USAID
FROM THE AMERICAN PEOPLE

MONITORING AND EVALUATION SUPPORT ACTIVITY (MEASURE II)

DIGITAL ECOSYSTEM COUNTRY ASSESSMENT (DECA)

January 2023

This document is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of the authors and do not necessarily reflect the views of USAID or the United States Government.

MONITORING AND EVALUATION SUPPORT ACTIVITY (MEASURE II)

DIGITAL ECOSYSTEM COUNTRY ASSESSMENT (DECA)

Final Report
January 2023

Prepared under the USAID Bosnia and Herzegovina Monitoring and Evaluation Support Activity (MEASURE II), Contract Number AID-167-I-17-00004, Task Order Number 72016819F00001

Submitted to:
USAID/Bosnia and Herzegovina, January 2023

Contractor:
American Institutes for Research® (AIR®)

ACKNOWLEDGEMENTS

The American Institutes for Research (AIR) was tasked by the United States Agency for International Development in Bosnia and Herzegovina (USAID/BiH) under USAID/BiH's Monitoring and Evaluation Support Activity (MEASURE II) to conduct the Digital Ecosystem Country Assessment (DECA). The DECA team included Anela Kadić Abaz, DECA Manager; Troy Etulain, Principal Investigator and International Subject-Matter Expert; Sadik Crnovršanin, Local Subject-Matter Expert/Technical Researcher; Amina Mahović, Research Assistant; Boris Badža, Geographic Information System (GIS) Specialist/Research Assistant; Erol Barina, Research Assistant; and Haris Mešinović, Research Assistant.

The authors express deep gratitude to USAID/BiH DECA Team Lead, Anela Šemić, and Karl Wurster, Director of USAID/BiH's Economic Development Office, for providing critical insights and support during all phases of conducting the DECA. The direction and input of Elma Bukvić Jusić, USAID/BiH Contracting Officer's Representative for MEASURE II, were indispensable to the successful completion of this assessment. The authors wish to thank the USAID/Washington Development, Democracy, and Innovation Department, notably Craig Jolley and Samantha Chen for their guidance, selfless sharing of advice and experience, and a detailed review of the report. The authors also extend their sincere appreciation to all stakeholders, including USAID staff members and implementing partners, government institutions and agencies, donor and international financial organizations, civil society representatives, academia, and media representatives who shared their knowledge, opinions, and ideas with the DECA team and thereby made this assessment possible.

TABLE OF CONTENTS

EXHIBITS

ACRONYMS

BAM	Bosnia-Herzegovina Convertible Mark
BCX	Balkan Crypto Exchange
BHRT	Radio-Television of Bosnia and Herzegovina
BiH	Bosnia and Herzegovina
BIRN	Balkan Investigative Reporting Network
CA	Certification Authority
CBBH	Central Bank of Bosnia and Herzegovina
CDCS	Country Development Cooperation Strategy
CERT	Computer Emergency Response Team
CIDR	Critical Infrastructure Digitalization and Resilience Project
CMDA	Center for Media Development and Analysis
CRA	Communications Regulatory Agency
CSIRT	Computer Security Incident Response Team
CSO	Civil Society Organization
DCX	Digital Crypto Exchange
DECA	Digital Ecosystem Country Assessment
DFC	U.S. Government International Development Finance Corporation
DFS	Digital Financial Services
DO	Development Objective
EBRD	European Bank for Reconstruction and Development
EC	European Commission
Entso-E	European Network of Transmission System Operators for Electricity
EU	European Union
EUCOM	United States European Command
FBiH	Federation of BiH
FGDs	Focus Group Discussions
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GIS	Geographic Information System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GSB	Government Service Bus
GNP	Gross National Product
GSMA	Global System for Mobile Communications
ICT	Information and Communication Technology
IDDEEA	Agency for Identification Documents, Registers and Data Exchange
IFC-EMMAUS	International Forum of Solidarity-Emmaus
IOM	International Organization for Migration
IR	Intermediate Result
ISOBiH	Independent System Operator
ISP	Internet Service Provider
IT	Information Technology

ITA	Indirect Tax Administration
ITU	International Telecommunication Union
KIs	Key Informants
KIIs	Key Informant Interviews
LGU	Local Government Unit
Mbps	Megabits Per Second
MEASURE II	Monitoring and Evaluation Support Activity
MIL	Media and Information Literacy
MNO	Mobile Network Operator
MOU	Memorandum of Understanding
MVNO	Mobile Virtual Network Operator
NATO	North Atlantic Treaty Organization
NCMEC	National Center for Missing and Exploited Children
NGO	Non-governmental Organization
NIS	Network and Information Security
NSCP-BiH	National Survey of Citizens' Perceptions in BiH
OPA	Online Payment Platform
OSCE	Organization for Security and Cooperation in Europe
OTI	Office of Transition Initiatives
PDPA	Personal Data Protection Agency
PISA	Program for International Student Assessment
POS	Point of Sale
RCC	Regional Cooperation Council
RS	Republika Srpska
RTRS	Radio-Television of the Republika Srpska
SEENPM	Southeast Europe Network for the Professionalization of Media
SEPA	Single Euro Payments Area
SERC	State Electricity Regulatory Commission
SMS	Short Message Service
UN	United Nations
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USD	U.S. dollars

A Glimpse of BiH's Digital Ecosystem

73% citizens use the Internet

39% citizens aged 10 and over are computer illiterate

Population coverage rates:

100% 2G GSM
98% 3G Mobile network
85% 4G Mobile network (LTE)

$ 793.7 million total revenue in telecommunication industry

BH Telecom started testing 5G technology in 2019.

Mobile Network Operators (MNOs) face serious challenges to growth, including limited ability to expand into new areas, new services (i.e. 5G), and other customer groups.

"The quality of information has decreased mainly by an alarming number of **false and misleading content about COVID-19**"

COVID-19 increased consumer demand for *connectivity and virtual services.*

Individuals that check the truthfulness of the information on the internet:

10%

3 Computer Emergency Response Teams (CERTs) with unclear scope

3 Certified Authorities for Digital Signature on a State-level

- Halcom D.D. Ljubljana
- BiH Indirect Tax Authority
- IDDEEA

70% citizens see disinformation as a security threat

904 Information Technology (IT) companies providing computer programming, consultancy, and related services

38.4% women employed in the Information and Communication Technology (ICT) sector

9.7% citizens use digital payments

15.5% citizens make online purchases

67% Employment in IT sector increased from 2015 to 2020

EXECUTIVE SUMMARY

A digital ecosystem includes the stakeholders, systems, and enabling environments that empower people, companies, organizations, and governments to achieve their goals. To identify opportunities, maximize benefits, and manage the risks associated with digital technology in the world's rapidly evolving digital landscape, the United States Agency for International Development (USAID) designed the Digital Ecosystem Country Assessment (DECA) as a reporting tool that will enhance the quality of inputs into the planning and execution of USAID's strategies and implementation of its activities. In late 2021, USAID/Bosnia and Herzegovina (BiH) tasked its Monitoring and Evaluation Support Activity (MEASURE II) to conduct a DECA for BiH. The assessment was guided by USAID's strategic priorities in BiH. USAID/BiH's strategic priorities are defined in the 2020–2025 Country Development Cooperation Strategy (CDCS) and include:

1. **Improving the impact of inclusive citizen engagement** by enhancing civil society constituency connections, strengthening the information space, and increasing political and civic leadership of BiH citizens, with specific focus on youth, women, and marginalized populations.

2. **Strengthening governance effectiveness in targeted areas** by addressing the problem of high-level corruption in BiH, supporting reforms that are in line with European Union (EU) regulations, and strengthening the protection of human rights.

3. **Strengthening social cohesion** by developing and empowering connections and building solidarity among various groups in society, including civil society, the private sector, the diaspora, and marginalized populations.

4. **Boosting private-sector growth** by supporting sectors that have the greatest growth potential in BiH and increasing access to transparent financing.

Guided by these priorities, the DECA team assembled by MEASURE II collected and reviewed an extensive list of relevant documents produced by USAID, its implementing partners, government institutions and agencies, international organizations, academia, the non-governmental sector, and the media. To extend the knowledge acquired through desk review, the DECA team organized, completed, and analyzed data from 87 interviews and two focus groups with a total of 122 key informants. Finally, the DECA team triangulated data obtained through desk review and interviews with data from the 2021 wave of the USAID/BiH's National Survey of Citizens' Perceptions in BiH (NSCP-BiH) to enrich the understanding of BiH's digital ecosystem and best inform assessment findings. Key DECA findings are presented next.

KEY FINDINGS

Connectivity infrastructure in BiH is strong. Although all three primary mobile network operators (MNOs) claim wide network coverage, enabling their consumer service throughout the country, BH Telecom, HT Eronet, and M:Tel each predominantly serve a specific ethnic group in the area of the country in which that group has a majority of residents. The internet service provider (ISP) market is more diversified, especially with the growing presence of Telemach. However, the infrastructure that the three dominant ISPs inherited from before the 1992–1995 war puts them in an advantageous situation over new market competitors, especially since there is no infrastructure sharing among ISPs.

Despite this situation, internet infrastructure covers 82 percent of BiH territory, with 99.7 percent of the population covered by at least a 2G mobile signal and 85.3 percent of residents covered by a 4G signal. Implementation of 5G is still in the planning phase.

Despite strong connectivity infrastructure, BiH's digitalization process continues to be stymied by political paralysis. For example, BiH remains the only country in Europe without a state-level computer emergency response team (CERT), the required central point of contact for collaboration with the European Union on cybersecurity. Additionally, BiH lacks a common understanding and definition of critical digital infrastructure. Whereas RS adopted a Law on Critical Infrastructure, political turmoil has resulted in the absence of adequate legislation at the state and Federation of BiH (FBiH) levels.

Political paralysis also hinders the enabling environment for and uptake of digital signatures. The national legislation on e-signatures is not aligned with the EU Acquis Communautaire. Although three certified authorities are registered at the state level—Indirect Tax Authority; Agency for Identification Documents, Registers and Data Exchange (IDDEAA); and a private company, Halcom D.D.—the use of e-signatures remains modest. In RS, certificates for e-signature can also be obtained from the Ministry of Scientific and Technological Development, Higher Education and Information Society. The Ministry plays the role of certificate authority issuer, central coordinator of all certificates, and certificate inspector. However, "trust services" (which include certification authorities) have not been regulated by EU member states since 2016. In addition, according to the EU Regulation on electronic identification and trust services for electronic transactions in the internal market (eIDAS Regulation), qualified certificate providers should be recognized independently of the Member State where the Qualified Trust Service Provider is established or where the specific qualified trust service is offered.

The lack of utilization and accessibility of e-signatures has been identified as a key limitation to further development and provision of e-services to citizens and the business community. Complex and slow administration creates space for corrupt behavior, hinders the business enabling environment, and contributes to citizens' dissatisfaction with public services, all of which are identified to be among drivers of high emigration from BiH. A highly skilled labor force continues to leave the country and information technology (IT) professionals are not an exception. The IT sector is the most prosperous sector in BiH; however, it faces an estimated labor force deficit of 6,000 workers that the current formal education system cannot fill. Attraction and retention of digitally skilled workforce are the most challenging for government institutions that cannot provide working conditions as good as the private IT sector does.

Furthermore, data on digital literacy among the general population are limited. Yet a perception that youth are more digitally skilled compared to adults is common. Digital divides persist to the detriment of older generations, women from rural areas, and Roma populations. Whereas access to and use of digital technology by Roma stems mainly from poor economic conditions, women from rural areas face a "triple divide" that includes digital, rural, and gender factors. This issue extends to the use of digital financial services (DFS). Although use of DFS is low in general, women less often than men own a credit card, use e-banking services, engage in e-commerce, and make payments online. The barriers to expanding the uptake of DFS in BiH include its challenging topography, the prevalence of traditional social and financial structures that depend on community- and cash-based networks, low trust in digital platforms, low levels of financial inclusion, and low digital literacy in particular.

Another challenge to accelerating digital ecosystem development relates to digital media. The ability of citizens to recognize misinformation, disinformation, and malinformation is limited and this state of

affairs is especially alarming given that media in BiH tend to be ethnically polarized and work of investigative journalists is frequently obstructed. There is no systematic approach to addressing the digital literacy deficit, and stakeholders including government agencies, MNOs, banks, media, and civil society believe that it is not their responsibility to help consumers improve their critical thinking skills and increase their awareness of how digital systems work. At the same time, violation of digital rights in BiH is rising. Violations commonly include online intimidation, manipulation and propaganda in the digital environment, and information security breaches. Media freedom and the safety of journalists are hindered; however, both preventive and repressive institutional measures on political pressure, intimidation, and harassment towards journalists are missing. There is a worrisome rise of threats and violence against female journalists as well as online violence manifested through social networks and internet portals.

INTRODUCTION

In 2020, the United States Agency for International Development (USAID) adopted its first-ever Digital Strategy[1] that aims to improve USAID development and humanitarian assistance outcomes through the responsible use of digital technology and to strengthen the openness, inclusiveness, and security of partner country digital ecosystems. A digital ecosystem includes the stakeholders, systems, and enabling environments that empower people, companies, organizations, and governments to achieve their goals. The Digital Strategy charts an agency-wide vision for development and humanitarian assistance in the world's rapidly evolving digital landscape.

The flagship initiative of the Digital Strategy is the Digital Ecosystem Country Assessment (DECA). The DECAs will inform the development, design, and implementation of USAID's strategies, projects, and activities with regards to the digital landscape. It is a decision-making tool designed to help USAID Missions identify opportunities, maximize benefits, and manage the risks associated with digital technology.

In late 2021, USAID/Bosnia and Herzegovina (BiH) tasked its Monitoring and Evaluation Support Activity (MEASURE II) to conduct a DECA for BiH.

ABOUT THIS ASSESSMENT

The DECA examines three broad areas to understand the opportunities and challenges in a country's digital ecosystem:

1. Digital Infrastructure and Adoption
2. Digital Society, Rights, and Governance
3. Digital Economy

The purpose of the DECA is to inform the development, design, and implementation of USAID's strategies, projects, and activities with regards to the digital landscape. It is a decision-making tool designed to help USAID Missions identify opportunities, maximize benefits, and manage the risks associated with digital technology.

In late 2021, USAID/BiH tasked its Monitoring and Evaluation Support Activity (MEASURE II) to conduct a DECA for BiH. The BiH DECA was developed between December 2021 and September 2022. It included desk research, consultations with USAID/BiH, and 87 key informant interviews (KIIs) and two focus group discussions (FGDs) with a total of 122 participants from civil society, academia, the private and public sectors, international development organizations, and USAID/BiH technical offices. Finally, the DECA team triangulated data obtained through desk review and interviews with data from the 2021 wave of USAID/BiH's National Survey of Citizens' Perceptions in BiH (NSCP-BiH) to enrich the understanding of BiH's digital ecosystem and best inform assessment findings. Refer to Annex A for more details on the applied methodological approach.

[1] See https://www.usaid.gov/sites/default/files/2022-05/USAID_Digital_Strategy.pdf.pdf.

Rather than act as an authoritative source on the country's digital ecosystem, the DECA is intended to be a rapid assessment of opportunities and challenges tailored to USAID's programmatic priorities. Thus, it may not cover all USAID/BiH program offices and activities in depth.

ROAD MAP FOR THE REPORT

This document provides extensive data and analysis on the status and trajectory of BiH's digital ecosystem.

Section 1 provides a summary of USAID/BiH's priorities on which the DECA team focused while researching the digital ecosystem in BiH.

Section 2 presents the key findings about BiH's digital ecosystem. This section is organized into three subsections by DECA pillar: (1) Digital infrastructure, access, and use; (2) Digital Society and Governance; and (3) Digital Economy.

