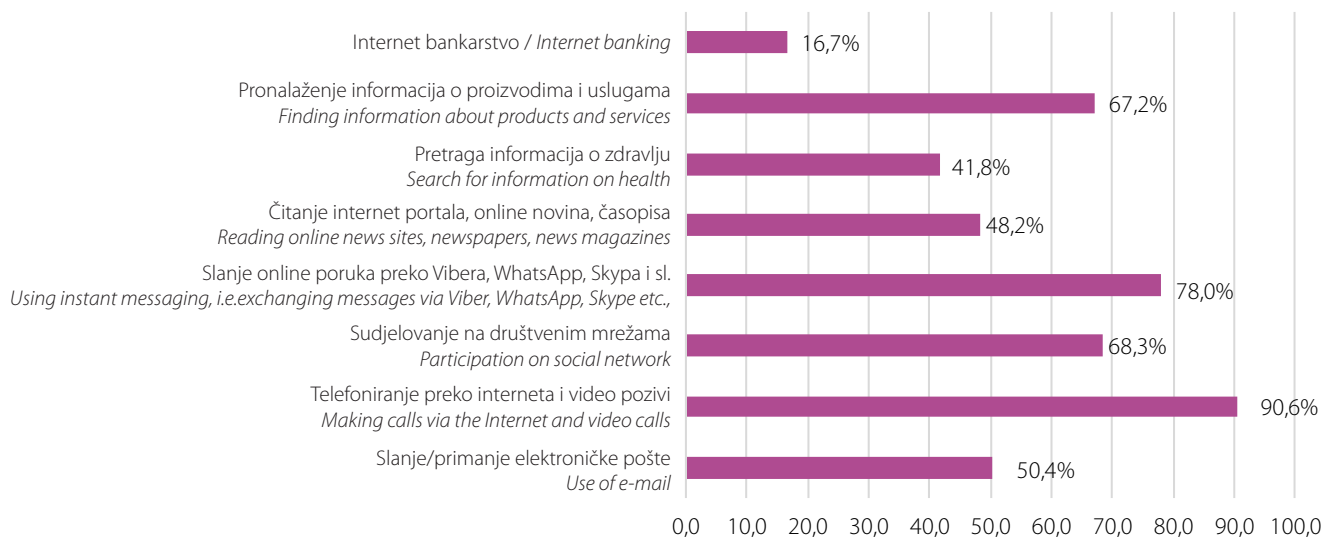
Ispitanici koji su koristili internet tijekom posljednja tri mjeseca, te internet u velikoj mjeri koristili za telefoniranje preko interneta i video pozivi (90,6%), slanje online poruka preko Skype, Messenger, WhatsApp, Viber, itd. (78,0%), učešće na društvenim mrežama, kao što su Facebook i Twitter (68,3%).

Čitanje internet portala, online novina, časopisa (65,6%), pronalaženje informacija o proizvodima i uslugama (67,2%), značajan broj ispitanika koristili su internet za gledanje video sadržaja preko besplatnih servisa (npr. YouTube, 58,4%).

During the last three months, respondents have largely used the Internet for phone calls over the Internet and video calls (90.6%), using instant messaging, i.e. exchanging messages, for example, via Skype, Messenger, WhatsApp, Viber (78.0%), participating in social networks like Facebook and Twitter (68.3%), Reading online news sites/newspapers/news Magazines (65.6%), finding information about products and services (67.2%), a significant number of respondents used the Internet to watching video content from sharing services (e.g. YouTube, 58.4%).

Grafikon 21. Najčešći tipovi korištenja interneta (u privatne svrhe) u posljednja tri mjeseca u postotcima, Bosni i Hercegovini, 2019.

Chart 21. The most common types of internet use (for private use) in the last three months, in percentages, Bosnia i Herzegovina 2019



Internet populacija od 65 do 74 godine najčešće je koristi internet za telefoniranje preko interneta i video pozivi i to sa 97,1 %.

Internet populacija od 16 do 24 godine najčešće je koristila internet za učešće na društvenim mrežama 87,0%.

Slanje online poruka preko Skype, Messenger, WhatsApp, Viber i sl. najviše je koristila internet populacija od 65 do 74 godine, 85,7%.

Usluge internet bankarstva najviše koristi populacija od 35 do 44 godine i on iznosi 21,9%.

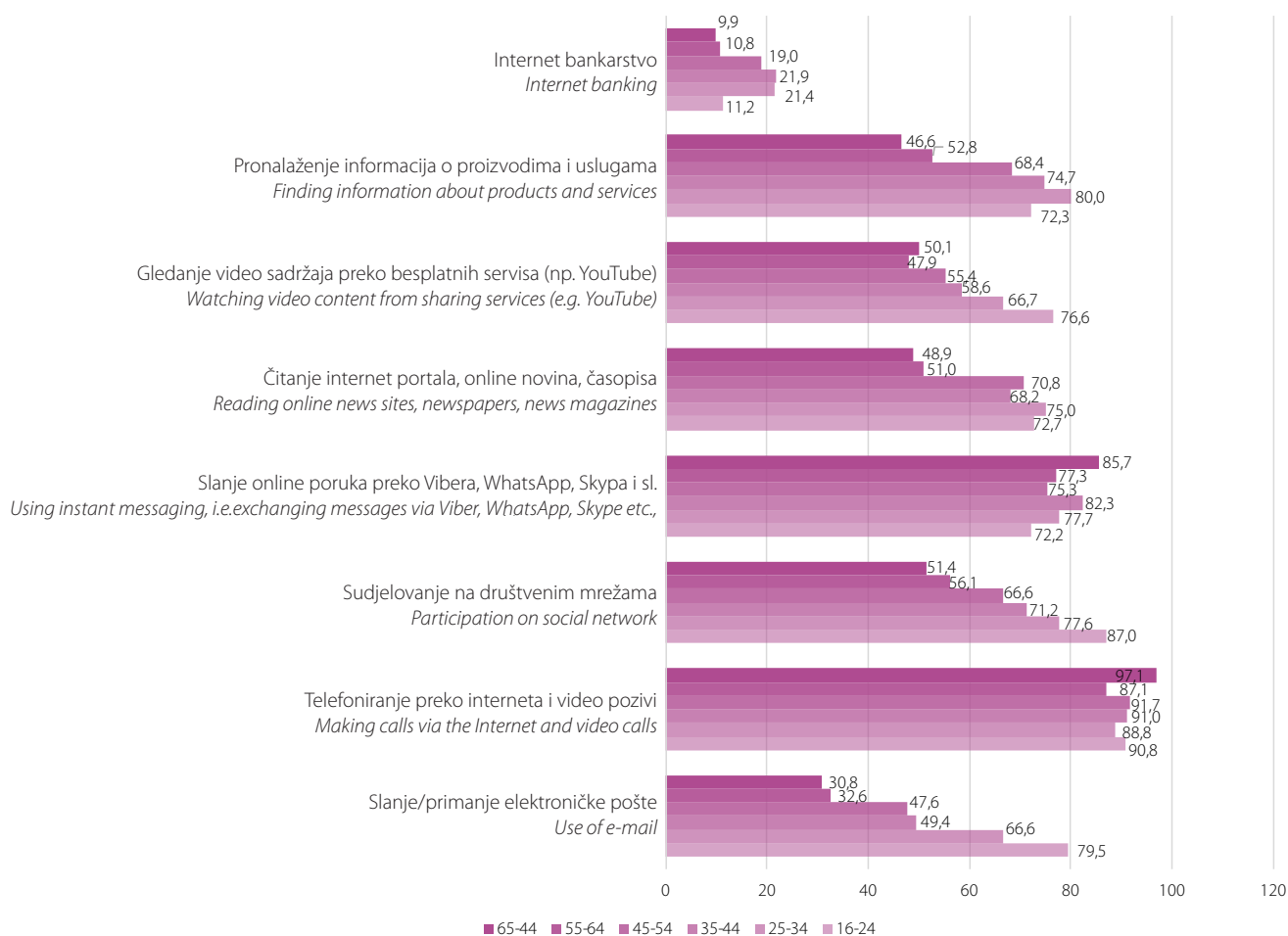
The Internet population of 65 to 74 years is the most common use of the Internet for making calls and internet video calls with 97.1%

Internet population aged 16 to 24, most often used the Internet to participate in social networks 87.0%

Using instant messaging, i.e. exchanging messages, for example, via Skype, Messenger, WhatsApp, Viber was most used by the Internet population of 65 to 74 years, 85.7%

Internet banking services are mostly used by the population of 35- 44 and it is 21.9%.

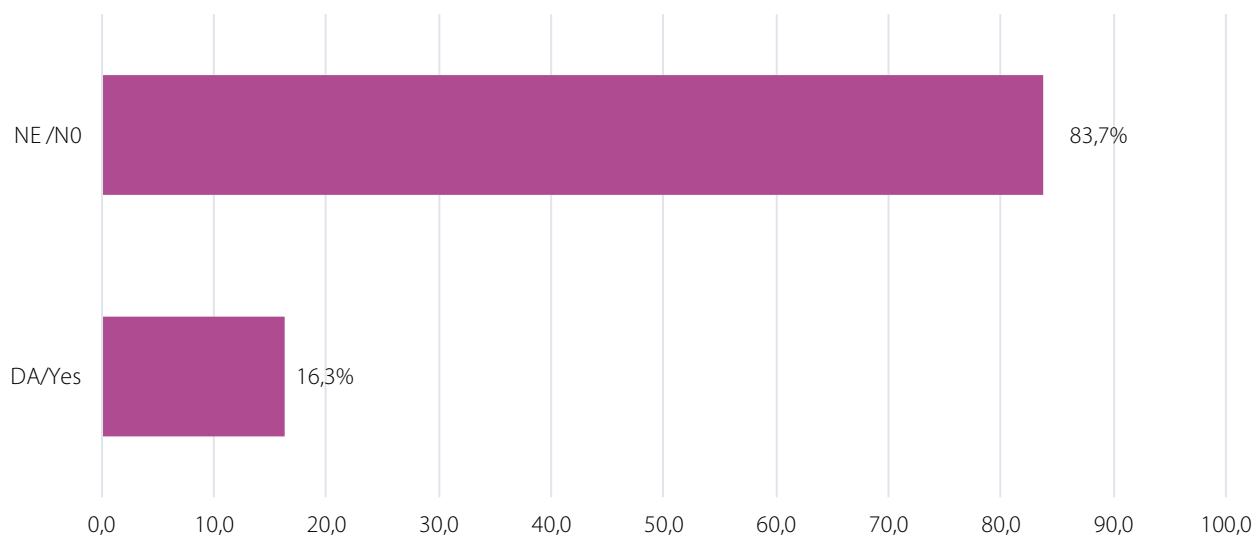
Grafikon 22. Najčešći tipovi korištenja interneta (u privatne svrhe) u posljednja tri mjeseca u postotcima, po starosnoj dobi
Chart 22. The most common types of internet use (for private use) in the last three months, in percentages, by age



Istraživanje je pokazalo da je 16,3% internet populacije koristilo cloud servise za pohranu sadržaja na internetu za spašavanje dokumenata, slika, glazbe, video zapisa ili drugih fajlova u privatne svrhe, posljednja 3 mjeseca npr. Google Drive, Dropbox, Windows OneDrive (Formerly Skydrive), iCloud, Amazon Cloud Drive (cloud usluge).

The survey showed that 16.3% of the Internet population used cloud service to storage space on the Internet to save documents, images, music, videos or other files for private purposes, for the last 3 months, for example: Google Drive, Dropbox, Windows OneDrive (Formerly Skydrive), iCloud, Amazon Cloud Drive (cloud services).

Grafikon 23. Pojedinci koristili *cloud* servise za skladištenje podataka³
Chart 23. Individuals used *cloud* services for data storage³



³ Podaci se odnose na internet populaciju, odnosno na one pojedince koji koriste internet u zadnja 3 mjeseca.

³ Data refer to the Internet population, or to those individuals who have been using the Internet in the last 3 months..

Javna uprava

Istraživanje pokazuje da 24,1% ispitanika koji su koristili internet u privatne svrhe, u posljednjih 12 mjeseci, koristili su elektroničke servise javne uprave (*e-government*).

Istraživanje je pokazalo i da je 21,0% internet populacije koristilo internet za dobijanje informacija sa internet stranica javnih institucija, a 12,1% internet populacije je slalo putem interneta popunjene obrasce javnoj upravi.

Internet populacija starosne dobi od 45 do 54 godine je najviše koristilo usluge javne uprave, 32,8%.