PILLAR 1: DIGITAL INFRASTRUCTURE AND ADOPTION

Digital infrastructure enables the flow of data and information between people and systems. Its key aspects include network coverage, network performance, internet bandwidth, and spectrum allocation, as well as security, interoperability, and telecommunications market dynamics. It is affected by behavioral, economic, and social factors that influence the extent of digital literacy, affordability, and adoption of digital solutions.

KEY FINDINGS

Three Mobile Network Operators (MNOs) with 5G are on the horizon: Overall, connectivity infrastructure is strong, with 82 percent of the territory of BiH covered by mobile networks. BiH has not yet introduced 5G, although BH Telecom started testing the technology in 2019. The lack of a national broadband strategy, as well as the lack of financial resources, have directly affected the deployment of 5G and the overall growth in the information and communication technology (ICT) sector.

Legacy of 4G licenses is a burden to MNOs: The 4G spectrum licenses granted to three MNOs in 2017 included the requirement that they cover 90 percent of the country's territory and 98 percent of its roads within five years, regardless of population density. These requirements were unusual; it is more common for licenses to require a minimum percentage of population coverage. The obligation has proved to be financially burdensome for MNOs and has slowed down the growth trajectory of their businesses, while their counterparts in neighboring countries introduce 5G.

Pandemic-driven increase in demand: Due to the COVID-19 pandemic, citizens increasingly turned to digital technologies, especially in areas such as education, shopping, and banking, among others. This trend has implications for all levels of government. However, computer literacy data show that 38.7 percent of the population ages 10 and above are computer illiterate, which indicates that BiH still has significant room for improvement in enhancing the digital literacy of its citizens. Although not documented, digital divides exist to the detriment of older generations, Roma, and women from rural areas.

Cybersecurity concerns: There is no common understanding and definition of critical digital infrastructure in BiH. Whereas Republika Srpska adopted a Law on Critical Infrastructure, political turmoil has resulted in the absence of adequate legislation at the state and Federation of BiH levels. Furthermore, BiH remains the only country in Europe without a state-level computer emergency response team.

CONNECTIVITY INFRASTRUCTURE, SECURITY, INTEROPERABILITY, AND COMPETITIVENESS

Since the 1992–1995 war, the telecommunications sector in BiH has been largely separated along ethnic lines, as demonstrated by the market share of the country's three largest MNOs. In FBiH, a majority of consumers prefer either Sarajevo-based BH Telecom, which dominates in Bosniak majority areas, or Mostar-based HT Eronet, which leads in Croat majority areas. In RS, Banja Luka-based M:Tel dominates

the market in the Serb-majority entity.[2] While no publicly available map of MNOs market share exists, key informants (KIs) suggested it would follow the same boundaries as the regions with a majority of one ethnic group. However, all three MNOs claim wide network coverage, thereby providing fair service to their consumers throughout the BiH territory.

The ownership of the three MNOs varies. M:Tel was privatized in 2007, when it was sold to Telekom Srbija,[3] the dominant fixed-line and mobile telephone provider in Serbia. The largest shareholder of both BH Telecom and HT Eronet is the Government of FBiH, although it has different stakes in the two companies. While the Government of FBiH holds 90 percent of BH Telecom shares,[4] it owns half of the shares in HT Eronet, with the second largest company shareholder being Hrvatske Telekomunikacije (39 percent),[5] the main telecom operator in Croatia. While it is possible to purchase a SIM card from any of the three providers, the historical strength of the MNOs in the regions with a majority of one ethnic group persists for various reasons, including the historical tendency for consumers of one ethnicity to prefer the MNO controlled by members of their same ethnicity. Each group's subsequent loyalty to the MNO whose service to which they initially subscribed was prolonged by the long-standing practice of offering lower prices for in-network calls. Until recently, MNOs that operated in multiple countries offered cheaper calls between countries as part of their in-network service. For example, it was cheaper to call a Telecom Serbia number from M:Tel than from other operators. However, on July 1, 2019, an agreement was signed to reduce roaming fees affecting all MNOs operating across the Western Balkans.[6]

While there are only three MNOs, the internet service provider (ISP) market is more diversified. In addition to BH Telecom, M:Tel, and HT Eronet, which provide mobile network services but are also the primary means of internet access for a majority of BiH citizens, there are several ISPs that compete for market share in the telecommunications sector, one of the most profitable sectors in BiH. The total revenue generated by the sector in 2020 was more than 793 million USD, which equaled 3.54 percent of BiH's gross domestic product (GDP).[7] Although Telemach strengthened competition among ISPs—especially in FBiH—BH Telecom, HT Eronet, and M:Tel continue to dominate the market.

The total number of mobile network subscriptions (3.8 million as of December 2021)[8] exceeds the total population of BiH,[9] possibly indicating that people have more than one SIM card.[10] Although the number

---

[2] International Trade Administration. (2021). BiH – Telecommunication Industry. https://www.trade.gov/country-commercial-guides/bosnia-and-herzegovina-telecommunications-industry

[3] M:Tel. Ownership Structure. https://mtel.ba/n363/Investors#tab-three

[4] The Sarajevo Stock Exchange. Share issue profile: BH Telecom DD Sarajevo. http://www.sase.ba/v1/Tr%C5%BEi%C5%A1te/Emitenti/Profil-emitenta/symbol/BHTSR

[5] The Sarajevo Stock Exchange. Share issue profile: JP HT DD Mostar. http://www.sase.ba/v1/en-us/Market/Issuers-Securities/Issuer-profile/symbol/HTKMR

[6] Regional Cooperation Council. (2021). Agreement on the price reduction of the roaming services in public mobile communication networks in the Western Balkans Region. https://www.rcc.int/download/docs/FINAL%20RRA2%20SIGNED.pdf/25c8b674d235cf5bc19894a8a24fbd6b.pdf

[7] BiH Communication Regulatory Agency. (2021). *Annual report of the Communications Regulatory Agency for 2020*. https://docs.rak.ba//documents/f8910d22-e538-4b11-9b21-4f7cfd0e0b88.pdf

[8] Mobile network subscriptions reflect the number of prepaid and postpaid SIM cards active during the past three months.

[9] BiH Communications Regulatory Agency. (2021). Annual Report. https://docs.rak.ba//documents/fb41882e-cbe4-4e8f-8efa-fe45a9376971.pdf

[10] Data on SIM cards owned by tourists or members of the BiH diaspora community are unavailable. Thereby, it is impossible to assess the extent to which these (potential) users contribute to the total number of mobile network

of postpaid subscriptions has increased over the past ten years, the number of active, prepaid SIM cards remains almost three times higher (1 million postpaid cards vs. 2.8 million prepaid cards).[11]

In April 2019, the Communications Regulatory Agency of BiH (CRA) issued 4G licenses to the three MNOs with a validity period of 15 years and a requirement to commence 4G services within one month of the award.[12] Both 3G and 4G were introduced in BiH significantly later than in neighboring countries, mainly because CRA took a long time to issue licenses for MNOs.

Lack of a Broadband Strategy

Although the draft version of a strategy for the development of broadband access in BiH for the period 2019-2023 exists, it has not yet been adopted. KIs did not provide comprehensive reasoning on what may be preventing the adoption of the strategy. This makes BiH the only country in the neighborhood that lacks a broadband strategy.

While there is competition in the country, the current makeup of players is not likely to change. BH Telecom, HT Eronet, and M:Tel are the only licensed MNOs. BH Telecom is the market leader in mobile network subscribers (43 percent of market share), followed by M:Tel (35 percent), and HT Eronet (21 percent). Together, these companies also control 81 percent of fixed-line connections.[13] Based on commercial agreements with the three licensed MNOs, BiH citizens may also use mobile network services provided by mobile virtual network operators (MVNOs) Dasto Semtel, Logosoft, Novotel, and Haloo.[14,15] However, the combined market share of these four operators does not exceed one percent.

While the Law on Communications of BiH[16] allows MNOs to share infrastructure, the companies mostly choose not to, because they consider the location and extent of their towers to be a primary means by which they can outperform their competitors. This is true, even though the MNOs could have saved significant resources while fulfilling the land coverage requirements stipulated in their 4G spectrum licenses. According to KIs, the cooperation between MNOs is limited mostly to humanitarian relief activities, through which they enable consumers to make donations by text message. Although setting up a unique number for collecting monetary donations can be done to support humanitarian causes, it entails significant costs; however, these services are not tax deductible for the customer.[17,18,19] The costs associated with making humanitarian donations over the phone have led citizens to organize an initiative to abolish value-added tax (VAT) and fees associated with humanitarian calls. However, changes in the legislative framework were never made.

---

subscriptions in BiH.

[11] BiH Communications Regulatory Agency. (2021). Annual Report. https://docs.rak.ba//documents/fb41882e-cbe4-4e8f-8efa-fe45a9376971.pdf

[12] ITU Office for Europe. (2020). 5G Country Profile – Bosnia and Herzegovina

[13] BiH Communications Regulatory Agency. (2021). Annual Report. https://docs.rak.ba//documents/fb41882e-cbe4-4e8f-8efa-fe45a9376971.pdf

[14] Ibid.

[15] Two out of four MVNOs are owned by MNOs—specifically, M:Tel acquired Logosoft in 2017, and HT:Eronet founded Haloo d.o.o. in 2020.

[16] Official Gazette of BiH, No. 31/03, 98/12.

[17] M:Tel. (2022). Price Overview: August 2022. https://mtel.ba/Binary/1772/cjenovnik.pdf

[18] BH Telecom. (2021). Price List of Services in Domestic and International Traffic of BH Telecom. https://www.bhtelecom.ba/wp-content/uploads/2021/04/Cjenovnik-V014.pdf

[19] HT Eronet. Humanitarian telephone numbers. https://www.hteronet.ba/upoznajte-nas/humanitarni-telefoni-s127

MOBILE COVERAGE

A current map of mobile coverage in BiH is not available; however, data provided by CRA and international agencies, including the International Telecommunication Union (ITU), show that mobile penetration (the number of accounts per person) reached 106.7 percent in 2021. In the same year,[20] 96 percent of the population was covered by a 3G mobile network (UMTS); 82 percent, by a 4G mobile network (LTE).[21] According to KIs, CRA is in the process of mapping the country's broadband infrastructure. The result of this process will be a map with geolocated infrastructure that will serve, per an EU request, as the primary source of telecommunications infrastructure information for the country.

Based on Global System for Mobile Communications (GSMA) network coverage maps[22] and geographic information system (GIS) analysis performed by the DECA team, it is evident that 96.7 percent of the territory of BiH is covered by 2G signals, whereas some smaller areas in the country are not covered by any signal of any mobile network (Exhibit 1). Whereas 3G covers 80.5 percent of the territory of BiH, only 48.9 percent of the territory is covered by a 4G signal. The data the DECA team obtained through GIS analysis using the GSMA network coverage and Humanitarian Data Exchange (HDX) 2020 population tallies[23] also indicate that 99.7 percent of the BiH population has access to a 2G signal. In the case of 3G coverage, this percentage is slightly lower (97.7 percent), while 85.3 percent of the population has 4G access. As the maps in Exhibit 1 illustrate, 4G is most commonly used in densely populated areas, leaving rural areas without its benefits.

Although BiH has not yet introduced 5G, BH Telecom started testing 5G technology in 2020, with testing continuing into 2022. However, according to the ITU, the lack of a national broadband strategy is "one of the most pressing issues for the development of broadband in the country in terms of market competitiveness and growth in the ICT sector." It has slowed the introduction of 5G technology in the country.[24]

[20] BiH Communication Regulatory Agency. (2021). 2021 Annual Report: Communications Regulatory Agency. https://docs.rak.ba//documents/92647e3b-3b39-40e3-88b0-5324ccec753f.pdf

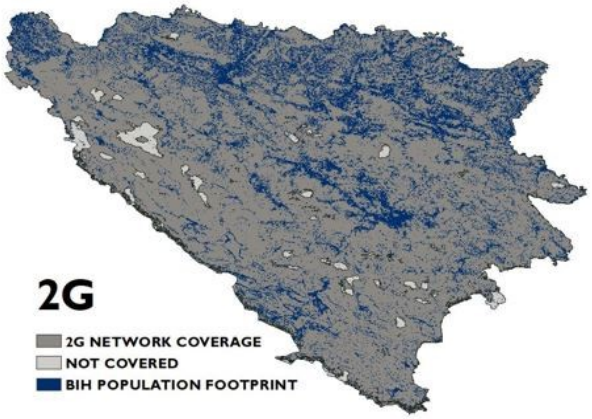
[21] In accordance with International Telecommunication Union (ITU) data practices, the data were taken from the operator that reported the highest percentage of GSM, UMTS, and LTE network coverage. However, GSMA data show that 4G coverage in BiH is only at 23 percent.

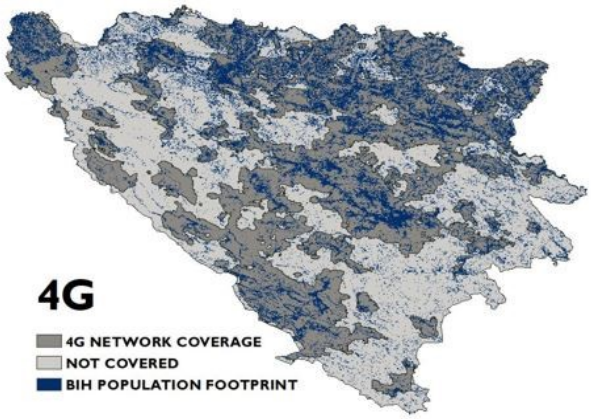
[22] GSM Association. (2021). Network Coverage Maps. https://www.gsma.com/coverage/.

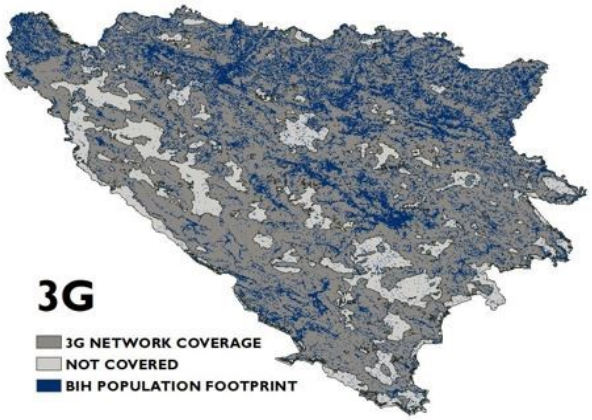
[23] The Humanitarian Data Exchange. Bosnia and Herzegovina – Population Counts. https://data.humdata.org/dataset/worldpop-population-counts-for-bosnia-and-herzegovina

[24] Halimić, E. (2021, October 9). The blockade of institutions is hampering the introduction of the 5G network in BiH. Dnevni avaz. https://avaz.ba/vijesti/bih/687426/ponovo-kasnimo-za-regionom-i-evropom-blokada-institucija-koci-i-uvodenje-5g-mreze-u-bih

Exhibit 1. Mobile network coverage in BiH, overlaid with population footprint (analysis performed and maps produced by the DECA team in July 2022)







Total BiH population (source: HDX)	3,279,977.83	
Total number of BiH inhabitatans under:	**no**	**%**
2G network	3,269,063.91	99.7
3G network	3,203,474.69	97.7
4G network	2,797,893.96	85.3
BiH State total area (km2)	**51,197.00**	
Areas in BiH covered with:	**km2**	**%**
2G network	49,484.44	96.7
3G network	41,224.48	80.5
4G network	25,057.22	48.9

Note: The average population density in BiH (state level) is between 66 and 69 people per square kilometer. The highest population density values are in the Sarajevo Canton (more than 6,500 people per sq. km), while the lowest values (less than 10 people per sq. km) are in the southwest areas in Canton 10.

INTERNET USE AND CONSUMER PREFERENCES

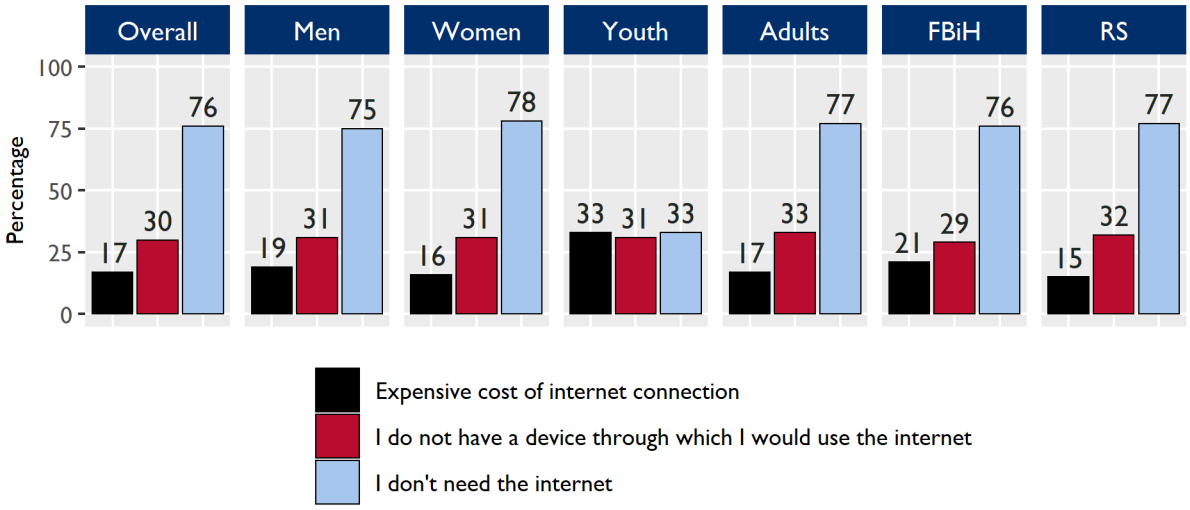
According to data from the ITU and the BiH Agency for Statistics, 73.2 percent of the population in BiH use the internet,[25] and about the same percentage of households have internet access at home.[26] Households in urban areas are more likely to have internet access (75 percent) compared to households in rural areas (71 percent).[27] The most common reasons for private internet use include online and video calls, text messaging through online tools, and participation in social networks.[28] The most common reason people choose not to pay for internet service is that they do not perceive the benefits of doing so. Of those who chose not to pay for internet service because they did not perceive the

[25] ITU. (2021). Connectivity in education: Status and recent developments in nine non-European Union countries. https://www.itu.int/dms_pub/itu-d/opb/phcb/D-PHCB-CONN_EDUC-2021-PDF-E.pdf
[26] Agency for Statistics of BiH. (2021). Use of information and communication technologies in Bosnia and Herzegovina. https://bhas.gov.ba/data/Publikacije/Bilteni/2021/IKT_00_2020_TB_1_BS.pdf
[27] Ibid.
[28] Ibid.

benefit, 77 percent of respondents were adults and 33 percent were youth.[29] The next two most common reasons for not having regular access to the internet are the lack of devices (33 percent of adults and 31 percent of youth) and the cost of internet access (17 percent of adults and 33 percent of youth). See Exhibit 2 for more details.

World Bank data reveal that fixed broadband subscriptions in BiH increased from 27 in 2000 to 770,624 in 2020.[30] Although the number of ISPs has declined over the past five years, the number of internet subscribers has increased over the past ten years. In 2020, 60 ISPs operated in BiH.[31] Compared to the previous year, the operators improved their offers by introducing new services and improving the ease of using existing services. However, the operators face numerous problems in network expansions.

Exhibit 2. BiH internet usage and preference statistics



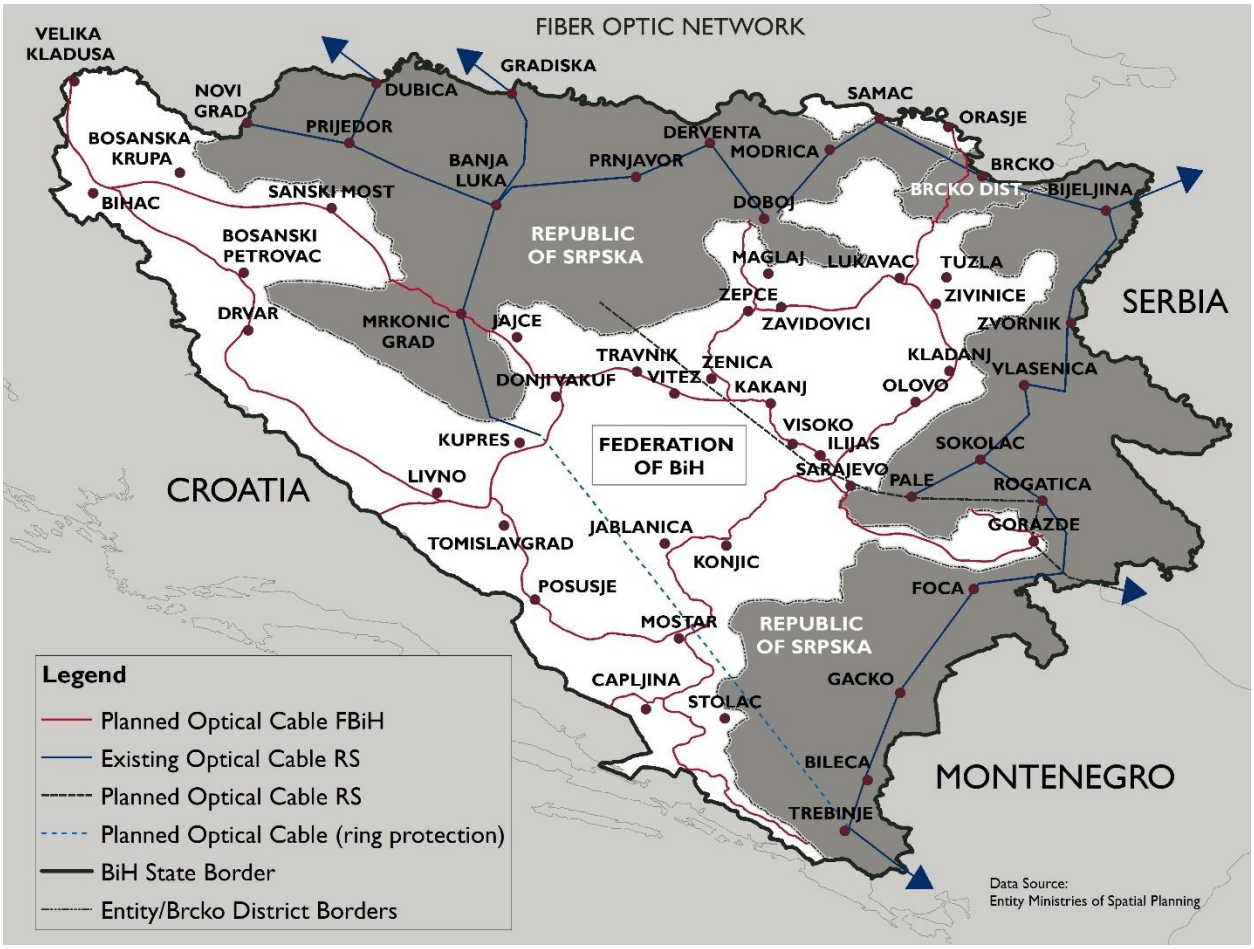
Source: National Survey of Citizens' Perceptions in BiH (2021).

BiH still has a low rate (5.84 percent) of subscribers using fiber to the home (FTTH). The NSCP-BiH found that digital subscriber line (DSL) is the most common means of connection for internet users in rural areas (41.8 percent) and that cable is the most popular form of internet access for urban dwellers (49.3 percent).[32] The deployment of fiber-optic technologies is still very slow, and it is characterized by unequal conditions for the installation within the country, lack of coordination between operators, and lack of a national broadband strategy. Complex construction permitting processes can also be linked to slow fiber-optic implementation, especially in connecting the last segment of the last mile. In addition, Speedtest Global Index ranks BiH 109th of 178 economies assessed in fixed broadband with a speed of 22.79 Megabits per second (Mbps). The global average is 59.75 Mbps.[33]

[29] USAID. (2022). 2021 National Survey of Citizens' Perceptions in BiH (NSCP-BiH).
[30] World Bank data. Fixed broadband subscriptions. https://data.worldbank.org/indicator/IT.NET.BBND?locations=BA
[31] BiH Communication Regulatory Agency. (2021). Annual report of the Communications Regulatory Agency for 2020. https://docs.rak.ba//documents/f8910d22-e538-4b11-9b21-4f7cfd0e0b88.pdf
[32] USAID. (2022). 2021 National Survey of Citizens' Perceptions in BiH (NSCP-BiH).
[33] Ookla. (2021). Speedtest Global Index. https://www.speedtest.net/global-index

Exhibit 3, created by the DECA team based on the synthesis of data from the spatial plans of FBiH and RS, shows that almost all cities and towns in both entities are connected by the existing or planned fiber-optic cable routes, which indicates that BiH, in planning and technical terms, has an adequate basis for the development and improvement of fiber-optic infrastructure. It is worth noting that while other maps of telecommunication infrastructure in BiH, such as the ITU's Interactive Transmission Map,[34] show microwave networks crisscrossing the country, the microwave network was established to facilitate communication between critical government agencies, including the police, security organs, and others. The network is used neither by companies for retail connectivity services nor by MNOs or ISPs to provide internet access to consumers.

Exhibit 3. Fiber-optic cables in BiH, taken from the 2008–2025 FBiH and 2020–2025 RS spatial plans



PROSPECTS FOR EXPANDED COVERAGE

Ethnic politics, market regulations, anticompetitive behavior, and corruption all affect the prospects for expanding telecommunication infrastructure in BiH. Regulations governing network expansion give municipalities the authority over the administrative procedures governing the construction of telecommunication cables, as well as the ability to set utility fees. This, however, may provide space for corrupt behavior or may be used as a means for reaching political goals. For example,

[34] ITU. Interactive Transmission Map. https://www.itu.int/itu-d/tnd-map-public/

telecommunication companies may encounter hurdles in obtaining construction permits for the completion of their infrastructure projects, because political parties who have decision-making power in the local government unit (LGU) may be connected with, or may support, their competitors. Additionally, about 12 percent of firms in BiH are asked or expected to give gifts or informal payments when requesting a construction permit.[35] Even without corrupt behavior, however, LGUs are characterized by slow and inconsistent procedures, making it challenging for MNOs and ISPs to efficiently pursue national expansion plans.[36]

The challenge for network expansion is exacerbated by the lack of infrastructure-sharing possibilities, meaning that new market entrants are forced to build their own networks and are not allowed to lease existing infrastructure, even if that infrastructure is not used by other companies in the market. This situation benefits the BiH's three MNOs that inherited infrastructure built before the breakup of Yugoslavia.[37] Either inherited or built, each telecommunications operator maintains detailed information on its own infrastructure. This information is, however, not regularly shared with relevant stakeholders. Lack of transparency and information sharing raises security concerns as a number of incidents happen due to lack of familiarity with the exact location of the telecommunication infrastructure. For example, underground cables are commonly damaged during excavation by construction companies that are not informed of the location or even the vicinity of underground cables.

Bilateral donors are ready to support digitalization processes in BiH. Annex E provides a list of ongoing, digital-related projects supported by donors and international financial institutions in BiH. Expanding connectivity to rural areas is one of the issues that donors are willing to support; however, they have failed to find interested and motivated partners within government institutions. Meanwhile, the interviewed government officials are concerned that without government intervention and support for initiatives that seek to expand affordable broadband access throughout the country, operators inevitably will choose to invest in higher earning locations and leave behind BiH's marginalized locations and populations.

Aside from the BiH government's potential role, there are other internet access initiatives. One example is the joint Giga initiative in BiH, as part of which the United Nations Children's Fund (UNICEF), together with the ITU, aims to connect the country's schools to the internet.[38] As a first step, UNICEF mapped all of BiH's public schools and found that almost every third school in BiH does not have access to the internet.[39] It found that, at that cantonal level, the percentage of schools without internet access can be as high as 40 percent.[40]

---

[35] World Bank Group. (2019). Enterprise Surveys: Bosnia and Herzegovina 2019. Country Profile. https://www.enterprisesurveys.org/content/dam/enterprisesurveys/documents/country/Bosnia-and-Herzegovina-2019.pdf

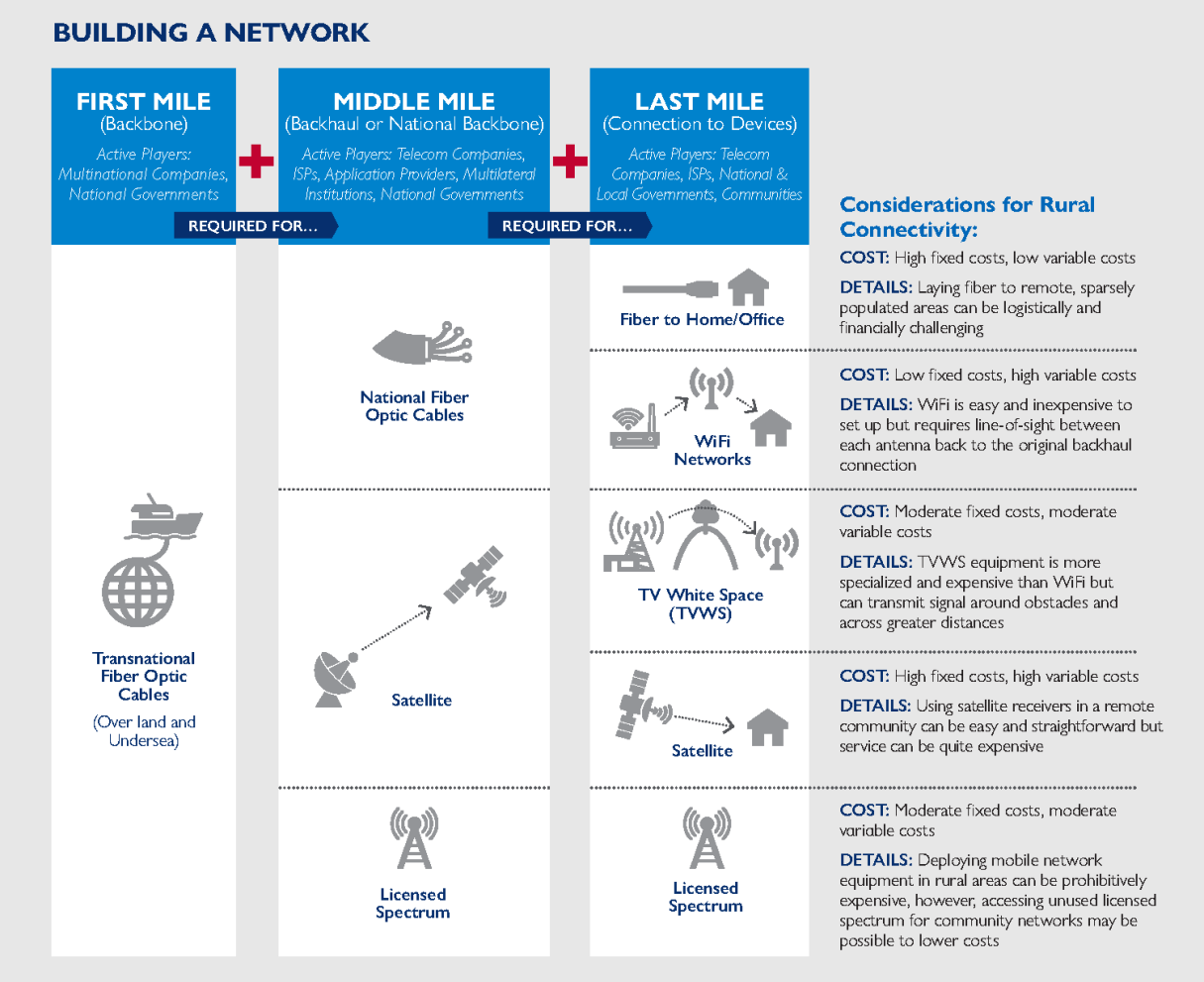
[36] According to the World Bank data, it takes 103 days to issue a construction permit in BiH. Source: World Bank Group. (2019). Enterprise Surveys: Bosnia and Herzegovina 2019. Country Profile: https://www.enterprisesurveys.org/content/dam/enterprisesurveys/documents/country/Bosnia-and-Herzegovina-2019.pdf

[37] Hosman, L., & Howard, P. N. (2010). Information Policy and Technology Diffusion: Lessons from Bosnia, Croatia, Macedonia, Montenegro, Serbia, and Slovenia. https://www.academia.edu/2668555/Information_Policy_and_Technology_Diffusion_Lessons_from_Bosnia_Croatia_Macedonia_Montenegro_Serbia_and_Slovenia

[38] Giga: Global initiative to connect every school to the internet by 2030. https://giga.global/about-us/

[39] UNICEF. (2022). Mapping ICT resources in primary and secondary schools in BiH: Results.