E-government

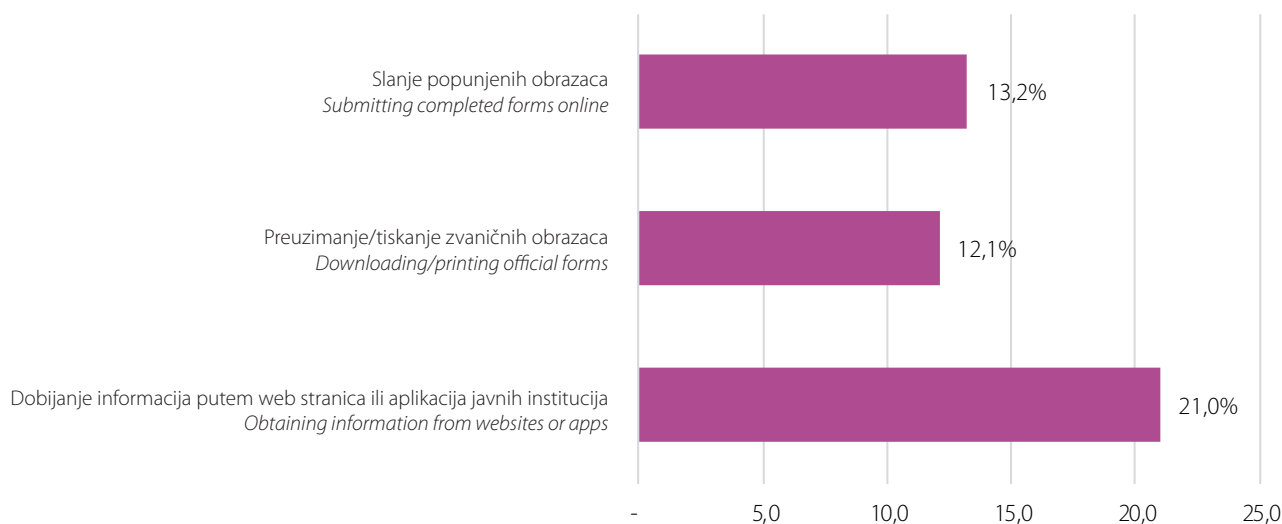
The survey shows that 24.1% of respondents who use the Internet for private purposes in the last 12 months, used electronic government services (*e-government*).

The survey also showed that 21.0% of the internet population used the Internet to obtain information from the public institution's website, and 12.1% of the internet population sent via Internet filled forms to the public administration.

The Internet population aged 45-54 was mostly used by public administration services, 32.8%.

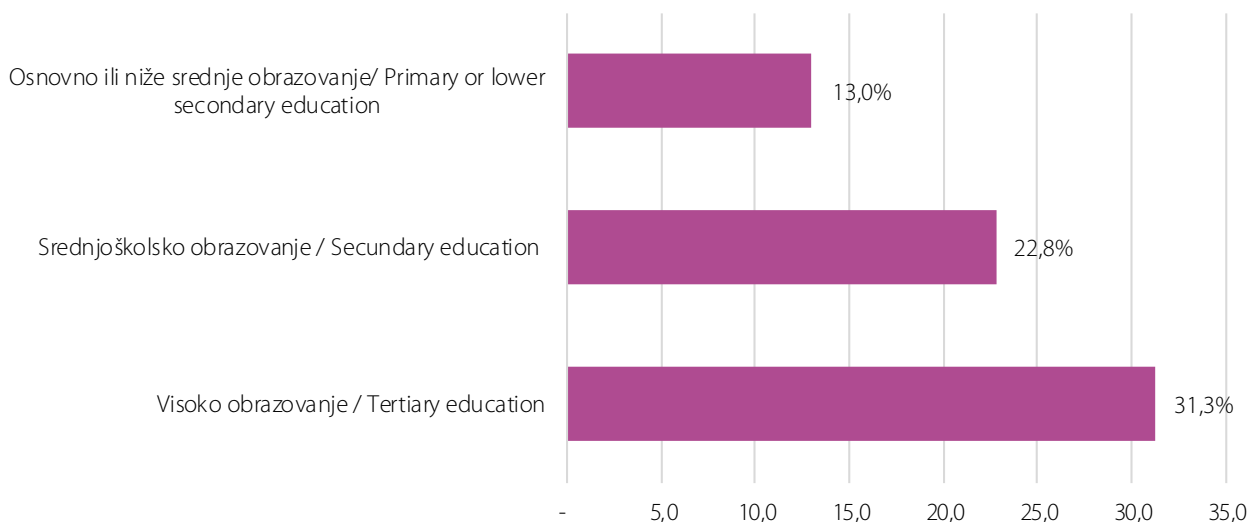
Grafikon 24. Za koju ste od sljedećih usluga javne uprave koristili internet

Chart 24. For which of the following public administration services did you use the Internet

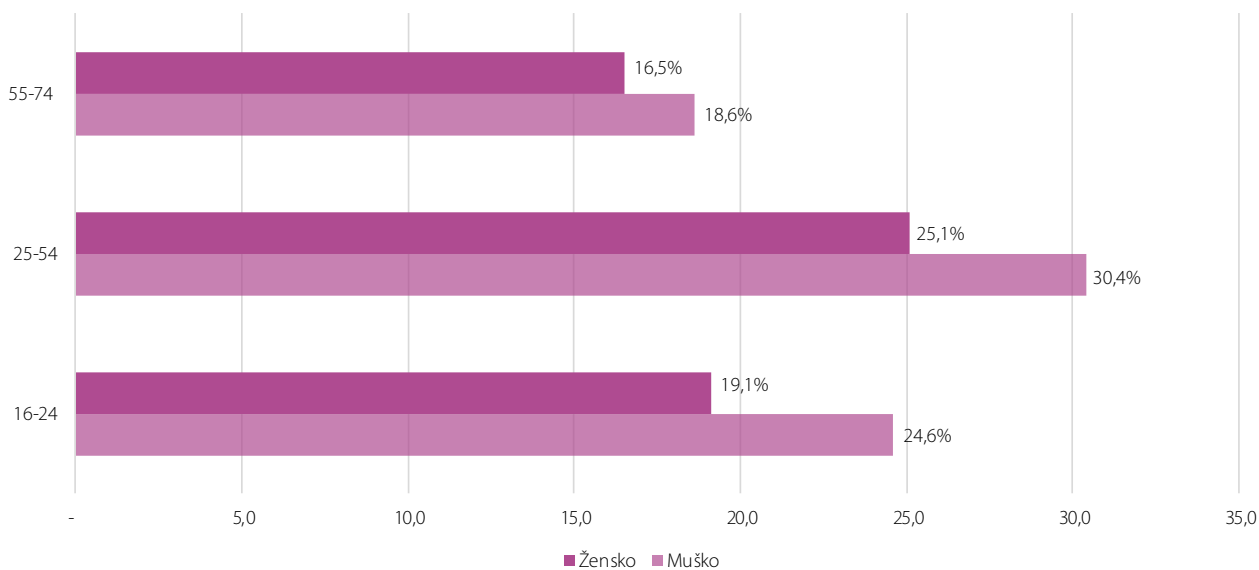


Grafikon 25. Uporaba interneta radi korištenja usluga javne uprave u posljednjih 12 mjeseci, prema razini obrazovanja

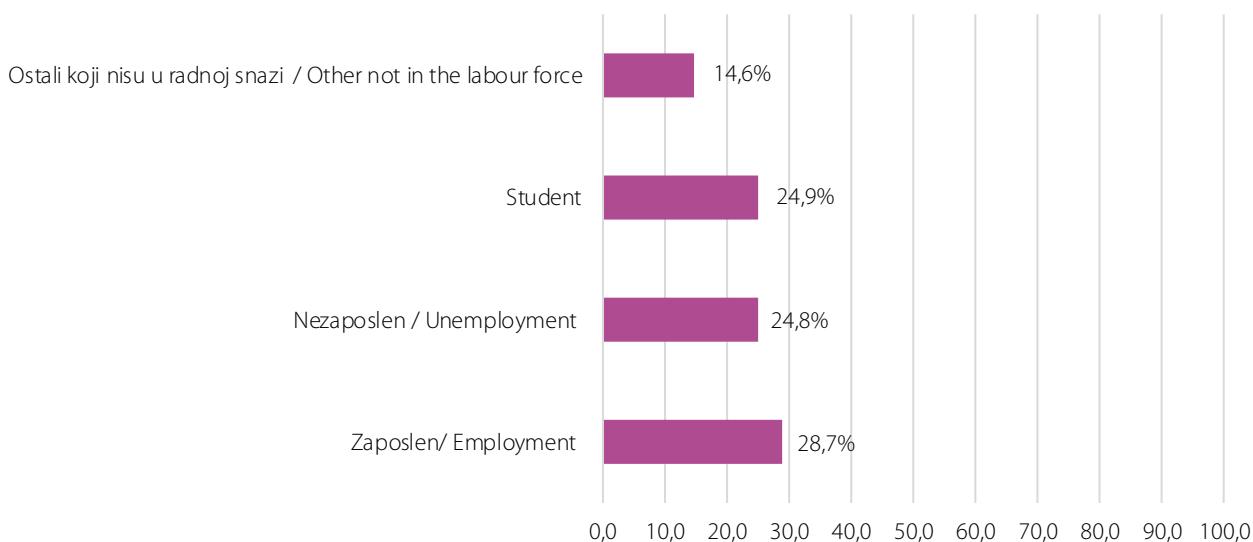
Chart 25. Use of the Internet in order to use services or services of public administration in the last 12 months, by education level



Grafikon 26. Uporaba interneta radi korištenja usluga javne uprave u posljednjih 12 mjeseci, prema spolu i starosti
Chart 26. Use of the Internet in order to use services or services of public administration in the last 12 months, by sex and age



Grafikon 27. Uporaba interneta radi korištenja usluga javne uprave u posljednjih 12 mjeseci, prema radnom statusu
Chart 27. Use of the Internet in order to use services or services of public administration in the last 12 months, by employment situation



Elektronička trgovina⁴

Kada je riječ o vremenskom okviru u kojem su korisnici interneta kupovali/poručivali robu ili usluge putem interneta, 24,2% internet korisnika obavilo je kupovinu/narudžbu u posljednja tri mjeseca, 13,4% prije više od tri mjeseca, a 7,6% prije više od godinu dana.

Korisnika interneta koji nikad nisu kupovali ili poručivali robu ili usluge putem interneta je 54,8%.

Broj osoba koje su kupile/naručile robu ili usluge putem interneta u posljednjih 12 mjeseci bilo je 37,6%, što je porast od 5,5% u odnosu na 2019. godinu.

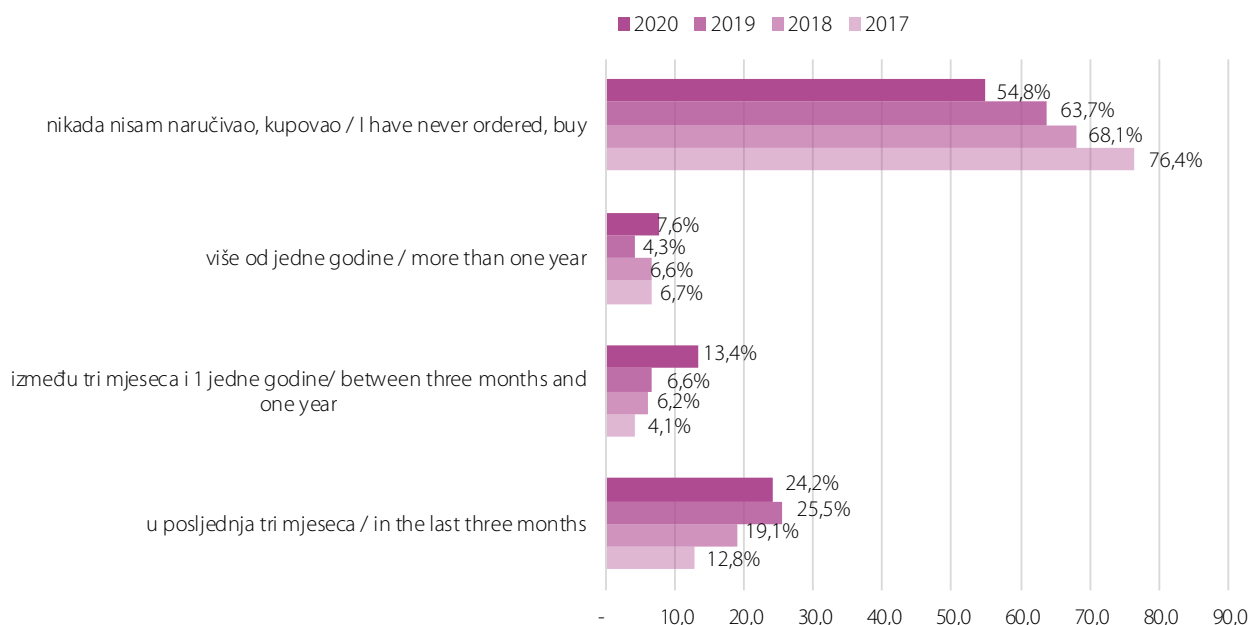
e-commerce⁴

As for the time frame in which the internet users bought/ordered goods or services over the Internet, 24.2% of users conducted a purchase/order in the last three months, 13.4% more than three months ago, and 7.6% more than a year ago.

54.8% of Internet users who have never bought or ordered goods or services over the internet.