[40] Ibid.



AFFORDABILITY

Approximately 17 percent of BiH citizens who do not have regular internet access say the main reason is cost. The affordability variable from the GSMA Mobile Connectivity Index was 52.0 for BiH, which means that compared to the neighboring countries, BiH, along with North Macedonia (49.4), has the highest mobile data prices in the Western Balkans.[41] The affordability variable shows the availability of mobile services and devices at price points that reflect the level of income across a national population. Comparatively, the ITU uses five different price benchmarks, or "baskets," to compare prices for different types of internet services. These are (1) fixed broadband basket, (2) data-only mobile broadband basket, (3) mobile data and voice low-consumption basket, (4) mobile data and voice high-consumption basket, and (5) mobile cellular low-usage basket. The ITU data show that in 2021, BiH had the second cheapest, data-only mobile broadband basket[42] and mobile data and voice high-consumption basket[43] in the Western Balkans and was above the Western Balkan average cost of the fixed broadband

[41] GSMA Mobile Connectivity Index (2019). https://www.mobileconnectivityindex.com/?search=crp#year=2019&zoneIsocode=MKD

[42] The cheapest plan provides at least 2GB of high-speed data (≥256Kbit/s) over a 30-day (or 4-week) period from the operator with the largest market share.

[43] The cheapest plan provides at least 140 minutes of voice, 70 SMS, and 2 GB of high-speed data (≥256Kbit/s) over a 30-day (or 4-week) period from the operator with the largest market share.

basket,[44] mobile data and voice low-consumption basket,[45] and mobile cellular low-usage basket.[46,47] Exhibit 4 shows a more detailed comparison of prices for different types of internet services in the Western Balkans.

Exhibit 4. Comparison of prices for different types of internet services in the Western Balkans (2021)

	BIH	CROATIA	MONTENEGRO	NORTH MACEDONIA	SERBIA	WESTERN BALKANS (AVERAGE)
Fixed broadband basket (5GB)	2.30	0.64	2.04	3.52	2.66	2.23
Data-only mobile broadband basket (2GB)	1.35	0.71	2.26	1.95	1.48	1.55
Mobile data and voice low-consumption basket (70min+20sms+500MB)	2.03	0.57	2.26	2.35	0.78	1.60
Mobile data and voice high-consumption basket (140min+70sms+2GB)	2.54	0.71	2.79	3.31	2.58	2.39
Mobile cellular low-usage basket (70min+20sms)	2.03	0.57	2.26	2.35	0.78	1.60

Note. All prices are shown as a percentage of GNI per capita

Source: ITU.

In April 2019 Albania, BiH, Kosovo, North Macedonia, Montenegro, and Serbia agreed to reduce roaming charges for mobile subscribers traveling within the region. CRA published its decision on May 12, 2021, that additional roaming charges for calls, SMS, and MMS would not be charged. Now these countries are negotiating reduced data roaming tariffs with the EU because the roaming agreements did not include data. This means that consumers still need to track their data usage while using highly popular, over-the-top services such as WhatsApp and Viber while traveling abroad.

DIGITAL LITERACY

Digital literacy is "the ability to access, manage, understand, integrate, communicate, evaluate, and create information safely and appropriately through digital devices and networked technologies for participation in economic, social, and political life."[48] The concept overlaps with financial literacy and with media and

[44] The cheapest plan provides at least 5GB of high-speed data (≥256Kbit/s) over a 30-day (or 4-week) period from the operator with the largest market share.

[45] The cheapest plan provides at least 70 minutes of voice, 20 SMS, and 500MB of high-speed data (≥256Kbit/s) over a 30-day (or 4-week) period from the operator with the largest market share.

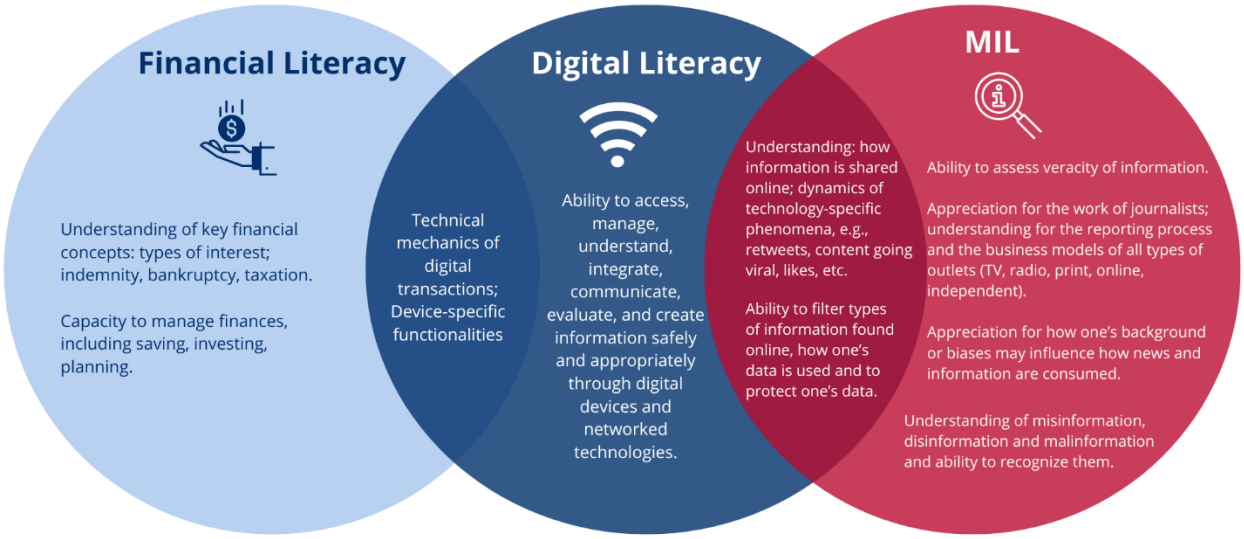
[46] The cheapest plan provides at least 70 minutes of voice and 20 SMS (in predetermined on-net/off-net/fixed ratios) over a 30-day (or 4-week) period from the operator with the largest market share.

[47] ITU. (2022). ICT Price Baskets (IPB). https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/IPB.aspx

[48] USAID. (2022). Digital Literacy Primer. https://www.usaid.gov/sites/default/files/2022-05/USAID_Digital_Literacy_Primer.pdf

information literacy (MIL). (See Exhibit 5.) MIL is discussed in detail under Pillar 2, and more information on financial literacy is presented under Pillar 3.

Exhibit 5. Financial literacy versus digital literacy versus media and information literacy



Strengthening digital literacy in BiH is hindered by a number of factors. Comprehensive data on the state of digital literacy of BiH citizens are not available as there has been no extensive or regular research on the topic to date. Several different types of organizations in BiH have a stake in citizens' access and ability to use digital communications technology and have the capacity to influence or address digital literacy in the country. These include MNOs and ISPs; education institutions; government agencies; banks; traditional media; NGOs; advertisers; online retailers; and social media. However, the research for this report found a consistent view by stakeholders that digital (as well as media and information) literacy was someone else's responsibility. Repeatedly, DECA KIs, including interviewed government officials, civil society representatives, and informants from academic and media sectors, did not acknowledge responsibility for contributing to improved digital literacy among BiH society and said it is someone else's responsibility to improve citizens' digital literacy. Finally, there is a lack of a common understanding of what digital literacy refers to, especially given that any definition of the concept inevitably must adapt to emerging technologies and concepts, including the evolving challenges of online misinformation, disinformation, and malinformation.[49]

The last census, which included only basic concepts of computer literacy, was conducted in 2013.[50] Otherwise, proxy indicators (related to service availability and use) including affordability, consumer readiness, and content and services are the only data available that can be used to indirectly assess digital literacy.[51]

[49] The U.S. Cybersecurity and Infrastructure Security Agency published "Mis, Dis, Malinformation," a guide for these concepts. https://www.cisa.gov/sites/default/files/publications/election-disinformation-toolkit_508_0.pdf
[50] BiH Agency for Statistics. (2013). *Census of population, households and dwellings in BiH: Final results.* https://www.popis.gov.ba/popis2013/doc/RezultatiPopisa_BS.pdf
[51] GSMA Mobile Connectivity Index. (2019).

Given the lack of regular local research on the state of digital literacy in BiH society, data from international organizations offer some insights. For example, according to the ITU, 37 percent of BiH citizens have basic IT skills,[52] and only 2 percent of individuals have advanced skills.[53] Men more often than women have basic digital skills (19 percent of men compared to 14 percent of women); however, women more often than men have advanced digital skills[54] (10 percent of women compared to 6 percent of men).[55] Citizens are also active users of social media networks, with 55 percent of the total population in January 2021 identified as active on social media, according to the Digital Global portal.[56] However, usage of social media platforms does not necessarily predict the ability to use functionalities such as creating and sharing media, organizing contacts, etc. (analogous skills that the ITU metric may use to categorize individuals levels of digital literacy). For example, for the majority of young people in BiH (83.5 percent), using the internet is the most important activity during their free time; it is even more important than going out with friends or playing sports.[57] Yet according to 2019 Eurostat data, BiH is among worst performing countries in Europe when digital skills of youth are assessed: Only 57 percent of young people ages 16 to 24 have basic or above-basic digital skills.[58] This indicates that the frequency of internet use among youth does not predict how digitally skilled they are, which conforms with the concern expressed by interviewed NGOs related to citizens' ability to recognize and comprehend the implications of misuse of technology. They believe that BiH society is unprepared for negative uses and the impacts they cause.

However, the majority of BiH citizens feel confident in using different digital devices, including desktop computers, laptops, smartphones, and tablets. As found by the 2021 wave of the NSCP-BiH and confirmed by the majority of KIs, youth tend to be more confident in using digital devices compared to adults. At the same time, although the majority of KIs do not think there are notable differences between the digital literacy of men and women in BiH, women self-reported lower levels of confidence in using a desktop computer, laptop, or tablet compared to their male counterparts (Exhibit 6).[59]

https://www.mobileconnectivityindex.com/#year=2019&zoneIsocode=BIH&analysisView=BIH

[52] In the ITU research mentioned on this page, the ITU defines basic skills as "… the highest value among the following four computer-based activities: copying or moving a file or folder; using copy and paste tools to duplicate or move information within a document; sending emails with attached files; and transferring files between a computer and other devices."

[53] ITU. (2019). Digital Development dashboard: Bosnia and Herzegovina. https://www.itu.int/en/ITU-D/Statistics/Documents/DDD/ddd_BIH.pdf

[54] The ITU defines advanced (ICT) skills as "the value for writing a computer program using a specialized programming language."

[55] Agency for statistics of BiH. (2021). Men and Women in BiH. https://bhas.gov.ba/data/Publikacije/Bilteni/2022/FAM_00_2021_TB_1_BS.pdf

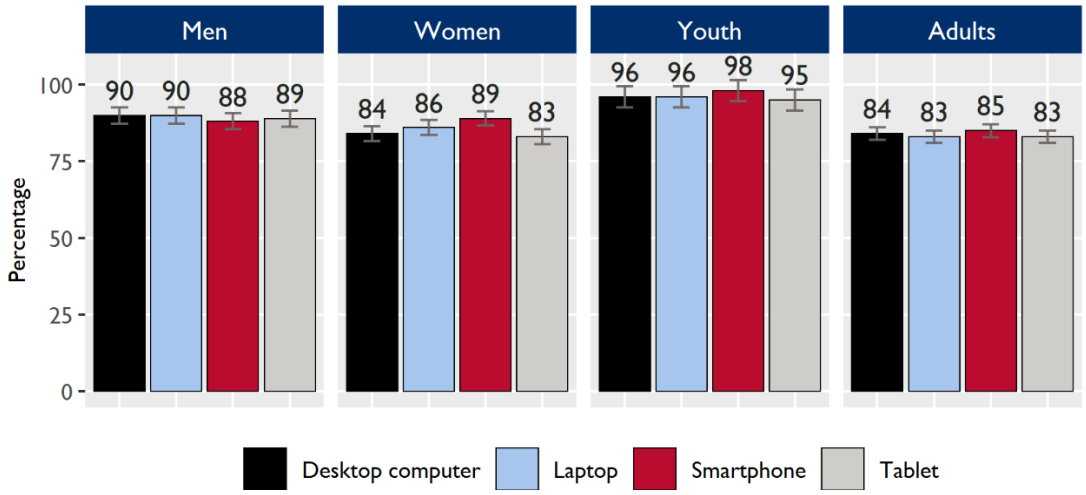
[56] Kemp, S. (2020). Digital 2020: Bosnia and Herzegovina. https://datareportal.com/reports/digital-2020-bosnia-and-herzegovina

[57] Friedrich Ebert Stiftung. (2019). Youth Study Bosnia and Herzegovina 2018/2019. https://library.fes.de/pdf-files/id-moe/15262.pdf

[58] Eurostat. Individuals' level of digital skills (until 2019). Last update: March 30, 2022. https://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do

[59] USAID. (2022). 2021 National Survey of Citizens' Perceptions in BiH.

Exhibit 6. Percentage of people who feel comfortable with specific technologies



Source: National Survey of Citizens' Perceptions in BiH (2021).

Experts commonly lamented the lack of systematic digital literacy training in the country. While there is some digital literacy training for schoolchildren, it is not built into the school curricula so that students start young and proceed through increasingly advanced concepts during succeeding years of school. For example, computer science is a school subject taught starting in first grade in Sarajevo Canton primary schools. In other FBiH cantons, as well as in RS, computer science is not taught until the fifth or sixth grade. In September 2021, however, RS launched a program called "Digital World" that provides basic digital literacy training to all second graders.[60] In this course, students are taught how to recognize and respond to malicious behavior on the internet.[61] However, there is no follow-on program for the remaining grades. Even if they provide formal education connected to digital literacy, schools in BiH often lack the necessary equipment that would ensure high-quality teaching. According to the 2018 Program for International Student Assessment (PISA), only one-third of schools in BiH have a sufficient number of digital devices or appropriate teaching software available in school. Additionally, every second school in BiH lacks sufficient internet speed to support online learning.[62]

USAID/BiH supports e-learning and blended learning in BiH

USAID/BiH, as part of its **Strengthening Social and Health Protection in Response to the COVID-19 Pandemic in BiH Activity (2021 – 2023)**, implemented by UNICEF, works on enhancing the capacities of schools to provide quality e-learning and blended learning. The Activity focuses on helping children acquire knowledge, skills, and values, and access and operate in digital environment safely and effectively. This includes ability to critically evaluate information and communicate safely, responsibly, and effectively using digital technology and content.