The number of persons who bought/ordered goods or services via the Internet in the last 12 months was 37.6%, which is an increase of 5.5% compared to 2019.

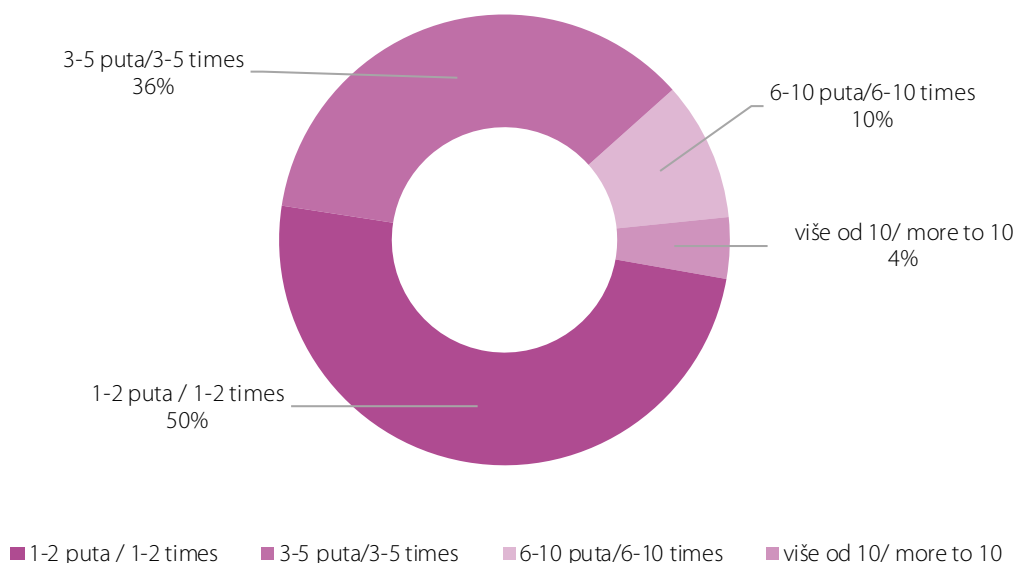
Grafikon 28. Posljednji put (u privatne svrhe) kupili/naručili robu ili usluge putem interneta
Chart 28. Last time (for private purposes) they bought/ordered goods or services via the Internet



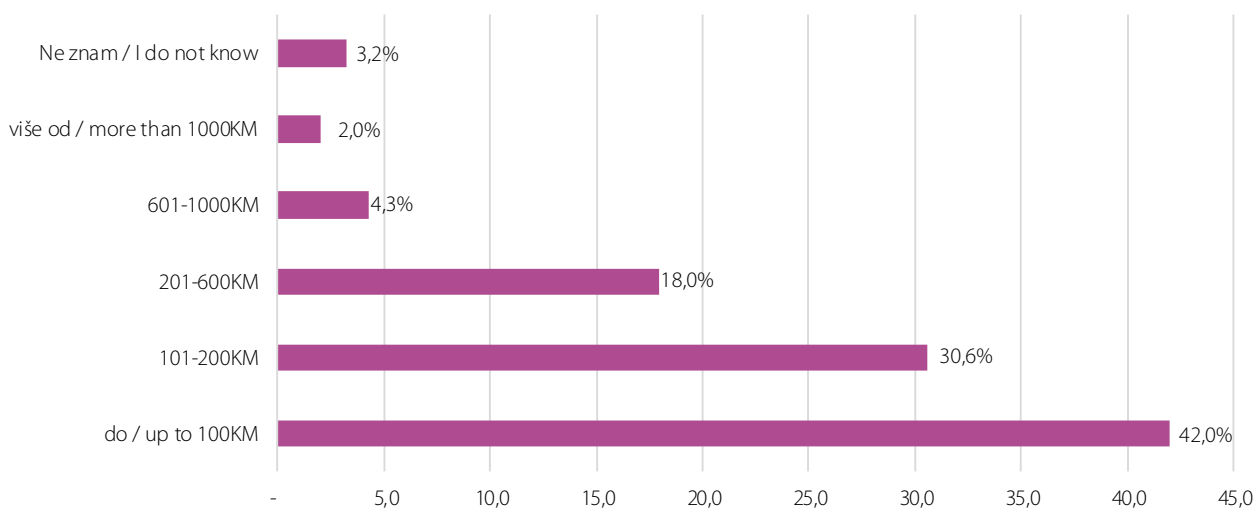
⁴ Podaci se odnose na osobe koje su koristile internet posljednjih 12 mjeseci.

⁴ Data refer to persons who have used the Internet in the last 12 months.

Grafikon 29. Koliko često ste kupovali/naručivali robu ili usluge putem interneta u privatne svrhe u posljednja 3 mjeseca
Chart 29. How often have you purchased/ordered goods or services over the Internet for private purposes in the last 3 months



Grafikon 30. Novčani iznos kupljene/naručene robe ili usluge (pojedinci koji su kupovali zadnja 3 mjeseca)
Chart 30. Amount purchased/ordered goods or services (individuals who bought the last 3 months)



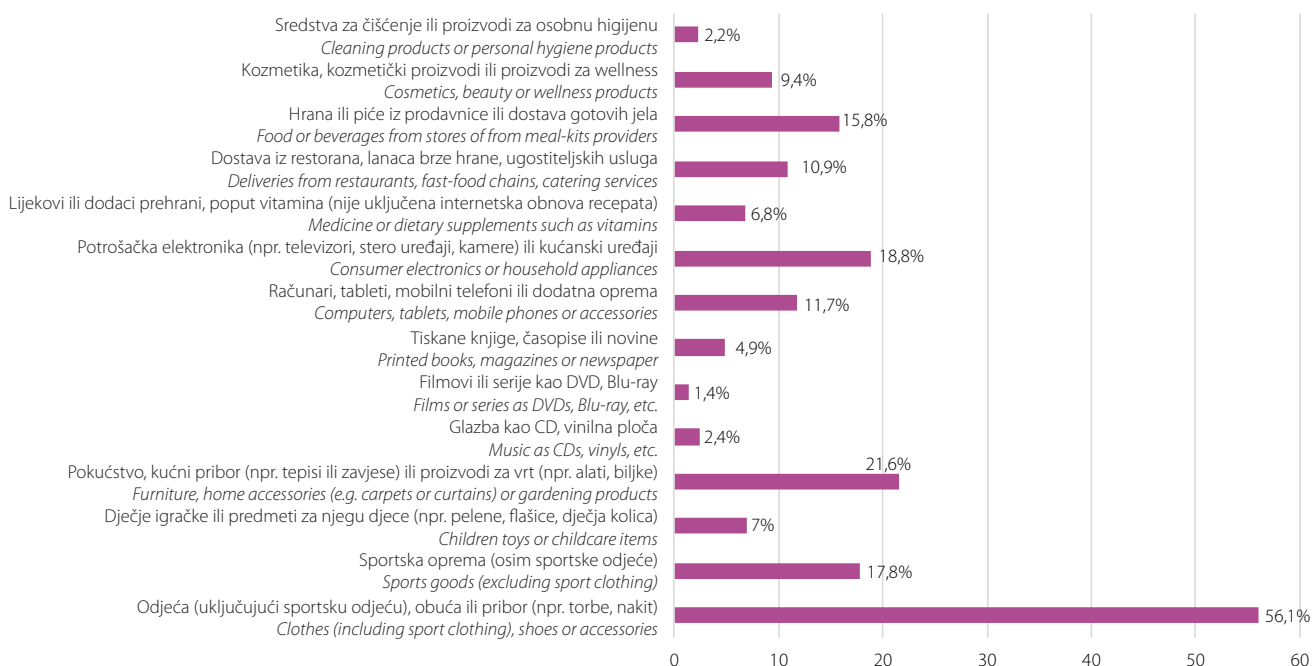
Pojedinci su najčešće naručivali proizvode ili usluge putem interneta u posljednja 3 mjeseca:

- Odjeća (uključujući sportsku odjeću), obuća ili pribor (npr. torbe, nakit) 56,1%;
- Pokućstvo, kućni pribor (npr. tepisi ili zavjese) ili proizvodi za vrt (npr. alati, biljke) 21,6%;
- Potrošačka elektronika (npr. televizori, stereo uređaji, kamere) ili kućanski uređaji (npr. perilica rublja) 18,8%;
- Sportska oprema (osim sportske odjeće) 17,8%.

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) 56,1%;
- Furniture, home accessories (e.g. carpets or curtains) or gardening products (e.g. tools, plants) 21.6%;
- Consumer electronics (e.g. TV-sets, stereos, cameras) or household appliances (e.g. washing machines) 18.8%;
- Sports goods (excluding sport clothing) 17.8%.

Grafikon 31. Koju ste vrstu robe ili usluga kupili ili naručili putem interneta u posljednja 3 mjeseca, u privatne svrhe⁵
Chart 31. What types of goods or services did you buy or order over the Internet for private use in the last 3 months?⁵



⁵ Podaci se odnose na pojedince koji putem interneta kupovali ili naručivali u posljednjih 3 mjeseca.

⁵ Data refer to individuals who have purchased or ordered online in the last 3 month.

Povjerenje, sigurnost i privatnost⁶

Rezultati istraživanja koje od navedenih aktivnosti identifikacije za pristup online uslugama preko internet stranice ili aplikacije u privatne svrhe u posljednja 3 mjeseca, su pokazali sljedeće:

- Jednostavna prijava sa korisničkim imenom i lozinkom 41,2%;
- Prijava na društvene medije koja se koristi za druge usluge 23,4%;
- Sigurnosni token 2%;
- Elektronički identifikacijski certifikat ili kartica koji se koristi, npr. sa čitačem kartica ili sa aplikacijom 1,8%;
- Postupak koji uključuje vaš mobilni telefon (kod primljen putem poruke) 22,7%;
- Lista PIN koda za jednokratnu uporabu (plastična kartica sa kodovima, grebanje kodova itd.) ili slučajni znakovi za lozinke 1,7%;
- Drugi postupak elektroničke identifikacije 1,7%;
- Nisam koristio nijedan postupak elektroničke identifikacije 50,2%.

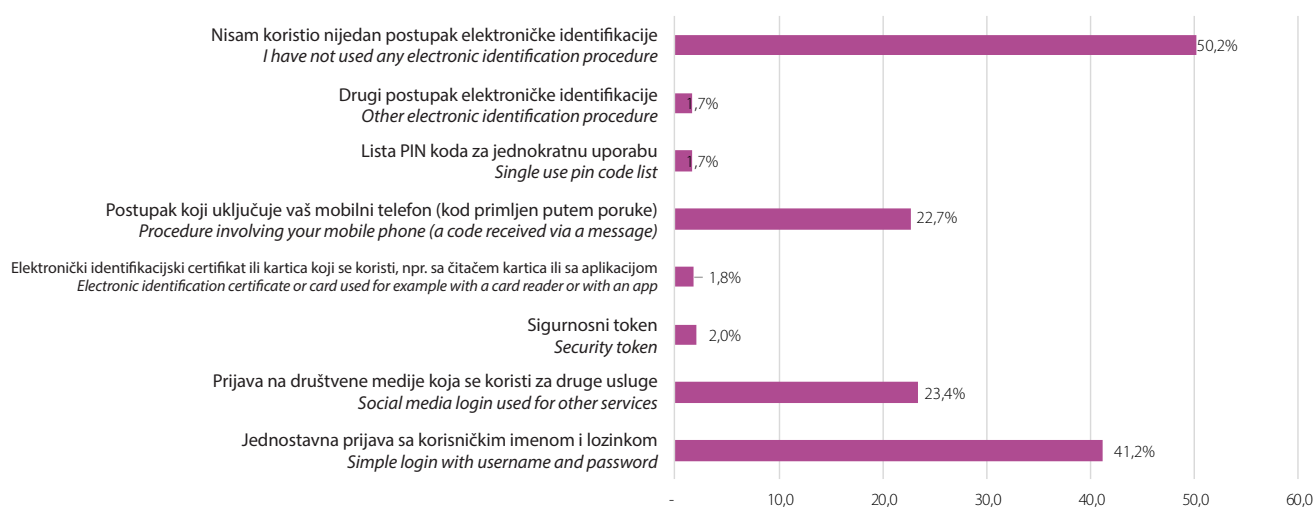
Trust, security and privacy⁶

Which of the used the following identification procedures for accessing online services via websites or apps (e.g. e-mail, social media accounts, internet banking, public services, ordering or buying goods or services online) for private purposes in the last 3 months, the results of the survey showed the following:

- Simple login with username and password 41.2%
- Social media login used for other services 23.4%
- A security token 2%
- Electronic identification certificate or card used for example with a card reader or with an app 1.8%
- Procedure involving your mobile phone (a code received via a message) 22,7%
- Single use pin code list (add national example or explanation – plastic card with codes, scratch codes, etc.) or random characters of a password 1,7%
- Other electronic identification procedure 1,7%
- I have not used any electronic identification procedure 50,2%

Grafikon 32. Koje od navedenih aktivnosti identifikacije za pristup online uslugama preko internet stranice ili aplikacije u privatne svrhe ste koristili u posljednja 3 mjeseca?

Chart 32. Which of the following identification activities used for access to online services through a website or application for private purposes in the last 3 months?



⁶ Podaci se odnose na pojedince koji koriste internet u zadnjih 3 mjeseci.

⁶ Data refer to individuals who use the internet in the last three months.

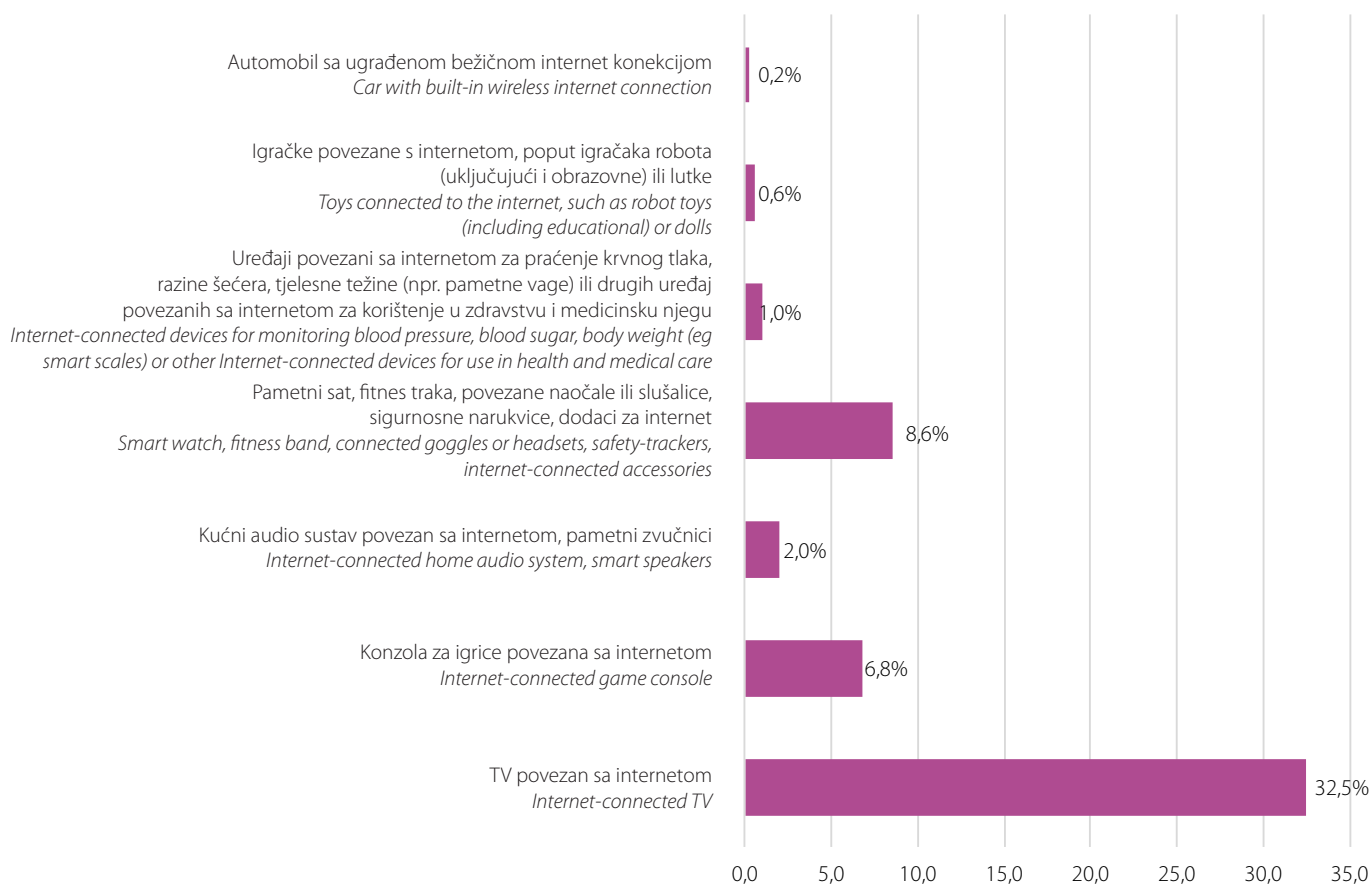
Internet pametnih uređaja⁷

Da li ste koristili Internet na bilo kojem od sljedećih uređaja u privatne svrhe? Na ponuđene odgovore najviše pojedinaca su koristi internet za pristup TV uređaju koji je povezan sa internetom, njih 32,5%.

Internet of things⁷

Have you used the Internet on any of the following devices for private purposes? To the answers offered, most individuals use the Internet to access a TV connected to the Internet, 32.5% of them.

Grafikon 33. Jeste li koristili Internet na bilo kojem od sljedećih uređaja u vašem domu u privatne svrhe?
Chart 33. Have you used the internet on any of the following devices in your home for private purposes?



⁷ Podaci se odnose na pojedince koji koriste internet u zadnjih 3 mjeseci.

⁷ Data refer to individuals who use the internet in the last three months.

PODUZEĆA
ENTERPRISES

Uzorak

Istraživanje o uporabi informacijsko komunikacijskih tehnologija u proizvedima provedeno je na reprezentativnom uzorku od 2 634 poduzeća na teritoriju Bosne i Hercegovine. Stopa odgovora je 86,41% (2 276 poduzeća).

Sample

A survey on the use of information and communication technologies in enterprises was conducted on a representative sample of 2.634 enterprises in the territory of Bosnia and Herzegovina. The response rate is 86,41 % (2.276 enterprises).

Neto uzorak	10 do 49 zaposlenih	50 do 249 zaposlenih	250 i više zaposlenih	Ukupno
<i>Net sample</i>	<i>10 to 49 employees</i>	<i>50 to 249 employees</i>	<i>250 and more employees</i>	<i>Total</i>
Proizvodnja <i>Manufacture</i>	356	351	118	825
Opskrba električnom energijom, plinom, parom i vodom; gospodarenje otpadnim vodama / <i>Electricity, gas, steam and electricity supply water; waste management</i>	50	45	20	115
Građevinarstvo <i>Construction</i>	122	98	6	226
Trgovina na veliko i malo <i>Wholesale and retail trade</i>	323	179	46	548
Transport i skladištenje <i>Traffic and storage</i>	81	43	10	134
Usluge smještaja i ishrane <i>Accommodation services and food</i>	62	35	2	99
Informiranje i komunikacije <i>Information and communication</i>	79	42	9	130
Poslovanje nekretninama <i>Real estate</i>	26	11	0	37
Stručne, znanstvene i tehničke djelatnosti / <i>Professional, scientific and technical activities</i>	45	27	2	74
Administrativne i pomoćne uslužne djelatnosti / <i>Administrative and auxiliary service activities</i>	46	24	10	80
Popravka i održavanje računara i komunikacijske opreme / <i>Repair and maintenance of computers and communication equipment</i>	7	1	0	8
Ukupno <i>Total</i>	1.197	856	223	2.276
Od čega IKT sektor/ICT sector (u: 26.1-26.4+ 26.8+46.5+ 58.2+61+62+63.1+95.1)	70	25	6	101

GLAVNI POKAZATELJI
Internet u poduzećima

Rezultati istraživanja o uporabi informacijsko-komunikacijskih tehnologija u poduzećima (IKT-P) u Bosni i Hercegovine, pokazali su sljedeće:

Korištenje računara prema veličini poduzeća:

- Da 99,6% poduzeća imaju pristup internetu;
- Od ukupnog broja poduzeća koja imaju pristup internetu, fiksni širokopojasni priključak (npr. ADSL, SDSL, VDSL, kablovske mreže, optičke mreže) posjeduje 98,9% poduzeća.

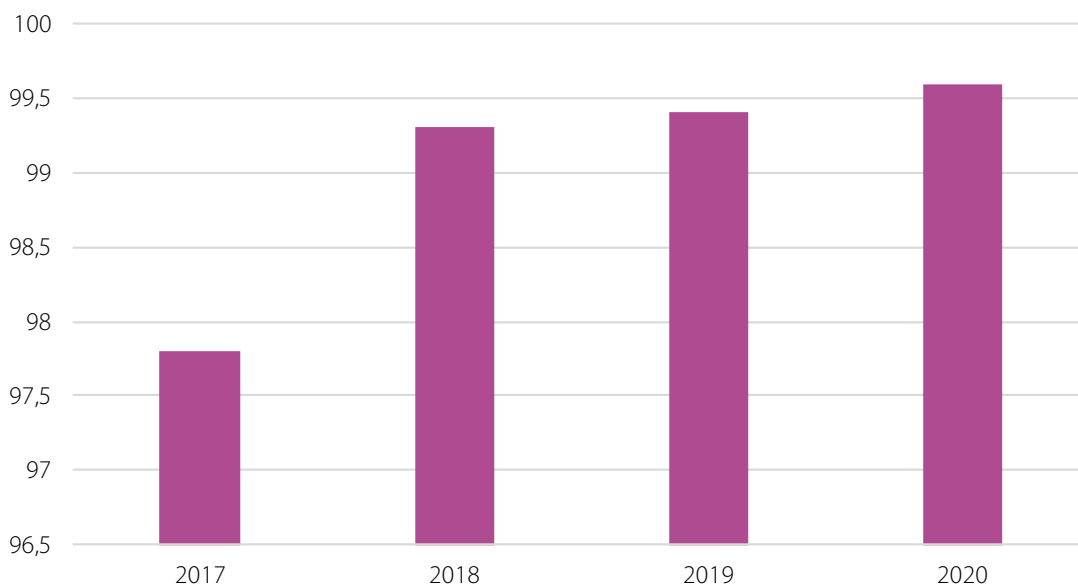
MAIN INDICATORS
Internet in enterprises

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:

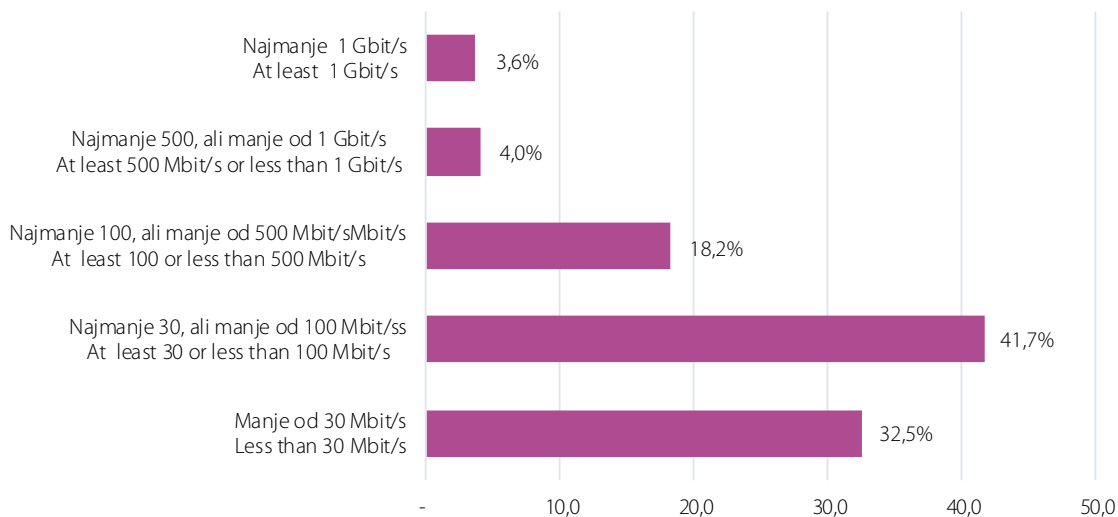
Using your computer according to company size:

- 99.6% 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 98.9% of enterprises.

Grafikon 1. Poduzeća koja imaju pristup internetu, u postotcima
Graph 1. Enterprise have internet access. in percent



Grafikon 2. Koja je maksimalna brzina internet konekcije u vašem poduzeću (definišana 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)?

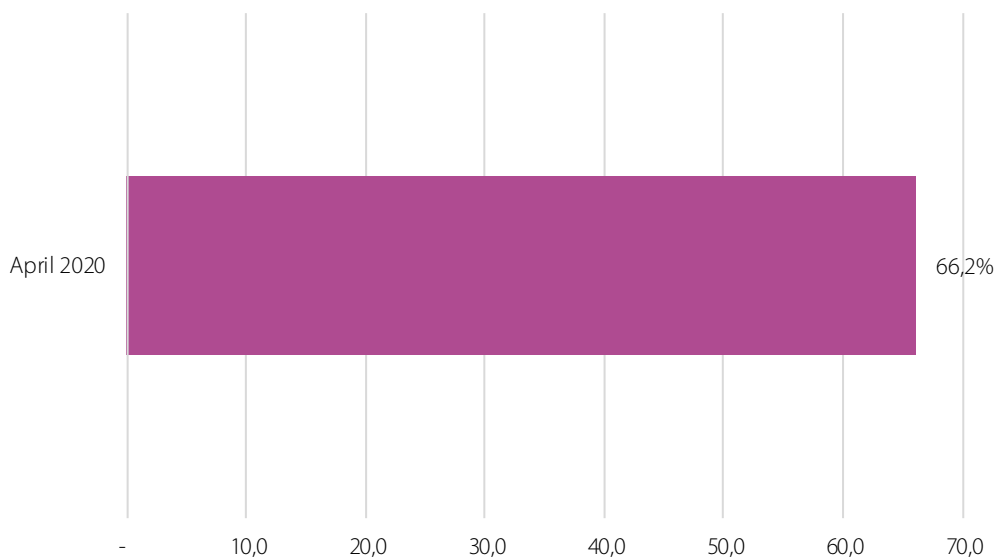


Rezultati istraživanja pokazuju da 66,2% poduzeća osigurava prijenosne uređaje koji omogućavaju mobilnu internet vezu koristeći mobilne telefonske mreže.