[60] Pedagogical Institute of RS. Digital World. https://www.rpz-rs.org/922/rpz-rs/Nastavni/programi/za/nastavni/predmet/Digitalni/svijet/za/II/razreda/osnovne/skole

[61] Srpska Café. (2021, July 29). Digitalni svijet: Učenici drugog razreda osnovne škole dobijaju novi predmet. http://srpskacafe.com/2021/07/digitalni-svijet-ucenici-drugog-razreda-osnovne-skole-dobijaju-novi-predmet/

[62] OECD. (2019). 2018 Program for International Student Assessment (PISA): Bosnia and Herzegovina. Student Performance – Resources for education. https://gpseducation.oecd.org/CountryProfile?primaryCountry=BIH&treshold=5&topic=PI#:~:text=In%20reading%20literacy%2C%20the%20main,30%20points%20higher%20for%20girls).

While leadership over the trajectory and fate of digital literacy in BiH remains unclear, a majority of KIs said digital transformation in BiH has advanced as a result of the COVID-19 pandemic. The pandemic not only required families in BiH to quickly transition to remote work and learning but also encouraged them to turn to online shopping and banking. KIs reported that the need to use digital tools in the absence of other alternatives strengthened the digital literacy of the BiH population, although no research has been conducted to confirm this.

THE DIGITAL DIVIDE

Despite the generally strong connectivity infrastructure, digital technology is not equally accessible or used by all members of BiH society. A digital divide is evident among urban and rural locations. Households from urban areas are more likely to have a computer compared to households in rural areas (65.6 percent versus 60.6 percent, respectively).[63] The same applies to having internet access: 77.8 percent of households in urban areas have internet access compared to 73.8 percent of households in non-urban areas.[64] A digital divide is especially visible among households with different monthly net incomes. Whereas 93.4 percent of households earning more than 480 USD (900 BAM) a month own a computer and 97.1 percent have access to the internet, only 47.1 percent of households with earnings less than 480 USD have a computer, and only 63.8 percent of these households have internet access.

The digital divide explained

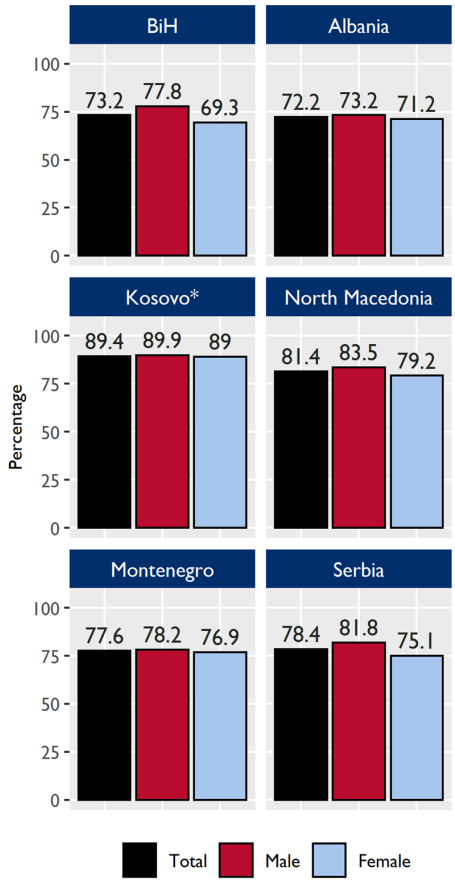
The digital divide is the distinction between those who have access and can use digital products and services and those Who are excluded. There are often overlapping digital divides that stem from inequities in literacy, cost, social norms, or availability of relevant content. Digital divides may be associated with gender, economic status, geography, and age among other factors.

Socio-economic barriers limiting access to technological change and development are most evident among Roma households. Roma are the largest minority group in BiH; the total population is 12,896, according to the 2013 Census data.[65] However, estimates of the size of the Romani population range between 40,000 and 75,000,[66] although these data are not officially confirmed. Roma in BiH face cumulative and systematic discrimination and social exclusion,[67] with the digital environment being only part of a more comprehensive issue to which this national minority group is subjected. For example, there are ten Roma settlements around the country that lack access to electricity, let alone the internet.[68] The main reason for the lack of access to electricity in these settlements is the inability of households to cover electricity costs. Aside from these ten settlements, a large number of Roma households struggle or cannot afford to pay for high electricity costs. Furthermore, strengthening the

[63] Agency for Statistics of BiH. (2022). Use of Information and Communication Technology in BiH: 2021. https://bhas.gov.ba/data/Publikacije/Bilteni/2022/IKT_00_2021_TB_1_HR.pdf
[64] Ibid.
[65] Agency for Statistics of BiH. (2013). Census of Population, Households and Dwellings in BiH - Final Results. https://www.popis.gov.ba/popis2013/doc/RezultatiPopisa_BS.pdf
[66] Romani Early Years Network (REYN). REYN Bosnia and Herzegovina. Access on: August 26, 2022. https://reyn.eu/reynnationalnetworks/reyn-bosnia-and-herzegovina/
[67] Civil Right Defenders. (2017). Roma in Bosnia and Herzegovina. https://crd.org/wp-content/uploads/2018/03/The-Wall-of-Anti-Gypsyism-Roma-in-Bosnia-and-Herzegovina.pdf
[68] According to DECA KI, the following Roma settlements do not have access to electricity: (i) Rakovica (Municipality of Ilidza), (ii) Moscanica (Municipality of Stari Grad Sarajevo), (iii) Podhranj (Municipality of Gorazde), (iv) Radimlja (Municipality of Stolac), (v) Prutace (District Brcko), (vi) Dolovi (Municipality of Zavidovici), (vii) Hrastovi (Municipality of Kiseljak), (viii) Poljice (Municipality of Lukavac), (ix) Kupresani (Municipality of Jajce), (x) Zivinice (Municipality of Zivinice).

digital skills of Roma children is hindered by the lack of attainment of formal education. Although about 70 percent of Roma children enroll in the primary and secondary schools, less than half of them complete the compulsory education.[69] As the COVID-19 pandemic accelerated the digital transformation process across BiH, it broadened the digital divide between Roma and other children. Roma children could not afford devices and internet access, and they lacked spaces where they could learn; therefore, they were not able to attend online classes.[70]

Exhibit 7. Percentage of males and females that use the internet in Western Balkan countries, 2020



Source: World Bank Data.

*Data for Kosovo from 2018.

The situation is somewhat better when the digital divide is assessed from a gender perspective. Approximately 79 percent of men and 73 percent of women between the ages of 16 and 74 years old used the internet in 2021.[71] However good this may seem, when compared to the neighboring countries, BiH has the lowest percentage of women using the internet and is the second-worst performer (together with Montenegro) when the percent of men using the internet is assessed (Exhibit 7).

Although both men and women use the internet mostly to make phone and video calls, send messages, and use social networks, men, more often than women, engage in online sale of goods and services (61.2 percent of men versus 38.8 percent of women), use internet banking (57.6 percent of men versus 42.4 percent women), and play or download games (56.5 percent of men versus 43.5 percent of women).[72] These disparities conform with the gender equality issues in BiH, including that men, more often than women, have bank accounts[73] and spend less time than women doing childcare and household work.[74] Although there are no official data, experts believe that women from rural areas are more marginalized than women from non-rural areas when the use of ICT is assessed. According to the Food and Agriculture Organization of the United Nations, women in rural areas face a "triple divide" that

[69] UNDP. The World Bank. EU. (2018). Roma at a Glance: Bosnia and Herzegovina. Fact Sheet. https://www.undp.org/eurasia/publications/regional-roma-survey-2017-country-fact-sheets
[70] UNICEF. (2021). Social Impacts of COVID-19 in BiH: Second Household Survey. https://www.unicef.org/bih/media/6251/file/Social%20Impacts%20of%20COVID-19%20in%20Bosnia%20and%20Herzegovina.pdf
[71] Agency for Statistics of BiH. (2022). Use of Information and Communication Technology in BiH: 2021. https://bhas.gov.ba/data/Publikacije/Bilteni/2022/IKT_00_2021_TB_1_HR.pdf
[72] USAID/BiH. (2022). 2021 National Survey of Citizens' Perceptions in BiH.
[73] The World Bank. (2018). The Global Financial Inclusion Data/Global Findex - Bosnia and Herzegovina. http://datatopics.worldbank.org/financialinclusion/country/bosnia-and-herzegovina
[74] USAID/BiH. (2019). Gender Analysis for BiH: 2019 Follow-Up. https://measurebih.com/uimages/Gender20Analysis20201920Follow-Up20Final20Report.pdf

includes digital, rural, and gender factors. Coupled with the age factor, it puts women from rural areas in an extremely vulnerable position.[75]

Data on BiH reveal that older generations use digital technology less often. For example, 98.1 percent of youth own a smartphone, compared to 79.6 percent of adults.[76] Youth in BiH are also more comfortable using digital technologies than adults. The largest difference is related to laptop use, where 96.1 percent of youth and 82.6 percent of adults feel somewhat or very confident in using a laptop.[77] According to the Agency for Statistics of BiH, all students enrolled in higher level education use the internet, compared to approximately 58 percent of retired citizens.[78] When only citizens using the internet are observed, 100 percent of those ages 16 to 24 use the internet every or almost every day compared to 97 percent of internet users ages 25 to 54 and 88 percent of internet users ages 55 to 74 who use the internet on (almost) a daily basis.[79] The age gap in having necessary skills and access to hardware applies as well to the use of online public services. Only about 12 percent of citizens ages 55 to 74 use online public services compared to about 27 percent of citizens ages 25 to 54 and 23 percent of citizens ages 16 to 24.[80] Key stakeholders interviewed by the DECA team agree that youth are more likely to use digital technology and more easily adopt and adapt to new technologies compared to older generations. This fact poses a challenge for the digital transformation of private entities as well as the public sector, because the majority of people employed in the public sector, especially those in positions of authority, are older.

CRITICAL INFRASTRUCTURE, GEOPOLITICS, AND CYBERSECURITY CONCERNS

In BiH there is no common understanding or definition of critical infrastructure.[81] Whichever forms of infrastructure might be included in a definition (bridges, fiber-optic cables, etc.) is important, because a formal definition would have state-level policy implications. This is a challenge for the country's digitalization prospects because many different types of infrastructure play critical roles in BiH's digital ecosystem. The sectors listed in USAID's regional Critical Infrastructure Digitalization and Resilience (CIDR) project, which includes BiH, are energy, water, transport, healthcare, finance, and telecommunications sectors. While telecommunications is listed as a distinct sector, all these sectors in BiH rely heavily on digital tools and communications.

According to KIs, a Law on Security of Critical Infrastructure at the state level is under development. However, experts are skeptical about its adoption. In July 2019, RS adopted an entity law that defines activities aimed at protecting its industry, energy, ICT, transport, health, utilities, water management,

---

[75] FAO. (2021). National Gender Profile of Agriculture and Rural Livelihoods: BiH. https://eca.unwomen.org/sites/default/files/2022-01/2021-09-01%20Gender%2C%20Agriculture%20an%20Rural%20Development%20in%20Bosnia%20and%20Herzegovina-min.pdf

[76] USAID/BiH MEASURE II. (2021). National Survey of Citizens' Perceptions.

[77] Ibid.

[78] Agency for Statistics of BiH. (2022). Use of Information and Communication Technology in BiH: 2021. https://bhas.gov.ba/data/Publikacije/Bilteni/2022/IKT_00_2021_TB_1_HR.pdf

[79] Ibid.

[80] Ibid.

[81] Critical infrastructure is an asset or system that is essential for the maintenance of vital societal functions. For more information, please see Annex B: Definitions.

food distribution infrastructure, and systems.[82] A draft FBiH law on critical infrastructure is already prepared but has not yet been adopted. Most KIs agree that the reason laws such as this one are being passed at the entity rather than state level is the resistance of RS to relinquishing control over any sector to the state.

Indeed, the challenge in establishing a definition is not a matter of wordsmithing but, rather, determining a politically agreeable set of implications of a definition, including the allocation of state resources to protect or invest in officially designated critical infrastructure and to delegate responsibilities to state-level institutions that could coordinate digitalization and cybersecurity issues.

One example of a critical national organization that is unable to be established due to the political situation in BiH is a national computer emergency response team (CERT). In lieu of a national CERT, the Organization for Security and Cooperation in Europe (OSCE) has established the Neretva working group on cybersecurity, with a sub-working group on energy. The informal working group comprises practitioners and experts from different sectors and all levels of authority sharing knowledge and experience from the field, including representatives of three CERTs that currently operate in the country: the CERT RS,[83] Academic CERT,[84] and CERT of the Ministry of Defense and the Armed Forces of BiH.[85] The capacities of the three CERTs are limited, whereas BiH remains the only country in Europe without a national CERT. The BiH Council of Ministers adopted the Strategy for the Establishment of the BiH CERT in 2011; however, due to a lack of political support, it has not yet been established.

[82] Official Gazette of RS, No. 58/19.
[83] The RS CERT became operational in 2015 under the auspices of the Ministry for Scientific and Technological Development, Higher Education, and Information Society of RS. More information is available at https://certrs.org/en/about/.
[84] Academic CERT was established in 2022 under the auspices of the University of Sarajevo. The establishment of the Academic CERT was supported by the British Embassy in BiH and OSCE. The main purpose of the Academic CERT is to provide cybersecurity-related support to academia, civil society, and independent media.
[85] The Security Operation Center (SOC) of the CERT of the Ministry of Defense and the Armed Forces of BiH became operational in early 2022. The SOC is working on supporting and protecting the cybersecurity of the Ministry and Armed Forces.

PILLAR 2: DIGITAL SOCIETY, RIGHTS, AND GOVERNANCE

The concepts included under Pillar 2 are individuals' ideas and rights, including how they are held, promoted, communicated, and contested. More specifically, digital society refers to digitizing the processes, procedures, and means by which societal systems function. Analogously, digital rights and governance are the rights that governmental systems offer their citizens through digital means.

KEY FINDINGS

The polarizations in the media reflect those in society: BiH is known for its highly polarized society and fractionalized media that reflect the country's long-standing ethnic divisions. Furthermore, members of both traditional and online media perpetuate ethnic divisions. Journalists attempting to report stories face multiple challenges, including restricted access to information and threats of violence. Even though there are laws that require government officials to provide media with access to information, these laws are not harmonized with other protection laws related to national security, criminal procedures, and taxation. While there is a law on access to information, the lack of harmonization contains a loophole which allows government officials to deny requests for information but does not prevent them from later criticizing or correcting news stories for inaccuracies once they are published. Likewise, journalists face a myriad of challenges in covering activities of elected officials. State media also face severe financial challenges due to controversies related to their funding sources.

Internationalization of issues: Many issues related to the veracity of online information identified in this assessment highlight how BiH is affected by misinformation spread through social media as well as through sites over which the government has little control. At the same time, MIL remains modest, making citizens vulnerable to such misinformation.

Hate speech: Hate speech continues to permeate traditional and social media. Whereas it is not unusual for online hate speech to target citizens of different ethnicities, the most common victims are migrants.