The results of the survey show that 66.2% of enterprises provide portable devices that allow a mobile Internet connection using mobile telephone networks.

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

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

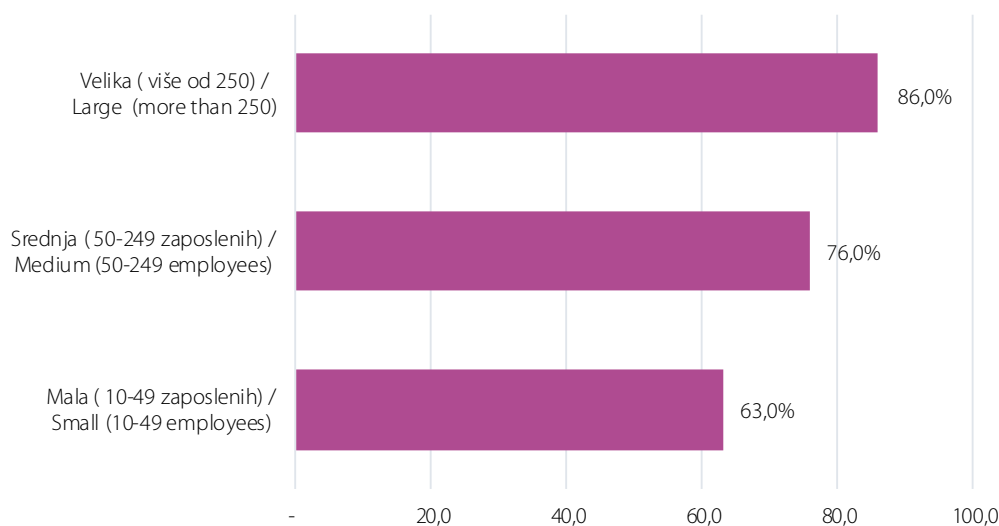


Analiza poduzeća prema veličini pokazuje nam da mobilnu internet konekciju upotrebom prijenosnih uređaja najviše koriste velika poduzeća (86,0%).

Enterprise analysis by size shows us that the mobile Internet connection using the mobile devices is mostly used by large enterprises (86.0%)

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

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



IKT stručnjaci i vještine

Na temelju istraživanja došlo se do podatka da 15,3% poduzeća zapošljava IKT stručnjake.

Poduzeća koja zapošljavaju IKT stručnjake, prema veličini poduzeća:

- Mala poduzeća (10-49 zaposlenih), 9,5%;
- Srednja poduzeća (50-249 zaposlenih), 28,5%;
- Velika poduzeća (250 i više zaposlenih), 72,9%.

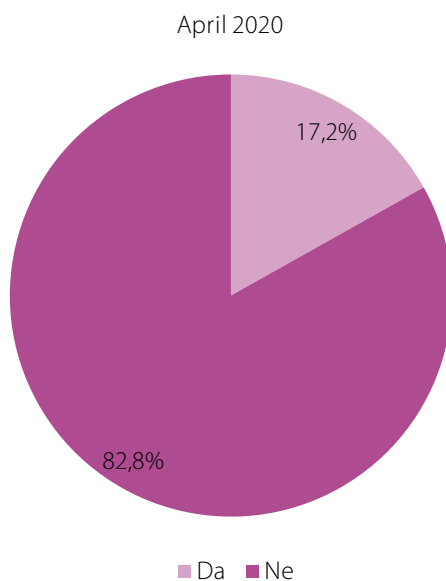
ICT specialists and skills

According to the survey, 15.3% of enterprises are employed by ICT specialists.

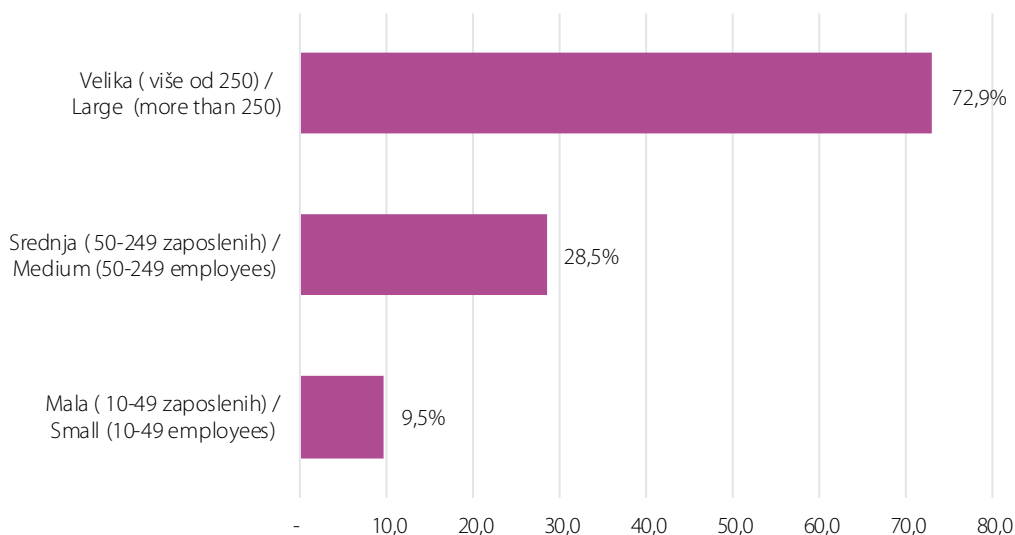
Enterprises employing ICT specialists, according to enterprises size:

- Small enterprise (10-49 employees), 9.5%
- Medium enterprises (50-249 employees), 28.5%
- Large enterprises (250 and more employees), 72.9%

Grafikon 5. Da li vaše poduzeće zapošljava IKT stručnjake?
Chart 5. Does your enterprise employ ICT specialists?



Grafikon 6. Poduzeća zapošljavaju IKT stručnjake, prema veličini poduzeća
Chart 6. Enterprises employing ICT specialists, according to enterprises size



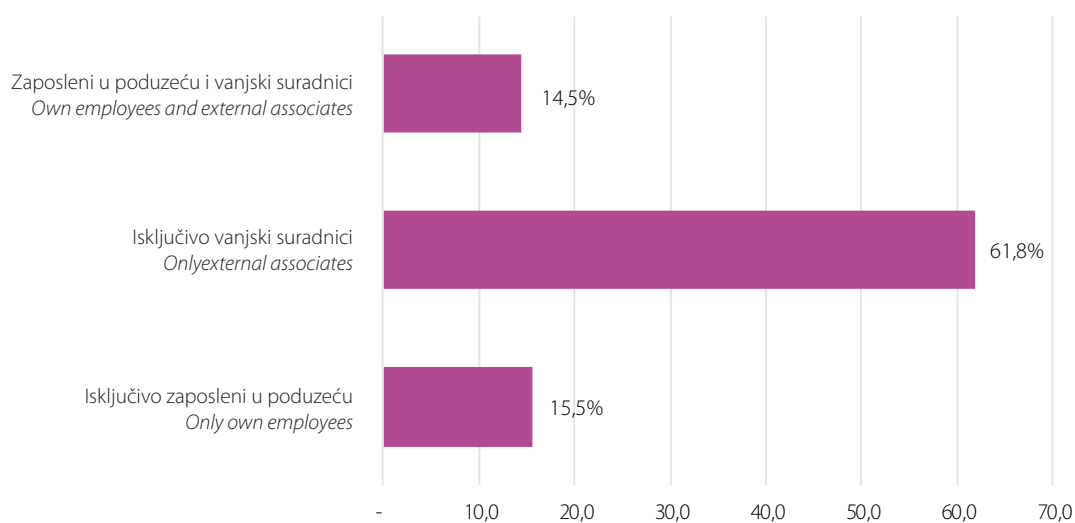
Rezultati istraživanja su pokazali da IKT funkcije u poduzeću obavljaju:

- Isključivo zaposleni u poduzeću (15,5%);
- Isključivo vanjski suradnici (61,8%);
- IKT funkcije obavljaju zaposleni u poduzeću i vanjski suradnici (14,5%).

The results of the survey show that ICT functions in the enterprise are performed:

- Only own employees in the enterprise (15,5%)
- Only external suppliers (61,8%)
- ICT functions are performed by enterprises employees and external associates (14,5%)

Grafikon 7. Ko je obavljao IKT funkcije u Vašem poduzeću tijekom 2019. godine?
Chart 7. Who performed your enterprise's ICT functions in 2019.



Internetska stranica

- Internetsku stranicu posjeduje 62,7% poduzeća.

Kada pogledamo strukturu poduzeća prema veličini, dobijamo sljedeće rezultate:

- 89,5% velikih poduzeća posjeduje internetsku stranicu;
- 78,6% srednjih preduzeća posjeduje internetsku stranicu;
- 58% malih preduzeća posjeduje internetsku stranicu.

Website

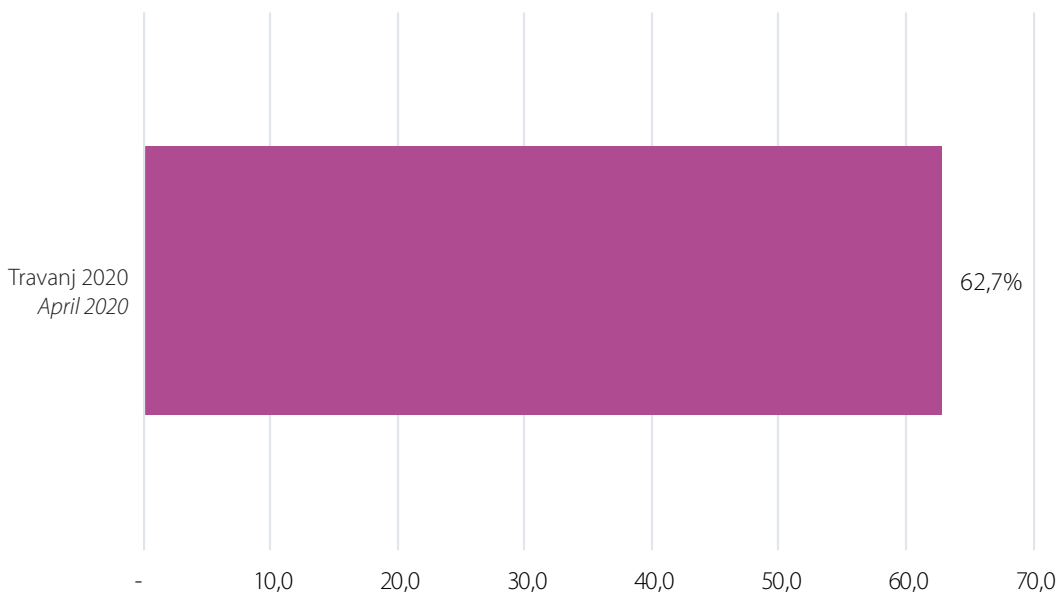
- 62.7% of enterprises had website

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

- 89.5% of large enterprises have a website;
- 78.6% of medium-sized enterprises have a website;
- 58% % of small enterprises have a website.

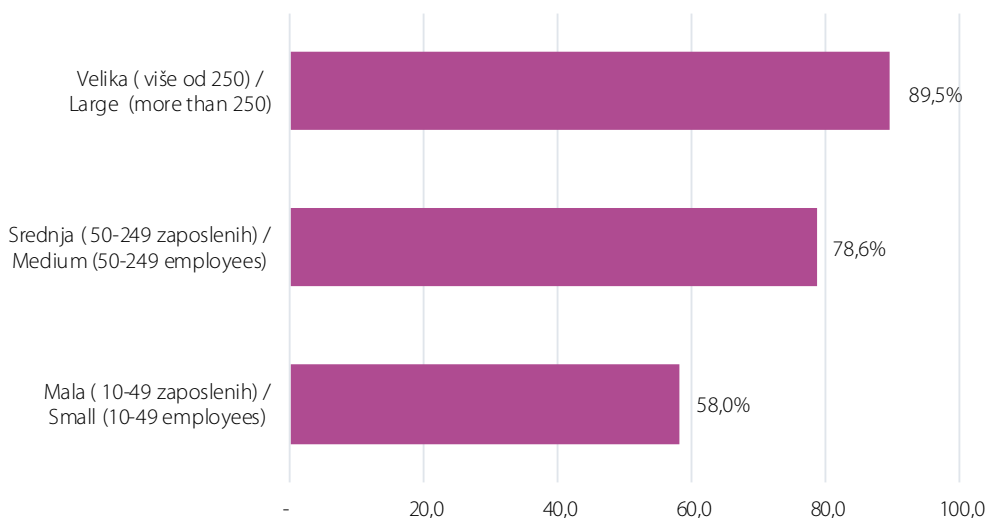
Grafikon 8. Postotak poduzeća koja imaju internet stranicu

Chart 8. Percentage of companies that have a website, by enterprise activity.