Only a few end-to-end e-services are currently available in BiH: Lack of e-signature utilization and accessibility are identified as key limitations to advance the development and provision of e-services to citizens and businesses. In addition, although interoperability frameworks are in place at the state and entity levels, institutions are not required to exchange data over the government service bus (GSB). The limited number of GSB services results in citizens and businesses continuing to have to submit paper documents in person and, in many cases, the same document to many different government offices.

Wish list of government services for digitalization: DECA KIs agree that not all government services need to be digitalized. Instead, the focus should be on the services that citizens use most frequently. From the perspective of citizens, these include the issuance of birth, death, and marriage certificates; renewal of various citizen documents (e.g., ID cards and passports); voter registration and car registration; applications for admission to a school or university; and issuance of construction permits. From the perspective of businesses, KIs agree that the following services should be prioritized: digitalization of construction permitting, issuance of tax payment certificates, business registration, and social support payments.

MEDIA AND INFORMATION LITERACY

"Media and information literacy" (MIL) refers to an individual's capacity for and habit of thinking critically about the information they are consuming, including an appreciation for the process by which information is created and shared. MIL enables people to recognize the opinion presented as fact, when elements of a story are missing, or when a necessary perspective from a stakeholder is absent. As noted earlier in the report, this concept overlaps with digital literacy (see the Digital Literacy section) and digital financial literacy.

MIL issues pervade nearly all aspects of BiH's digital society, rights, and governance, with different implications for government organizations, media outlets, NGOs, and individual citizens. MIL skills require consumers to keep up to date on emerging and evolving concepts, including for youth who are just beginning to consume media and adults who are trying to discern the veracity of information conveyed through new technologies. These skills also require greater vigilance on the part of parents, who may be unaware of what media their children are consuming and with whom they are interacting. According to a Save the Children report on children's behavior on the internet, parents do not prevent children from using the internet in 48 percent of cases, primarily because their knowledge about it is limited (70 percent).[86]

> *"If we strengthen our educational system to create new generations of critical thinkers and cybersecurity experts, then yes, in [the] near future, we'll be able to build up on resilience in terms of cybersecurity, information security, information disorder, warfare. It is possible. But at this moment, as we speak, our resilience is very weak."*
>
> **– BiH DECA Key Informant**

In addition to the history of inter-ethnic conflict, MIL is challenged by the legacy of state television and the roles that various levels of government play in financing their corresponding television outlets. Radiotelevizija Bosne i Hercegovine (Radio-Television of Bosnia and Herzegovina; BHRT), a state-level broadcaster, and two regional public broadcasters, Radio-Television of the FBiH and the Radio-Television of the RS (RTRS), collect monthly radio and television fees from every household or legal entity in BiH that owns a radio or television receiver. However, there are a number of media outlets that political parties directly support, and in exchange for such support, they are used by the political parties as an intermediary in achieving their political goals. Given BiH's lack of a strong advertising tradition, some local media have long relied on local governments for the vast majority—if not all—of their income. Nearly half of local radio stations in BiH are funded by local budgets. The condition of having only one sponsor or buyer of advertising has affected the independent character of reporting and squelched critical coverage of local authorities' activities.[87]

---

[86] Save the Children. (2016). Behavior and Habits of Children on the Internet: Attitudes of Children, Parents, and Computer Science Teachers. https://nwb.savethechildren.net/sites/nwb.savethechildren.net/files/library/Izvjestaj-ponasanje-djece-na-internetu.pdf

[87] Zurovac, Lj., Mosig, L., Madoleva, S. "Media Outlets in BiH". Konrad Adenauer Stiftung. Accessed on July 26, 2022. https://www.kas.de/en/web/balkanmedia/media-outlets1

The MIL challenges in BiH are not new, and the situation is not improving. BiH is characterized as having "ethnic populism" in which the media are polarized and report along ethnic and territorial lines.[88] A 2021 study by the Atlantic Initiative found that "when responding to questions about why they feel threatened, respondents frequently repeated truisms about 'the other' that are commonly seen in online discussions and regularly used by ethno-nationalists—such as "Croats are marginalized by Bosniaks" or "NATO doesn't want Serbs in BiH" or "No one cares about genocide committed against Bosniaks."[89]

Disinformation

Disinformation is false information that is deliberately created or disseminated with the express purpose to cause harm. Producers of disinformation typically have political, financial, psychological, or social motivations.
Source: Shorenstein Center, 2018 (the official definition used by USAID as outlined in the USAID's Disinformation Primer, 2021)

Beyond these existing biases and the increasing amount and effectiveness of online disinformation, citizens in BiH face an immense challenge in basing their decisions upon accurate information provided by traditional and online news sources.[90] Yet in BiH, there are no systematic, long-term strategies for the development of MIL.[91] Moreover, education on MIL is not adequately integrated into the academic curricula in BiH.[92] Academic institutions, the NGO sector, and to some extent the private sector work to fill the void of nonexistent state programs on MIL. The most common support for strengthening MIL provided by these organizations includes workshops and training for students.[93] However, the majority of education programs are short-term and limited by the duration of the donor projects as part of which they are being organized.[94] Because of financial sustainability challenges that the NGO sector encounters, further engagement of the NGO sector in supporting MIL development almost exclusively depends on donor support.[95] Although the media have great potential to support MIL development, especially by increasing the reach of MIL

[88] Džananović, N. and Karamehić, M. (2016). Populist Political Communication in Europe. p.263. Routledge. https://www.taylorfrancis.com/books/edit/10.4324/9781315623016/populist-political-communication-europe-toril-aalberg-frank-esser-carsten-reinemann-jesper-str%C3%B6mb%C3%A4ck-claes-de-vreese

[89] The Atlantic Initiative. (2021). Exploring Ethno-Nationalist Extremism in Bosnia and Herzegovina. https://atlanticinitiative.org/wp-content/uploads/2021/07/Exploring-ethno-nationalist-extremism-in-Bosnia-and-Herzegovina.pdf

[90] Raskrinkavanje Media Literacy Project. Accessed January 6, 2022. https://medijskapismenost.raskrinkavanje.ba/kakvi-mediji-trebaju-biti/kako-prepoznati-vjerodostojne-medije/koja-je-razlika-izmedu-pravih-i-laznih-medija/

[91] Hodžić, S. (2019). Media and Information Literacy in Bosnia and Herzegovina: Numerous Civil Society Initiatives and Lack of Public Policies. In Media and Information Literacy in the Western Balkans: Unrealized Emancipatory Potential. https://www.novinarska-skola.org.rs/sr/wp-content/uploads/2019/04/MIL-Regional-publication-ENG-final.pdf

[92] USAID/BiH. (2016). Assessment of the Media Sector in BiH. https://www.measurebih.com/uimages/Assessment%20of%20the%20Media%20Sector%20in%20B&H.pdf

[93] Hodzic, S., Petkovic, B., Basic Hrvatin, S. (2019). Medijska i informacijska pismenost u Bosni i Hercegovini: brojne inicijative civilnog sektora i nedostatak javnih politika. https://www.media.ba/sites/default/files/medijska_i_informacijska_pismenost_u_bosni_i_hercegovini_final.pdf

[94] Ibid.

[95] Ibid.

initiatives and raising citizens' and the public sector's awareness of related issues, their role in strengthening MIL has been modest.[96]

Academia and Civil Society Picking Up the Slack on MIL for Youth

Academic institutions and NGOs work to fill the void left by a non-existent state program on MIL. For example, the university of Sarajevo has developed an array of free online MIL courses (courses are developed from UN Educational, Scientific and Cultural Organization (UNESCO) resources). They include a 12-module massively open online course (MOOC), a book, and workshops organized in collaboration with school librarians. They are also
working with 200 primary and secondary school teachers to roll out a MIL curriculum in schools. University professors want to develop and deploy MIL content that students can consume throughout their schooling.

Mediacentar Sarajevo, an NGO, organizes MIL youth camps where negative effects of current reporting trends are explained to participants and uses roleplay to increase their appreciation of the challenges faced while doing their jobs. They also organize Debate Youth Camps to provide youth with skills to engage others on the complexity of issues. In all these activities they include discussions on media literacy. digital literacy. and digital security.

It may be necessary for academia and civil society to raise MIL for children of a younger age. Researchers at the University of Sarajevo found that youth in BiH are now reaching "digital adulthood", the point at which they are consuming all forms of content, by age ten.

The public is aware of the consequences of citizens' lack of MIL. The 2022 Balkan Barometer found that 48 percent of BiH citizens believe that propaganda and fake news published by the media contribute to violent extremism, and 38 percent believe the same effect occurs when they are shared through social media.[97]

This lack of progress was evident in 2020, when the University of Sarajevo's Faculty of Political Science released their latest position document on media literacy.[98] The University found that the only identifiable progress in improving MIL since its 2018 position document was the University's adoption of the Declaration on the Importance of Media and Information Literacy in BiH in 2019, which reiterated the urgent need for strategic thinking on MIL.[99]

Approximately 55 percent of BiH citizens feel confident in their ability to "identify news that misrepresent reality.[100] Moreover, citizens perceive journalists, press and broadcasting management, and online media as the top three spreaders of disinformation in BiH.[101] Although older generations in BiH are more satisfied with the news they obtain from online news sites compared to the generation below the age of 30 (49 percent of adults versus 37 percent of youth), older generations still trust traditional media more than online news sources.[102] On the other hand, youth rely more on online sources for news and information than traditional media. The 2021 NSCP-BiH found that 42 percent of youth get

[96] Ibid.
[97] 2022 Balkan Barometer, https://www.rcc.int/download/docs/Balkan%20Barometer%202022%20-%20PO.pdf/21e2192c1d34cc6194ecb029d7b5997f.pdf
[98] Ibid.
[99] Institute for Social Research. (2019). Declaration on the Importance of Media and Information Literacy in BiH. https://fpn.unsa.ba/b/wp-content/uploads/2020/12/Deklaracija-MIP-BIH-2019.pdf
[100] Regional Cooperation Council (RCC), Western Balkans SecuriMeter 2022, https://www.rcc.int/download/docs/Securimetar%202022_final.pdf/812a4b746e4de5f7f5b657c61a82cd34.pdf
[101] 2022 Balkan Barometer, https://www.rcc.int/download/docs/Balkan%20Barometer%202022%20-%20PO.pdf/21e2192c1d34cc6194ecb029d7b5997f.pdf
[102] USAID. (2022). National Survey of Citizens' Perceptions in Bosnia and Herzegovina (NSCP-BiH), 2021

their news from social media and 32 percent from online news sites. Only 11 percent and 16 percent of youth respondents, respectively, relied on television and radio.[103]

Youth in BiH display stronger MIL than their elders, and according to DECA KIs, they carry hopes for long-term improvements in MIL in BiH. According to the 2021 NSCP-BiH, 45 percent of people under the age of 30 were more likely to agree with the statement, "While reading, listening, and watching messages from media, I wonder if that media content is produced to gain power, profit, or influence," compared to 39 percent of those older than 30. In response to the question, "To what extent do you agree with the following statements? When I read, watch, or listen to news from any source, I consider who was the author of this message," 53 percent of respondents under the age of 30 agree or strongly agree compared to 45 percent of those over 30 years in age.

LACK OF GOVERNMENT MOVEMENT ON STRUCTURED MIL APPROACH DESPITE DONOR INTEREST

While the CRA and the Press and Online Media Council promote improved MIL in BiH,[104] the inability of the government to establish an MIL strategy has been lamented by organizations like Mediacentar, which said, "The information and communication rights of citizens, freedom of expression, free access to information and protection of privacy require the state to play an active role."[105] Additionally, the media do not appear to consider improving society's digital literacy or MIL to be its responsibility. As a result, the government and media outlets have, in effect, transferred responsibility for evaluating the veracity of information to citizens.[106] Even given the mistrust of media in BiH society, this is a missed opportunity for the media to improve their perception and role as arbiters of information. It would be easy for media outlets to add links to fact-checking tools such as Google's Fact Check Explorer[107] or other trusted fact-checking tools identified in the Rand Corporation's "Tools that Fight Disinformation Online."[108] Easy access to tools not only gives readers and viewers a chance to validate the accuracy of information but also conveys the idea that one can cross-reference information in general.

The University of Sarajevo's 2018 position paper called for the government to designate a public organization that would coordinate implementation of an MIL strategy. The University suggested that the CRA, with support from the ministries of Civil Affairs, Communications and Transport and Security, as well as the State Commission of BiH for Cooperation with the United Nations Educational, Scientific and Cultural Organization (UNESCO), be the designated organization; however, that did not occur. The previous paper also called for the integration of MIL in school curricula and continuing education programs for adults, as well as strengthening libraries' ability to offer MIL learning opportunities. These recommendations were also not followed.[109]

---

[103] USAID. (2022). National Survey of Citizens Perceptions in Bosnia and Herzegovina (NSCP-BiH),2021.
[104] Media and Information Literacy: A Time for a Strategic Approach
[105] Mediacentar. Petković, B; Bašić Hrvatin S; Londo I; Hodžić S; Nikodinoska V; Milenkovski S; Pavlović P; Valić Nedeljković,D; Janjatović Jovanović M. (2019). Media and Information Literacy in the Western Balkans: Unrealized Emancipatory Potential. https://www.media.ba/en/publication/media-and-information-literacy-western-balkans-unrealized-emancipatory-potential
[106] Ibid.
[107] https://toolbox.google.com/factcheck/explorer
[108] https://www.rand.org/research/projects/truth-decay/fighting-disinformation/search.html
[109] Vajzović, E., Turčilo, L., Osmić, A., Silajdžić, L. & Cerić, H. (2020). Istraživanja o medijskoj i informacijskoj

Disinformation, MIL, and digital literacy are priority topics for several key donors, including USAID (see the text box below),[110] UNESCO, the European Commission (EC), and the United Nations Development Programme (UNDP). One example is the trilingual Medijska pismenost (media literacy) site,[111] funded by the EC and UNESCO and implemented by the CRA. The Government of RS has conducted some unilateral work on MIL, such as a 2018 event titled "Strengthening Media Literacy in RS," which was organized by the RS Ministry of Transport and Communications.[112]

A snapshot of USAID/BiH Media Programs addressing MIL

Media Engagement Activity (2021—2026)
USAID/BiH's newest media program has three objectives. including:

1. Enhance the operational capabilities of media outlets in business management and strategy, resource mobilization, cybersecurity, and legal protection.
2. Improve the quality and reach of an expanded and diverse set of media partners/outlets, particularly in the digital space
3. Expand collaboration and networking among media outlets.

Investigative Journalism (2020-2025)
This activity aims to provide "direct financial support to independent media outlets to produce high-quality, fact-based investigative reports on public corruption to increase the public's awareness and unacceptance of corruption."

The Balkan Media Assistance Program to Foster Organizational Readiness While Advancing Resilient Development - BMAP Forward (2022-2027)
BMAP Forward is a regional activity covering BiH, Kosovo, Montenegro, North Macedonia, and Serbia. The purpose of the Activity is to make media practitioners more competitive in the local, national, and cross-border marketplaces and strengthen the sustainability of the independent media sector across the region, thus amplifying independent voices.