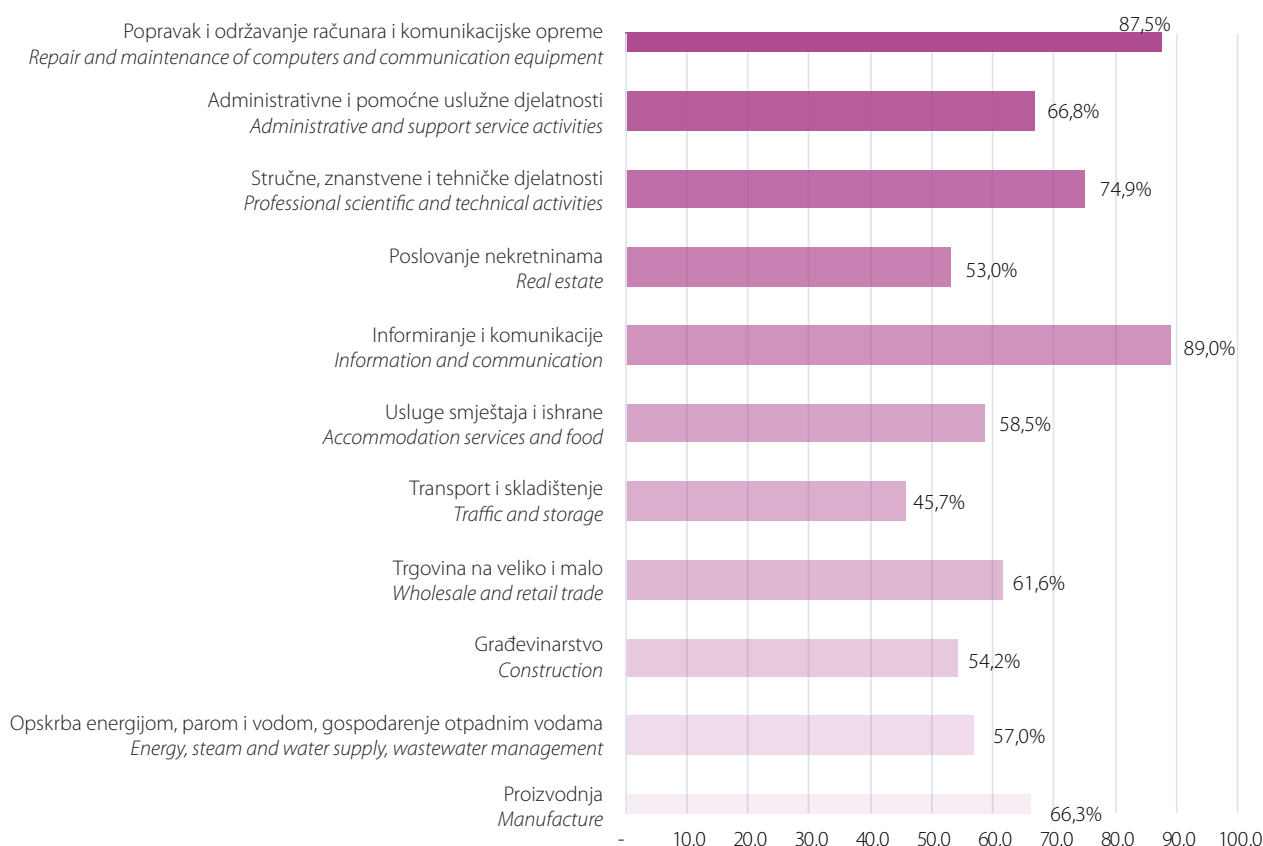


Grafikon 9. Postotak poduzeća koja imaju internet stranicu, prema veličini poduzeća

Chart 9. Percentage of companies that have a website, according to enterprises size.



Grafikon 10. Postotak poduzeća koja imaju internet stranicu, prema djelatnosti poduzeća
Chart 10. Percentage of companies that have a website, by enterprise activity.



Poduzeća posredstvom internet stranice najčešće pružaju:

- Opis robe ili usluga, cjenovnik (87,1%);
- Linkovi i preporuke na društveni profil poduzeća (56,4%).

Istraživanje je pokazalo da 13,0% poduzeća ima uslugu chat service.

Najveći postotak poduzeća koja imaju uslugu chat service imaju poduzeća djelatnosti „Popravlak i održavanje računara i komunikacijske opreme“ (37,5%) i „Trgovina na veliko i malo“, (18,5%).

Via their website, enterprises most often provide:

- *Description of goods or services, pricelists (87.1%);*
- *Links and recommendations on the social profile enterprises (56.4%);*

The survey showed that 13.0% enterprise have a chat service.

The largest percentage enterprises that have a chat service have enterprise in the activities “Repair and maintenance of computers and communication equipment” (37.5%) and “Wholesale and retail trade” (18.5%).

Uporaba cloud usluga

Usluge cloud servisa plaća putem interneta 8,6% poduzeća.

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

Servisi imaju sljedeće karakteristike:

- nalaze se na serverima pružatelja usluga (providera);
- mogu da se upotrebljavaju na zahtjev korisnika;
- plaćaju se na temelju načina uporabe, kapaciteta prostora.

Using Cloud Computing Services

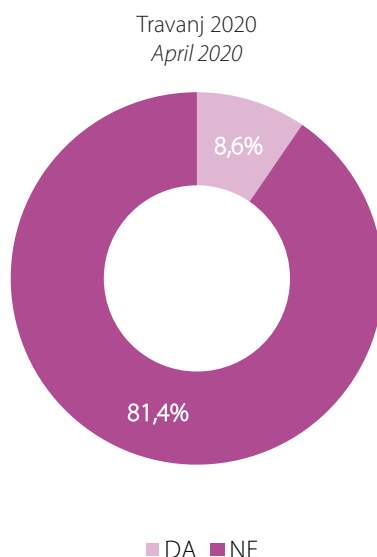
Cloud services are paid by the internet to 8.6% of enterprises.

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

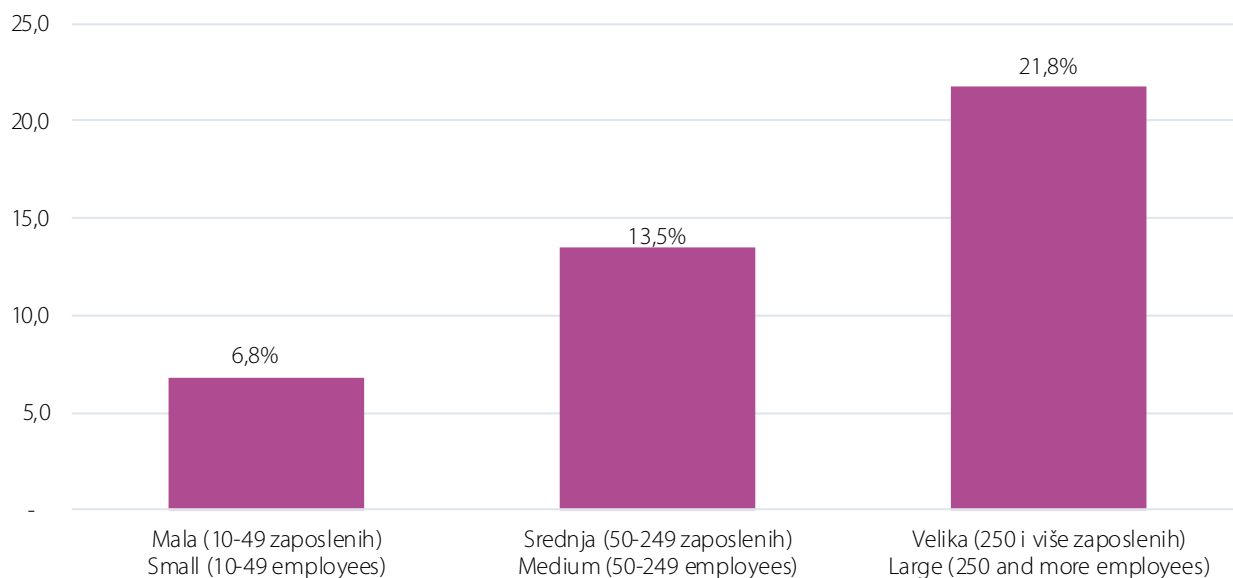
The services have the following characteristics:

- 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.

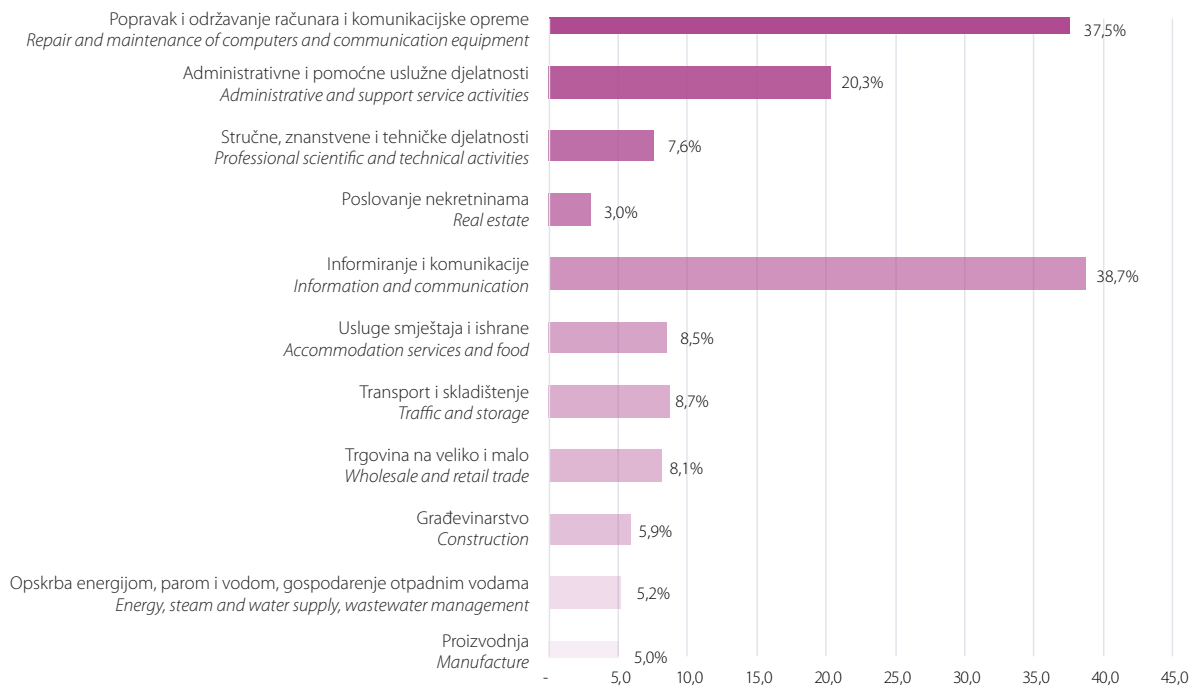
Grafikon 11. Postotak poduzeća koja plaćaju usluge cloud servisa putem interneta
Chart 11. The percentage of enterprises that pay cloud services via the Internet



Grafikon 12. Postotak poduzeća koja plaćaju cloud usluge, prema veličini poduzeća 2020.
Chart 12. The percentage of companies that pay the cloud services, by enterprise size 2020



Grafikon 13. Postotak poduzeća koja plaćaju cloud usluge, prema djelatnosti poduzeća 2020.
Chart 13. The percentage of companies that pay the cloud services, by enterprise activity 2020



Elektronička trgovina

Tijekom 2019. godine, 18,1% poduzeća u Bosni i Hercegovini je imalo internet prodaju robe ili usluga. Kada pogledamo strukturu poduzeća prema veličini, dobijamo sljedeće rezultate:

- 26,6% velikih poduzeća je imalo internet prodaju robe ili usluga;
- 25,3% srednjih poduzeća je imalo internet prodaju robe ili usluga;
- 17,4% malih poduzeća je imalo internet prodaju robe ili usluga.