HATE SPEECH

Addressing hate speech in BiH is especially challenging because the country's legacy of entrenched inter-ethnic conflict continues in verbal and written form online and is allowed or even supported by commercial media outlets aligned with specific groups. In the same way that Facebook's algorithms prioritize the delivery of "angry, polarizing, divisive content,"[113] some electronic media owners in BiH permit a spectrum of critical views that may include hate speech and views that validate their audiences'

pismenost: Istraživanje i razvoj. https://fpn.unsa.ba/b/wp-content/uploads/2021/03/Vajzovic-Emir-ur.-Medijska-i-informacijska-pismenost-istrazivanje-i-razvoj-2020_predCIP.pdf

[110] USAID. Fact Sheet: Media Engagement Activity in BiH. https://www.usaid.gov/bosnia-and-herzegovina/news-information/fact-sheets/fact-sheet-media-engagement-activity-bosnia-and-herzegovina
USAID. Fact Sheet: Investigative Journalism in BiH. https://www.usaid.gov/bosnia-and-herzegovina/fact-sheet/fact-sheet-investigative-journalism-bosnia-and-herzegovina
USAID. Fact Sheet: Balkan Media Assistance Program. https://www.usaid.gov/bosnia-and-herzegovina/fact-sheet/fact-sheet-balkan-media-assistance-program

[111] University of Sarajevo. (2020). Medijska i informacijska pismenost: istraživanje i razvoj, Institut za društvena istraživanja fakulteta političkih nauka, Univerzitet u Sarajevu. https://fpn.unsa.ba/b/wp-content/uploads/2020/12/MEDIJSKA-I-INFORMACIJSKA-PISMENOST-ISTRAZIVANJE-I-RAZVOJ_e-izdanje-1.pdf

[112] Ibid.

[113] CBS News. Facebook whistleblower says company incentivizes "angry, polarizing, divisive content." Published on October 4, 2021. https://www.cbsnews.com/news/facebook-whistleblower-frances-haugen-60-minutes-polarizing-divisive-content/

views and keep them and their associated revenues coming. On the other hand, some media outlets combat online hate speech by giving users the ability to report any comments that are perceived to contain hate speech. For example, one of the most popular online portals in BiH, Klix.ba, created a form for users to report inappropriate comments. Data on reported comments are visible under each article on the portal and are updated every hour.

Since there is no single, internationally accepted definition of hate speech,[114] and given the expanding and evolving ways in which people express themselves online, the meaning of hate speech is fluid and grows ever more undefinable in the BiH public sphere. Unsurprisingly, BiH struggles to find a balance between allowing freedom of expression and sanctioning hate speech. The Law on Public Order and Peace in the RS[115] recognizes the Internet as public space and stipulates sanctions against persons who threaten peace and public order. However, the EU Delegation, the Office of the High Representative, OSCE, and the Embassies of the U.S., Germany, the United Kingdom all expressed concerns that the RS Law not being aligned with the EU and international standards. Likewise, the District Brčko and FBiH criminalize hate speech, though only for statements made by journalists through traditional media. In the case of these two territorial units, hate speech shared on social media or by email is not criminalized.[116] The initiatives to amend the BiH Criminal Code and FBiH Law on the Maintenance of Public Order and Peace have not yielded any results so far. Because there still is no state-level law that defines or regulates hate speech, and the related defamation and bullying are not criminal offenses, investigating and proving hate speech in court are also difficult. It is ultimately up to the courts to determine whether someone is guilty of hate speech. However, as has been done in several EU countries (e.g., Denmark, France, Germany, and the United Kingdom), it is important to harmonize amended laws on crimes against public order and peace with domestic and international standards in this domain so as to establish a balance between effective measures against online harassment and the individual's right to free expression.

Even though the challenges related to tracking and addressing hate speech are well understood, the CRA can only react to objectionable content in traditional media, because it has not been mandated to monitor online speech. Instead, several NGOs try to counter hate speech by monitoring and reporting on it. For example, Sarajevo Open Center uses software like CrowdTangle and Pulsar to track trending topics and narratives online that contain hate speech. OSCE developed a tool and for a while used it to track hate speech on Facebook, Twitter, and Telegram and to identify networks of individuals who share or amplify one another's hate speech. Yet after Cambridge Analytica was caught using the same Facebook data source for illegitimate political purposes, Facebook cut public access, and OSCE was forced to discontinue the monitoring activity. Meanwhile, in 2021, Wired reported that while Facebook claims to remove 90 percent of hate speech from its platform, in reality it deletes only three to five percent of posts that contain hate speech.[117] Finally, several organizations work on identifying and collecting data on hate speech cases. For example, the Balkan Investigative Reporting Network (BIRN) maintains a database on hate speech that catalogs attacks while distinguishing between attacks, genocide

[114] UN actions against hate speech: https://www.un.org/en/hate-speech/united-nations-and-hate-speech/international-human-rights-law
[115] RS Official Gazette, No. 11/15, 58/19
[116] Special Report on Hate Speech in BiH (The Ombudsman for Human Rights of Bosnia and Herzegovina), https://ombudsmen.gov.ba/Download.aspx?id=321&lang=EN
[117] Noah Giansiracusa, "Facebook Uses Deceptive Math to Hide Its Hate Speech Problem", October 15, 2021, https://www.wired.com/story/facebooks-deceptive-math-when-it-comes-to-hate-speech/

denials, and war crime denials. The organization uses its database to map out how hate speech spreads across multiple platforms. Likewise, the OSCE Mission to BiH produces a monthly update on hate speech incidents and responses throughout BiH, called "Hate Monitor."[118] According to Hate Monitor, there were 83 hate-motivated incidents in BiH since the beginning of 2022, most of which targeted ethnicity or religion (82 percent).[119] Only two hate-motivated incidents referred to insulting phone, internet, and SMS messages.[120]

Migrant and Roma populations are among the groups most often targeted by hate speech online. The Atlantic Initiative found that hatred for immigrants was the view shared among extremists across all ethnic groups, that 56 percent are not welcome in the country.[121] One example is the Antimigrant.ba portal, whose editor was indicted in 2021 by the BiH Prosecutor for "spreading national, racial and religious intolerance."[122]

First-ever verdict for hate speech on social media

In 2022, the Court in Sarajevo issued a first-ever verdict in which discrimination against lesbian, gay, bisexual, transgender, and intersex (LGBTI) persons was confirmed. The verdict refers to a Facebook post of a former member of the Cantonal Assembly of the Sarajevo Canton in which she wrote a hateful remark to the announcement of the organizers of the first BiH Pride March.

One expert suggested that many different kinds of stakeholders need to be trained in recognizing and responding to hate speech, including the police, lawmakers, and members of the judiciary. Another suggested that electronic media owners might implement measures across their companies that would stem hate speech on their platforms. Yet another expert identified a need for BiH to establish a legal definition of hate speech that would enable fines for violating it. Finally, one other organization believes the country needs legal preconditions that would provide structure for improving journalistic standards.

CIVIL SOCIETY

While BiH civil society does not have a long tradition,[123] it is seen to be filling the gaps in developing and implementing digital literacy and MIL awareness-raising activities in BiH, and in monitoring hate speech. Multiple organizations work on fact-checking and raising digital literacy through the creation of courses delivered in person and online (e.g., SOC,[124] BIRN,[125] Zašto Ne,[126] MIL Institute at the University of Sarajevo[127]). They are filling the gaps of what otherwise might be government-run programs, including

[118] OSCE's Hate Monitor: https://www.osce.org/hatemonitorbih
[119] Ibid.
[120] Ibid.
[121] Atlantic Initiative. (2021). Exploring Ethno-Nationalist Extremism in BiH. https://atlanticinitiative.org/wp-content/uploads/2021/07/Exploring-ethno-nationalist-extremism-in-Bosnia-and-Herzegovina.pdf
[122] Radio Slobodna Evropa. "Why does hate speech spread freely in Bosnia and Herzegovina?" September 16, 2021 https://www.slobodnaevropa.org/a/govor-mrznje-bih-online-mreze-fatmir-alispahic/31463568.html
[123] Bertelsmann Stiftung. (2022). The Bertelsmann Stiftung's Transformation Index (BTI). Bosnia and Herzegovina Country Report. https://bti-project.org/en/reports/country-report/BIH
[124] More information is available at https://soc.ba/en/
[125] More information is available at https://birn.eu.com/
[126] More information is available at https://zastone.ba/
[127] More information is available at https://fpn.unsa.ba/b/medijska-i-informacijska-pismenost/

for teachers and students in elementary and secondary school.[128] Several NGOs publish articles about fake news and hold events to discuss it.

For example, the association International Forum of Solidarity-Emmaus (IFS-EMMAUS) has been managing the Safer Internet Center in BiH[129] since 2018. The Safer Internet Center is a part of the Child Protection Consortium, a joint initiative implemented by UNICEF BiH, Save the Children, and IFS-EMMAUS that works to prevent violence against children online. In 2010, IFS-EMMAUS established an emergency line for reporting inappropriate content and all forms of child abuse committed through communications technology.

Otherwise, fact checking organizations have a high level of capacity and significant history. Zašto Ne's Istinomjer ("Truthometer"),[130] which fact-checks the statements of government officials at both the state and local levels, was founded in 2010. For context, according to Reporters Lab, there were only 44 fact-checking organizations when they started in 2014,[131] a number that grew to 290 by 2020.[132] Zašto Ne also organized the Political Accountability and New Technologies (POINT) Conference for nine years.[133] They founded the Raskrinkavanje ("unmasking") platform[134] in 2017, which applied a method for identifying sources of disinformation and the connections between them. See Exhibit 8, which Zašto Ne produced to visualize the networks of organizations that commonly share or reshare disinformation.

The COVID-19 epidemic affected the sustainability of BiH NGOs and their activities. According to the Center for Civil Society Promotion, several NGOs had to close or suspend activities in 2020, but overall, the sector remains stable. Even during the pandemic, NGOs were able to advocate for human rights and democracy.[135] The country currently has more than 27,400 NGOs registered at the state, entity, and cantonal levels, of which 25,646 are currently active.[136]

However, citizens lack trust in NGOs' work. According to the 2021 wave of the NSCP-BiH, about one-third of citizens believe that NGOs mainly serve the interests of their international funders, 29 percent of citizens believe NGOs serve the interests of their international funders, 18 percent claim NGOs are highly influenced by political parties, and only 15 percent think NGOs can be trusted to do the right thing for people in BiH.[137] According to the Bertelsmann Stiftung's Transformation Index, only 6,000

---

[128] Mediacentar. Petković, B; Bašić Hrvatin S; Londo I; Hodžić S; Nikodinoska V; Milenkovski S; Pavlović P; Valić Nedeljković,D; Janjatović Jovanović M. (2019). Media and Information Literacy in the Western Balkans: Unrealized Emancipatory Potential, p. 33. https://www.media.ba/en/publication/media-and-information-literacy-western-balkans-unrealized-emancipatory-potential

[129] Safer Internet Centre. https://www.sigurnodijete.ba/

[130] U.G Zašto Ne. Istinomjer. https://istinomjer.ba/

[131] Stencel, M., Griffin, R. (2018). Fact-checking triples over four years. https://reporterslab.org/fact-checking-triples-over-four-years/

[132] Stencel, M., Luther J. (2020). Annual census finds nearly 300 fact-checking projects around the world. https://reporterslab.org/annual-census-finds-nearly-300-fact-checking-projects-around-the-world/

[133] POINT Conference Website. Accessed January 14, 2022. https://point.zastone.ba/point/

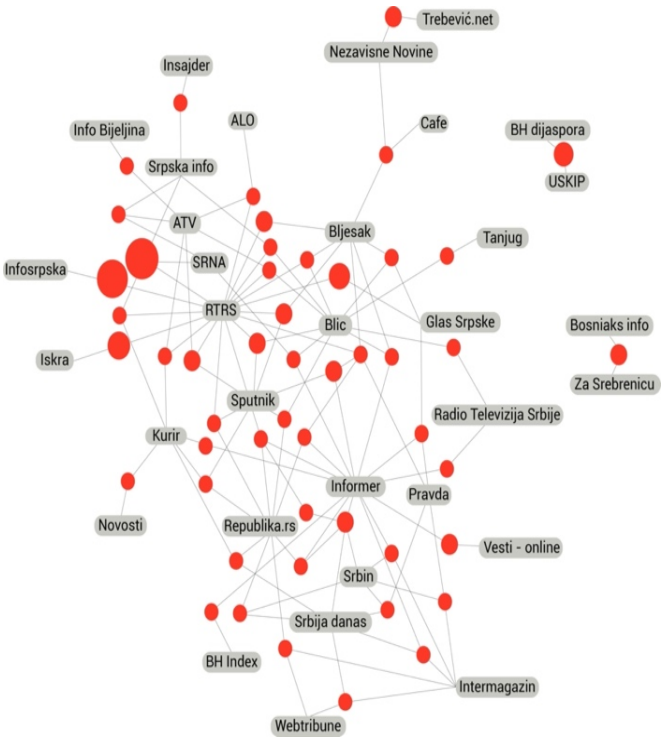
134 Raskrinkavanje.ba. https://raskrinkavanje.ba/

[135] USAID. (2021). The NGO Sustainability Index for Bosnia and Herzegovina. pp.49-50. https://www.fhi360.org/sites/default/files/media/documents/NGOsi-europe-eurasia-2020-report.pdf

[136] Ministry of Justice of BiH. E-register of associations and foundations in BiH. Accessed on August 31, 2022. http://zbirniregistri.gov.ba/Home

[137] USAID/BiH. (2020). National Survey of Citizens' Perceptions. http://measurebih.com/uimages/NSCP-BiH20202020Report.pdf

Exhibit 8. Connections between groups of media which have published the same disinformation at least three times



Note. Graph created by Zašto Ne.

NGOs in BiH include contact details, raising questions about transparency. There are also concerns that a significant proportion of NGOs lack a constituency and are in fact family businesses that prioritize revenue over social impact. There are also NGOs that are opaquely funded by elements within the government and that engage in "illiberal and/or anti-reform" activities.[138]

The level of digitalization of NGOs in BiH corresponds to the level of digital sophistication of BiH society. While knowledge and skills vary, generally those located in urban areas tend to be more sophisticated. Commonly, however, NGOs in both urban and rural locations need help with digitalization in ordinary daily subjects, including for the use of digital financial tools. Yet there are many cases of sophisticated NGO use of technology in service of their advocacy goals. According to the 2022 Balkan Barometer, for example, 13 percent of NGOs reported using social media to affect government policy decisions.[139] Other NGOs have begun using open data to develop their advocacy materials.[140]

MEDIA

While NGOs may find it possible to conduct objective research, the media in the country continue to face many challenges in their work. One view that is widely reflected throughout the research holds that "[g]eneral assessments describe journalism in BiH as undergoing a permanent crisis, and most media in the country as lacking the required capacities for quality journalism. Media reports lack a pluralist perspective and in-depth information, the media are ethnically polarized, specialist and investigative journalism is very rare, and there are frequent instances of speech, especially online, that directly incite intolerance."[141]

---

[138] Bertelsmann Stiftung. (2022). The Bertelsmann Stiftung's Transformation Index (BTI). Bosnia and Herzegovina Country Report. https://bti-project.org/en/reports/country-report/BIH

[139] 2022 Balkan Barometer, https://www.rcc.int/download/docs/Balkan%20Barometer%202022%20-%20PO.pdf/21e2192c1d34cc6194ecb029d7b5997f.pdf

[140] E.g., Pratimo tendere website established by the Assistance to Citizens in Fight Against Corruption (ACFC) Activity, implemented by the Centers for Civic Initiatives, Transparency International, and Center for Media Development and Analysis, and funded by USAID/BiH: https://pratimotendere.ba/bs-Latn-BA.