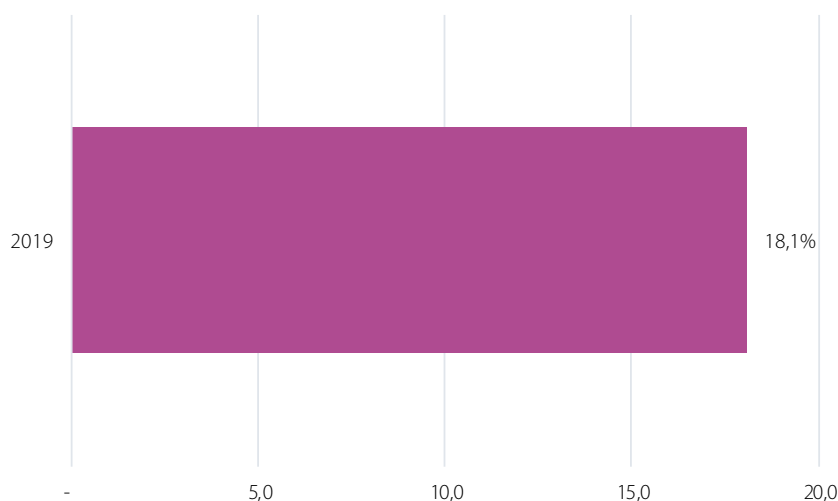
E-Commerce

In 2019. year, 18.1% of enterprises in Bosnia and Herzegovina have web sales of goods or services.

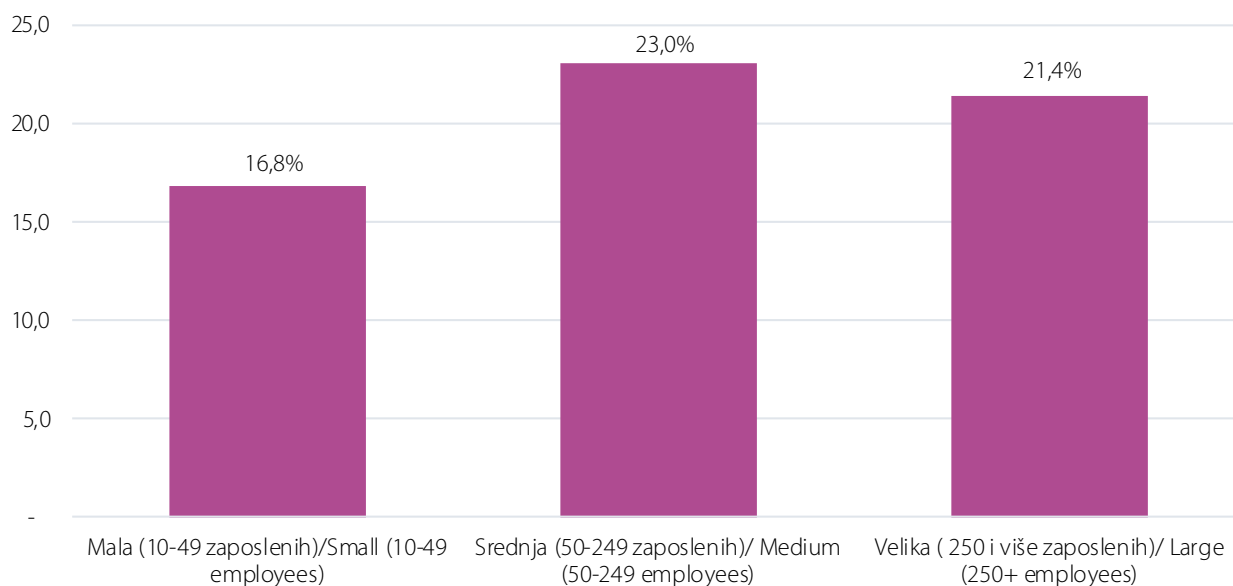
When we look at the structure of enterprises by size, we get the following results:

- 26.6% of large enterprises had web sales of goods or services.;
- 25.3% of medium-sized enterprises had web sales of goods or services.
- 17.4% of small enterprises had web sales of goods or services.

Grafikon 14. Postotak poduzeća koja su imali internet prodaju roba ili usluga tijekom 2019.
Chart 14. Percentage of enterprises that had web sales of goods or services during 2019



Grafikon 15. Postotak poduzeća koja su imala internet prodaju, prema veličini poduzeća
Chart 15. Percentage of enterprises that had web sales, by size enterprises



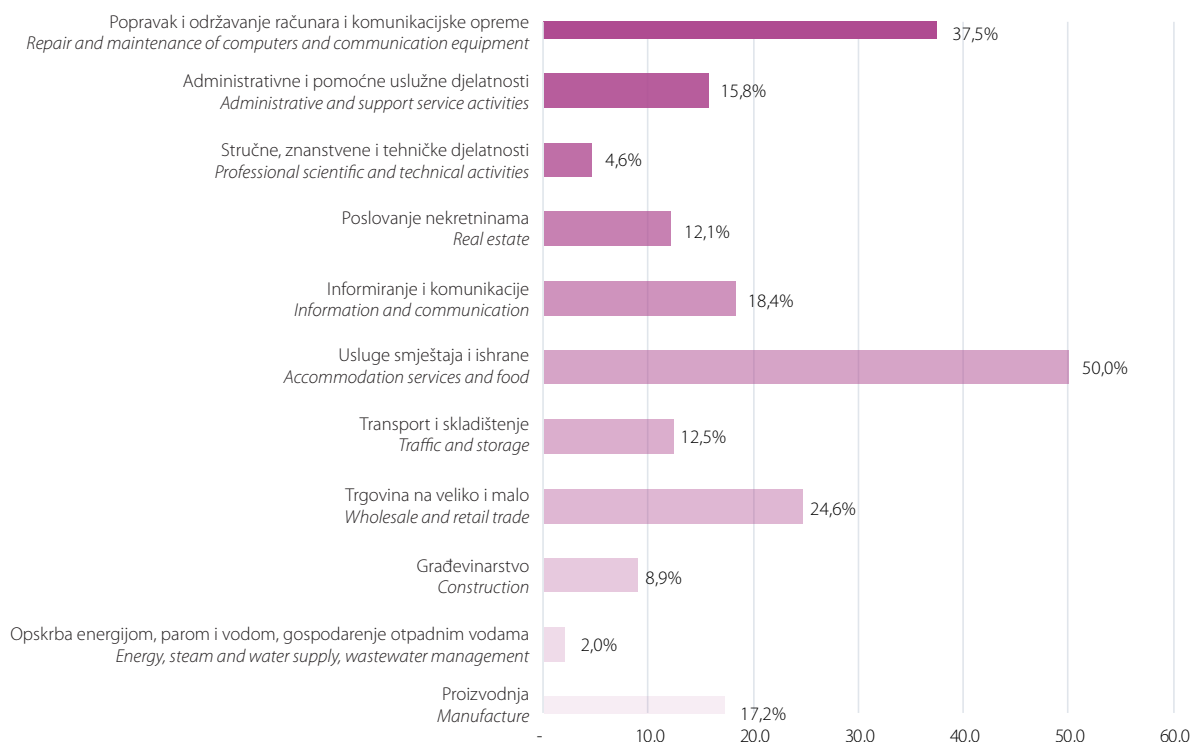
Istraživanje je pokazalo da na pitanje „Da li je vaše poduzeće tijekom 2019. godine imalo internet prodaju robe ili usluga putem?“:

- vlastite internetske stranice poduzeća ili aplikacije, 8,2%;
- internetske stranice e-commerce tržišta ili “aplikacija” koju koristi više poduzeća za trgovinu proizvodima? (npr. Booking, eBay, Amazon, Amazon Business, Alibaba, Rakuten, OLX.BA, E-kupi), 12,8%.

Survey showed that to the question “During 2019, did your enterprise have web sales of goods or services Via“:

- via own enterprise’s websites or apps, 8.2%
- 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), 12,8%

Grafikon 16. Postotak poduzeća koja su imala internet prodaju, prema djelatnosti poduzeća
Chart 16. Percentage of enterprises that had web sales, by enterprise activity



Big data analiza

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

Ponudeni odgovori i rezultati istraživanja bili su:

- a) Podaci s pametnih uređaja ili senzora (1,5%);
- b) Geolokacijske podatke korištenjem prijenosnih uređaja (2,9%);
- c) Podaci generirani iz društvenih medija (2,9%);
- d) Drugi big data izvori koji predhodno nisu navedeni (1,8%).

Rezultati istraživanja pokazuju da je 4,5% poduzeća provodilo big data analizu iz bilo kojih od navedenih izvora.

Big data analysis

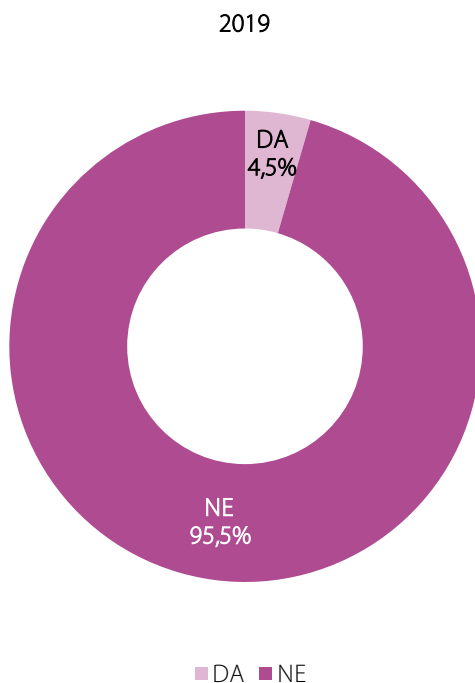
Big data analysis refers to the use of technologies, techniques or software tools such as data or text mining, machine learning, etc., for analysing big data extracted from your own enterprise's data sources or other data sources.

The offered answers and surveys results were:

- a) Data from smart devices or sensors(1,5%)*
- b) Geolocation data from the use of portable devices (2,9%)*
- c) Data generated from social media (2,9%)*
- d) Other big data sources not specified above(1,8%)*

Results of the survey indicating that 4.5% of enterprises performed big data analysis on any of the above sources.

Grafikon 17. Postotak poduzeća koja su provodili big data analizu iz bilo kojih izvora tijekom 2019.
Chart 17. Percentage of enterprises that performed big data analysis from any source during 2019



Uporaba 3D tiskanja

Uporaba 3D tiskanja, koja se naziva proizvodnja aditivnog sloja, odnosi se na uporabu posebnih printera bilo u samom poduzeću, bilo na uporabu usluga 3D tiska koje pružaju druga poduzeća za stvaranje trodimenzionalnih fizičkih objekata pomoću digitalne tehnologije.

Ponudeni odgovori i rezultati istraživanja bili su:

- a) koristeći 3D printere poduzeća (1,9%);
- b) korištenjem usluga ispisa printa od drugih poduzeća (1,9%).

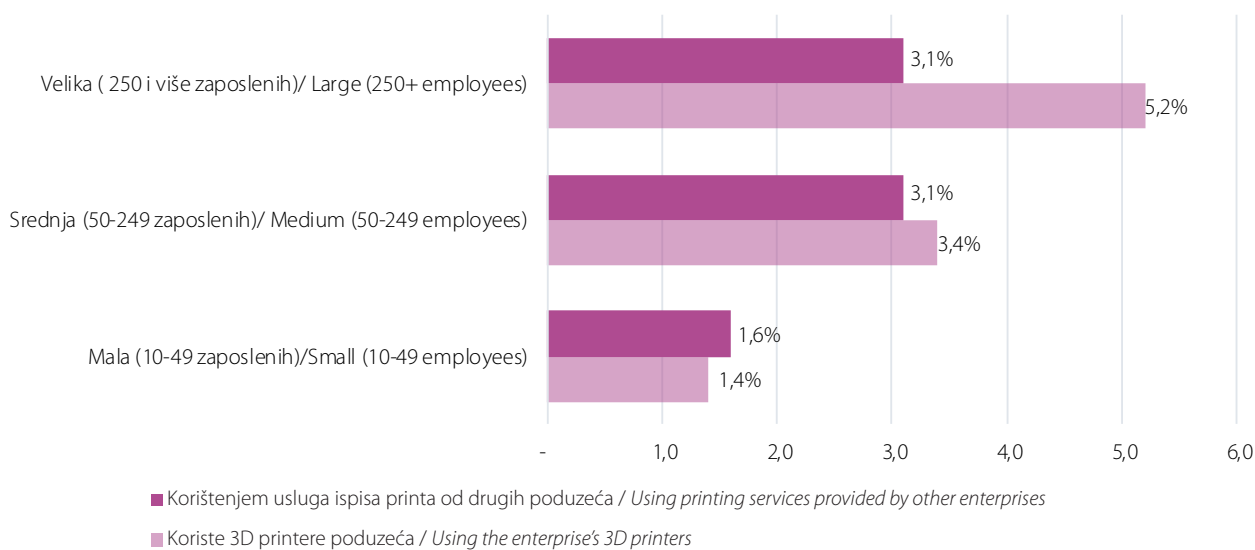
Use of 3D printing

Use of 3D printing aka additive layer manufacturing refers to the use of special printers either by the enterprise itself or the use of 3D printing services provided by other enterprises for the creation of threedimensional physical objects using digital technology.

The offered answers and surveys results were:

- a) using your enterprise's 3D printers? (1,9%)
- b) using printing services provided by other enterprises(1,9%)

Grafikon 18. Postotak poduzeća koja su koristili 3D printere, prema veličini poduzeća
Chart 18. Percentage of enterprises that used 3D printers, by size enterprises



Uporaba robotike

Rezultati istraživanja su pokazali da 3,4% poduzeća koriste industrijske robote.

Uslužne robote koriste samo 0,6% poduzeća

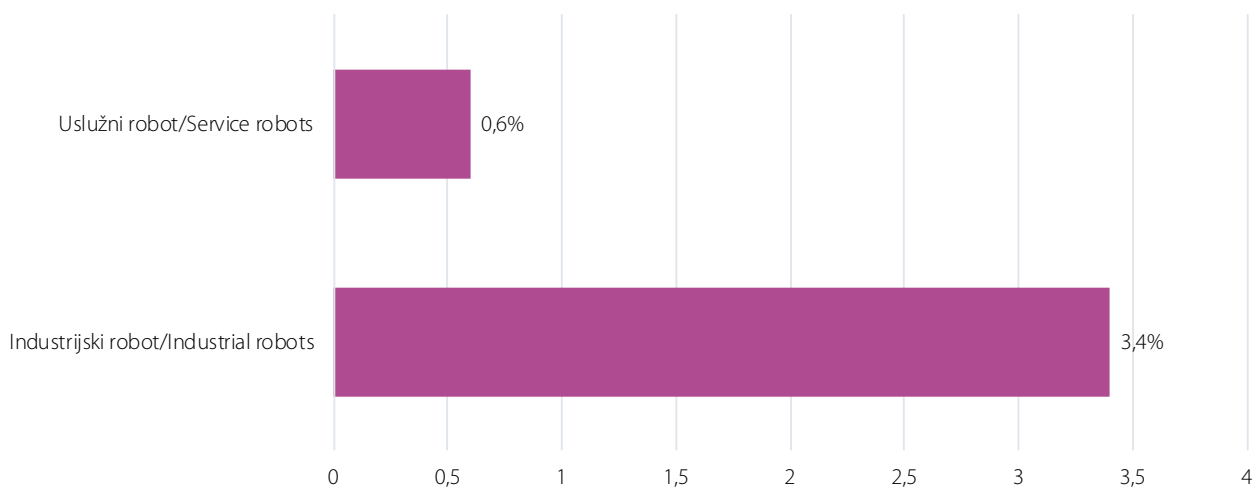
Use of robotics

The results of the survey showed that 3.4% of enterprises use industrial robots.

Service robots are used only 0.6% enterprises.

Grafikon 19. Postotak poduzeća koja koriste robote, prema vrsti robota

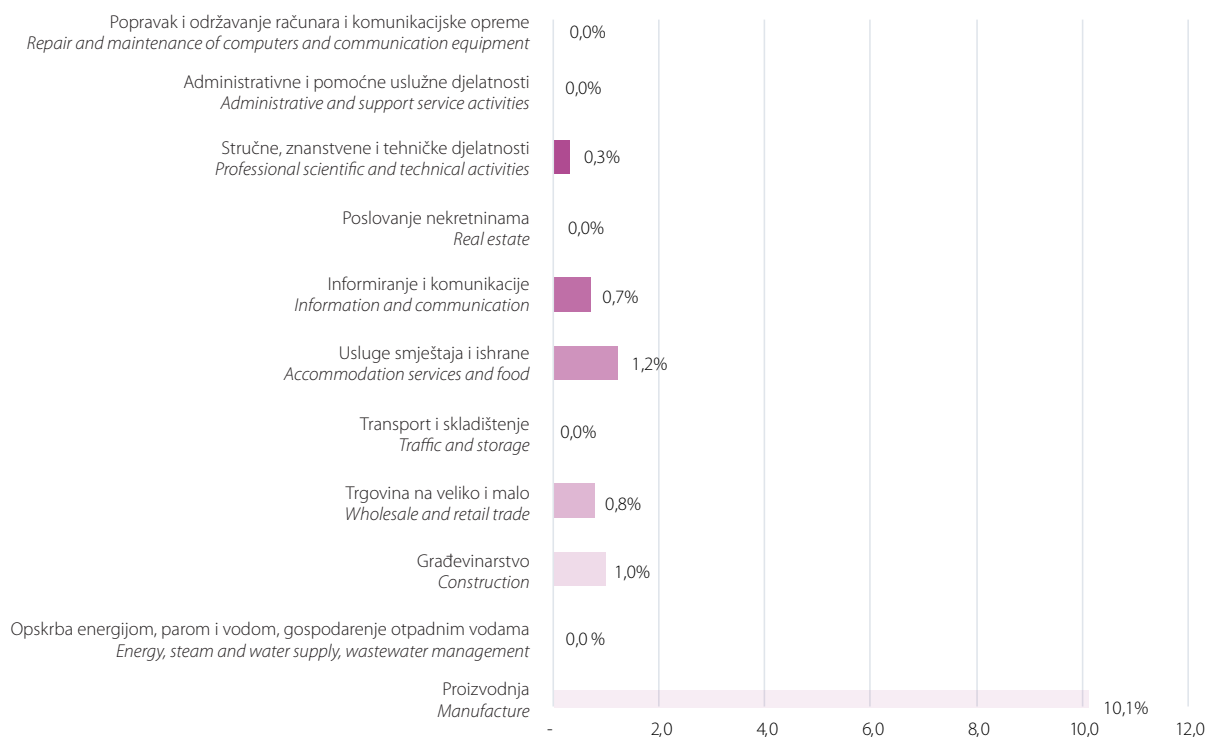
Chart 19. Percentage of enterprises that use robots, by type robot



Najveći postotak poduzeća koji koriste industrijske robote je djelatnost „Proizvodnja“ (10,1%).

The largest percentage of enterprises that use industrial robots is the activity “Manufacture” (10.1%)

Grafikon 20. Postotak poduzeća koja koriste industrijske robote, prema djelatnosti poduzeća
Chart 20. Percentage of enterprises that use industrial robots, by enterprise activity



U poduzećima koji koriste uslužne robote najviše ih koriste za:

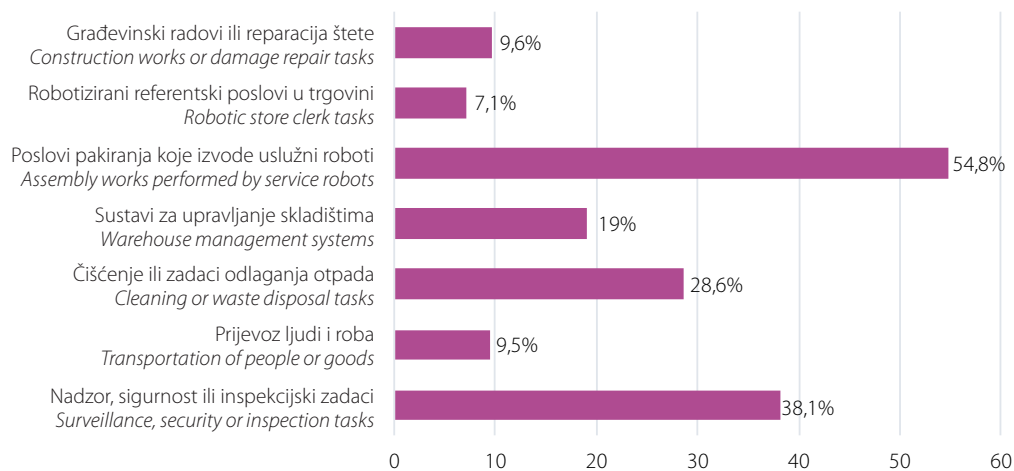
- Poslovi pakiranja koji izvode uslužni robot (54,8%);
- Nadzor, sigurnost ili inspekcijski zadaci(38,1%).

In enterprises that use service robots, they mostly use them for:

- *Assembly works performed by service robots (54.8%)*
- *Surveillance, security or inspection tasks (38.1%)*

Grafikon 21. Vrste korištenja uslužnih robota, u postotcima⁸

Chart 21. Types of use of service robots⁸



⁸ Podaci se odnose na poduzeća koja koriste uslužne robote.

⁸ Data refer to enterprises that use service robots.

IKT RJEČNIK

Definicije

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

Broadband su širokopolasne tehnologije ili veze koje omogućavaju brz prijenos podataka. Komunikacijski sustav čiji nosilac (npr. optički kabl) prenosi umnožene podatke u isto vrijeme, a svaki pojedinačni podatak moduliran je na posebnoj frekvenciji.

ADSL (Asymmetric Digital Subscriber Line) Širokopolasna 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. Skupina od 8 bita čini 1 bajt.

E-government je elektronički 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 internet stranice koje sadrže građanske obveze (npr. porezne prijave, obveze o kretanju), prava (npr. socijalne beneficije), službeni dokumenti (osobne iskaznice, rodni list), javne obrazovne usluge (javne knjižnice, 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 elektroničkim 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 kako bismo razvili čvršće veze s njima. CRM sadrži više tehnoloških komponenti, ali je CRM u organizacijskom smislu skup procesa koji će pomoći da se sakupe neophodne informacije

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,

o potrošačima, prodaji, marketinškoj efikasnosti, reakcijama potrošača i tržišnim trendovima. CRM pomaže poslovno korištenje tehnologije i ljudskih resursa kako bi se stekao uvid u ponašanje i vrijednost potrošača.

Download Elektronički 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 itd. Prijenosi koji se vrše putem internet mreža temeljenih na protokolu i putem ostalih računarskih 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 elektroničke pošte ne ulaze u kategoriju elektroničke trgovine.

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

Elektronička trgovina, E-Commerce (Electronic Commerce, EC) je kupovina ili prodaja dobara ili usluga putem interneta, naročito putem servisa World Wide Web. U praksi se ovaj termin često koristi umjesto novijeg termina e-business, što znači poslovanje putem interneta.

ERP (Enterprise Resource Planning) ERP je, najkraće rečeno, softverski sustav koji prati sve aspekte poslovanja jedne kompanije. Implementirani ERP sustav je u mogućnosti da integrira poslovanje različitih dijelova firme (kao npr. računovodstvo, prodaja, proizvodnja, itd.) u jednu jedinstvenu cjelinu. Tako se dobija sustav preko kojeg je moguće, s jedne strane, upravljati svim ljudskim i materijalnim resursima, a s druge, planirati, razvijati i pratiti poslovne procese i procedure.

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, strojno učenje, itd. radi analize podataka prikupljenih iz izvora u vašem vlastitom poduzeću ili drugih izvora.

marketing efficiency, consumer reactions and market trends. CRM helps business use technology and human resources to gain insight into the behavior and value of consumers.

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.*

Electronic commerce *E-commerce (Electronic Commerce EC electronic store) is purchasing or selling of goods or services via the Internet, in particular via the World Wide Web service. In practice, this term is often used instead of a recent term e-business, which means doing business online*

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.*

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*

3D tiskanje se naziva proizvodnja aditivnog sloja, odnosi se na uporabu posebnih printera bilo u samom poduzeću, bilo na uporabu usluga 3D tiska koje pružaju druga poduzeća za stvaranje trodimenzionalnih fizičkih objekata pomoću digitalne tehnologije.

Industrijski robot je automatski kontrolirani, reprogramirajući, višenamjenski manipulator koji se može programirati u tri ili više pravaca, a koji mogu biti ili fiksirani u mjestu ili mobilni za uporabu. Većina postojećih industrijskih robota bazirana je na robotskoj ruci sa čvrstim postoljem i nizom veza i spojeva sa krajnim efektorom koji izvršava zadatke.

Uslužni robot je stroj koji ima stupanj autonomije koja mu omogućuje da djeluje u složenom i dinamičnom okruženju koje može zahtijevati interakciju s osobama, predmetima ili drugim uređajima, isključujući njegovu primjenu kod industrijske automatizacije. Dizajnirani su primjereno svojim zadacima, rade u zraku (npr. kao dron), pod vodom, ili na kopnu, koristeći točkove ili noge da ostvare mobilnost sa rukama i efektorima na kraju za fizičku interakciju i često se koriste za zadatke inspekcije i održavanja.

3D printing aka additive layer manufacturing refers to the use of special printers either by the enterprise itself or the use of 3D printing services provided by other enterprises for the creation of three-dimensional physical objects using digital technology.

An industrial robot is an automatically controlled, reprogrammable, multipurpose manipulator programmable in three or more axes, which may be either fixed in place or mobile for use. Most existing industrial robots are based on the robot arm with a solid base and a series of links and joints with an end effector that carries out the task.

A service robot is a machine that has a degree of autonomy that enables it to operate in complex and dynamic environment that may require interaction with persons, objects or other devices, excluding its use in industrial automation applications. They are designed to fit their tasks, working in the air (e.g. as a drone), under water, or on land, using wheels or legs to achieve mobility with arms and end effectors to physically interact and are often used in inspection and maintenance tasks.