[141] Petković, B., et al. (2019). Media and Information Literacy in the Western Balkans: Unrealized Emancipatory Potential. Sarajevo. Mediacentar. https://www.media.ba/en/publication/media-and-information-literacy-western-balkans-unrealized-emancipatory-potential

Media in BiH face a choice. If they want to be editorially and financially independent, and to provide objective and quality news coverage, they likely will have small readerships and limited revenue. They have to navigate diverse political pressures and trouble staying afloat. They are in a vulnerable position because they are constantly being sued and are in dire need of financial assistance. Most media revenues come from commercial activities, including but not limited to sponsorships, public relations services, and small retail businesses (up to 40 percent); advertising (about 25 percent); and public funds (up to 25 percent). However, for most professional and independent media, foreign grants remain a crucial source of revenue.[142]

Journalists in BiH are often the target of both physical and nonphysical violence. Despite strong advocacy from media workers, a state-level register of threats and attacks on journalists and media workers has never been established.[143] The only official database administered by the government institutions is the Registry of assaults, attacks and other incidents that relate to assaults and attacks on journalists and other media staff, managed by the Ministry of Interior Affairs of RS since 2016. In addition, the NGO sector collects data and informs on cases of attacks, threats, and pressure on journalists. According to the BH Journalists Association and Free Media Helpline, there have been 190 cases of violence against journalists in the last four years (2018–2021). Most registered cases of violence relate to attacks on journalists.[144] For example, in 2021, SafeJournalists recorded 26 cases of attacks, threats, and pressure on journalists and media.[145] Eleven of these were cases of nonphysical threats and harassment (e.g., surveillance or monitoring, disturbing phone calls, arbitrary judicial or administrative harassment, aggressive statements by public officials, and other forms of pressure that may compromise the safety of journalists); six threats against the life and physical safety of journalists (e.g., reference to the murders of or inflicting harm on journalists, their friends, families, or sources); three attacks on journalists that included actual physical or mental harm, abduction, breaking into a house/office, confiscation of equipment, arbitrary detention, failed assassination attempts, or the like; and six threats and attacks on media institutions, organizations, media outlets, and journalists' associations (e.g., attacks on the property of media outlets and organizations, their staff, confiscated equipment, aggressive statements by public officials).[146] In addition, there is a worrisome rise of gender-based attacks; for example, eight cases of threats and violence against female journalists were registered in 2021—three more than in 2020.[147] However, attacks on male journalists still remain the highest in the total number of registered cases of violence against journalists—44 percent of cases registered by SafeJournalists were against male journalists, 23 percent, against female journalists; and 33 percent, against a group of journalists that included both male and female media workers.[148] Of additional concern is the rising incidence of online violence manifested through the growing number of threats that journalists receive through social networks and internet portals.[149] According to the Registry of assaults, attacks. and other

[142] USAID/BiH. (2020). Brief Media Assessment Update.
[143] BH Journalists Association. (2021). Why is mapping of assaults and attacks on journalists within the institutions important to us. E-Novinar Bulletin. Year VII, number 78. https://bhnovinari.ba/wp-content/uploads/2021/12/78-IZDANJE-E-NOVINAR_ENG.pdf
[144] Safejournalists. Statistics. https://old.safejournalists.net/ba/search-copy/
[145] Safejournalists. (2022). Bosnia and Herzegovina: Indicators of the level of media freedoms and safety of journalists in BiH 2021. https://safejournalists.net/wp-content/uploads/2022/06/BiH-ENG-2021.pdf
[146] Ibid.
[147] Ibid.
[148] Safejournalists. Statistics. https://old.safejournalists.net/ba/search-copy/
[149] Ibid.

incidents that relate to assaults and attacks on journalists and other media staff, 70 percent of assaults and attacks on journalists recorded in the last two years relate to online violence and threats.[150]

According to UNESCO and the International Programme for the Development of Communication, journalists sometimes exercise self-censorship because they fear violent reprisal for things they write, including from politicians.[151] As a result, a considerable portion of citizens doubt media independence.[152] Specifically, half of BiH citizens think political and government institutions have too much influence over information shared on television, 42 percent of citizens feel the same about newspapers, and 38 percent think the same about online news sources.[153]

Journalists in BiH are exposed to death threats and harassment

Journalist Nikola Vučić of NI television channel received death threats in May 2020 after a sarcastic tweet he posted on a self-proclaimed "corona-free zone" in the West Herzegovina Canton, leading him to close his Twitter account.

Similarly, in April 2021, journalist Eldin Hadžović of the Prometej.ba portal published an article entitled "How the Mayor of Sarajevo failed the first exam: They are not Serbian criminals, but the RS Army", thereupon he received threats via Facebook from a member of the BiH Armed Forces BiH with numerous curses and insults.

Despite the alarming data, both preventive and repressive institutional measures on political pressure, intimidation, and harassment towards journalists are missing. Media freedom and the safety of journalists are hindered by a lack of legal provisions, mechanisms, or guidelines that specifically address these concerns.[154] Under criminal codes in BiH, attacks on journalists are not recognized as unique criminal offenses.[155] Similarly, almost 40 percent of cases of violence against journalists do not reach the stage of legal proceedings,[156] while in 70 percent of cases, perpetrators go unpunished.[157]

BiH is a particularly difficult country for journalists to do their work because long-standing, deep political divisions are manifested in media outlets that reflect the divisions, and because of the market characteristics for media to maintain commercial sustainability. According to the 2021 Vibrant Information Barometer (the annual study formerly known as the Media Sustainability Index) report, in BiH media, "[T]he quality of information has decreased, mainly driven by an alarming number of false and misleading content about COVID-19."[158] During the pandemic, there were attempts by authorities

[150] BH Journalists Association. (2021). Why is mapping of assaults and attacks on journalist within the institutions important to us. E-Novinar Bulletin. Year VII, number 78. https://bhnovinari.ba/wp-content/uploads/2021/12/78-IZDANJE-E-NOVINAR_ENG.pdf

[151] Gengo, A; Omerovic, E; Cendic, K. (2019). Assessment of media development in Bosnia and Herzegovina: based on UNESCO's media development indicators. https://unesdoc.unesco.org/ark:/48223/pf0000371223

[152] USAID/BiH. (2021). National Survey of Citizens' Perceptions. http://measurebih.com/uimages/NSCP-BiH20202020Report.pdf

[153] Ibid.

[154] European Commission. (2021). Bosnia and Herzegovina 2021 Report. https://neighbourhood-enlargement.ec.europa.eu/bosnia-and-herzegovina-report-2021_en

[155] Mediacentar. (2018). Mechanisms of protection against online violence. Handbook for journalists. https://www.media.ba/sites/default/files/mc_mehanizmi-zastite_web.pdf

[156] Safejournalists. Statistics. https://old.safejournalists.net/ba/search-copy/

[157] „Around 70 percent of attacks on Bosnian journalists go unpunished". N1 Sarajevo. Published on June 1, 2021. https://ba.n1info.com/english/news/some-70-percent-of-attacks-on-bosnian-journalists-go-unpunished/

[158] IREX. (2021). Vibrant Information Barometer. p.2. https://www.irex.org/sites/default/files/pdf/vibe-bosnia-herzegovina-2021.pdf

to limit the ability of certain media outlets to report facts by limiting their access to press events.[159] As a result, in 2020, the reported levels of citizens' trust in television, online news sources, and newspapers was modest at 51 percent, 35 percent, and 36 percent, respectively, reflecting decreases in trust levels compared to previous years.[160] By the same token, according to the results of the 2022 Balkan Barometer, among participants, 70 percent of BiH citizens view disinformation as a security threat and 73 percent as a problem for democracy in general. More than one-third think that disinformation is spread online through social networks; 43 percent say that several times a month, they come across news or information that they believe misrepresents reality or is even false; 38 percent say they seldomly encounter such information; 72 percent think that media operate under political influence; and every third respondent perceives that media can effectively scrutinize the government and make it accountable to citizens.[161] Such observations add to calls for increased media development and MIL capacity-building programs.[162]

Laws covering the practice of journalism are applied inconsistently. According to an OSCE study, 80 percent of defamation lawsuits against journalists in BiH were brought by public officials, even though courts have often cited the principle that it is acceptable to subject public officials to more scrutiny than ordinary citizens.[163] Additionally, 30 percent of these cases last more than five years, meaning journalists can face significant costs when sued.

Journalists also face the challenge of convicted criminals exercising their legal right to have past convictions struck from official records, including online.[164] Many think that the right to have digital trails expunged, a right most prominently offered under EU's General Data Protection Regulation (GDPR), extends to a desire for having misdeeds forgotten by the media as well.

Furthermore, BiH's small market (a population of only 3.2 million) contributes to the polarization of its media because companies must take stark positions to distinguish themselves. Also, political parties mostly control the flow of advertising spending towards the media outlets with which they are aligned.[165]

BiH is behind schedule with its digital conversion of television and radio broadcasting. It is one of 119 ITU member countries from Europe, Africa, the Middle East, and Central Asia that agreed to completely switch their analog television and radio to digital broadcasting by June 7, 2015, under the GE06 Regional Agreement. However, in BiH the first digital television broadcasting licenses were not issued until March

[159] Ibid.
[160] USAID/BiH. (2021). National Survey of Citizens' Perceptions. http://measurebih.com/uimages/NSCP-BiH20202020Report.pdf
[161] Regional Cooperation Council. (2022). Western Balkans SecuriMeter 2022. https://www.rcc.int/download/docs/Securimetar%202022_final.pdf/812a4b746e4de5f7f5b657c61a82cd34.pdf
[162] "EU funded research shows polarized public trust in the media in BiH". Webalkans Platform. Published on: June 4, 2021. https://webalkans.eu/en/news/eu-funded-research-shows-polarised-public-trust-in-the-media-in-bih/
[163] Balkan Insight. (2020). Suing to Silence: Lawsuits Used to Censor Bosnian Journalists. https://balkaninsight.com/2020/12/21/suing-to-silence-lawsuits-used-to-censor-bosnian-journalists/
[164] Panić, K. (2021). Media Censorship in Bosnia Just Got a Lot Scarier. https://www.fairplanet.org/story/media-censorship-in-bosnia-just-got-a-lot-scarier/
[165] Džananović, N; Karamehić, M. (2016). Populist Political Communication in Europe.

2016,[166] and Sarajevo, Mostar, and Banja Luka did not complete their digital conversions until October 2016. One factor that affects digital conversion is that there are no laws at the entity level enabling the digital conversion of television broadcasting. For more than three years, the two main public television broadcasters have not been able to agree on the equipment they need to buy to facilitate the conversion. KIs also reported that TV stations in particular would find it difficult to replace their analog broadcasting equipment.

BiH's National Public Broadcaster Faces Hard Times

In 2022, BHRT experienced considerable financial difficulties with its debt reaching $33 million (63 million BAM) which led to blocking of the station's accounts. The main reason for this situation was the inability of BHRT to receive revenues from the radio and television fee. which is guaranteed by the Law on the Public System of BiH adopted in 2005. Specifically, the Radio Television of Republika Srpska (RTRS) neglected to transfer to the BHRT 50 percent of the revenues collected since 2017, which caused this accumulation of debt.

DIGITAL RIGHTS AND FREEDOMS

Formally, media freedom, and freedom of expression are codified in BiH law, most notably within the Freedom of Access to Information Law of BiH, Entity-level/District Brcko Criminal Code, Entity-level Defamation Laws, Copyright and Related Rights Laws, and Entity and Cantonal Laws on Public Information/Media. In practice, however, these rights are not always observed. For example, on March 6, 2021, journalist Nidžara Ahmetašević, who has been tracking migration issues in the Balkans since 2015, and has published many articles on the Kosovo 2.0 website, was arrested while covering human rights and migration issues and charged with "disturbing public order and peace and belittling an official in the performance of official duties and tasks."[167] According to Kosovo 2.0, this was not the first time she had been detained.[168] It is not always bad news for journalists, however. In 2018, the Center for Investigative Reporting in Sarajevo and journalist Selma Učanbarlić won a defamation lawsuit against a doctor who insulted them on Facebook.[169]

Additional challenges related to how existing laws in BiH affect digital rights and freedoms include the lack of harmonization of key laws. The Freedom of Access to Information Acts of BiH are not harmonized with the Law on Protection of Secret Data, the Law on Intelligence and Security Agency, the Law on Criminal Procedure, and the Law on Tax Administration, meaning that officials have multiple legal reasons for denying journalists access to information. This is not the end of the harmonization challenge, however, given that BiH also aspires to join the European Union and must work on harmonizing its laws with the Acquis Communautaire. This will be an ongoing challenge; as is the case everywhere, information technologies evolve faster than the regulations meant to govern them.[170]

The Personal Data Protection Agency (PDPA), among its many powers, is in charge of upholding the digital rights afforded to BiH citizens under the Law on the Protection of Personal Data No. 49/06, including the right (1) to be informed; (2) to access their personal data; (3) to have their data rectified; (4) to have their personal data erased in case data are incorrect and incomplete; (5) to file an objection

[166] "CRA issued the first licenses for digital broadcasting". Buka. Published on: February 11, 2016. https://6yka.com/kolumne/rak-izdao-prve-dozvole-za-digitalno-emitovanje
[167] Civicus Monitor. (2021). https://monitor.civicus.org/country/bosnia-herzegovina/
[168] Kosovo 2.0. (2021). https://kosovotwopointzero.com/en/violent-arrest-and-detention-of-nidzara-ahmetasevic/
[169] IREX. (2020). Media Sustainability Index. p.5. https://www.irex.org/sites/default/files/pdf/media-sustainability-index-europe-eurasia-2019-bosnia-herzegovina.pdf
[170] Zašto Ne. (2019). Disinformation in the Online Sphere the Case of BiH. pg.15. https://zastone.ba/app/uploads/2019/05/Disinformation_in_the_online_sphere_The_case_of_BiH_ENG.pdf

if personal data were collected without their consent; and (6) to receive compensation for any physical and consequential damage resulting from a violation of right to privacy. These rights were included as an attempt to assist BiH in conforming as closely as possible to the EU's GDPR, which became effective in May 2018.[171] However, the current legislative framework on protection of personal data is not fully aligned with the EU acquis. Moreover, PDPA received almost 1,300 complaints for potential abuses of personal data in the period 2012–2021, 128 complaints on an annual basis, on average.[172] According to PDPA data, in 2020, the dominant violations of the law included the breach of privacy through video surveillance, illegal processing of an ID number, unwanted SMS messages for the purpose of direct marketing, etc.[173]

The CRA is pushing to have BiH adopt the European Electronic Communications Code, which is meant to enable creation of a European Digital Single market. CRA would like to see a change in the law that would allow them to switch from formally licensing electronic communications services to a system of general authorization, so that the licensing process would no longer serve as a de facto barrier to market entry. CRA wants this change even though they are financed in part by these licensing fees. They also would like to see the law changed so that they can introduce 112 as the nationwide number for emergency services.

INTERNET FREEDOM: DIGITAL REPRESSION

There is no evidence of cases of digital repression, including surveillance, censorship, social manipulation and disinformation, internet shutdowns, and targeted persecution of online users by government institutions in BiH. According to the Varieties of Democracy Institute, government institutions in BiH have limited capacity to shut down the internet in the country or some of its regions, block access to websites on the internet, and remove online content.[174] While it is hard to predict whether the government would rely on the aforementioned capacities, if these were to exist, internet access and content published or shared through online means in BiH remains unrestricted.[175]

However, violations of digital rights in BiH are not uncommon. According to BIRN, there were 101 cases of digital rights violations between August 1, 2020, and August 31, 2021.[176] Most common violations include pressures because of expression and activities on the internet, manipulation and propaganda in the digital environment, and information security breaches.[177]

---

[171] Caselaw. (2021). Privacy Regulations in Bosnia & Herzegovina. https://caseguard.com/articles/privacy-regulations-in-bosnia-herzegovina/.
[172] Personal Data Protection Agency of BiH. (2022). Report on personal data protection in BiH in 2021. http://azlp.ba/publikacije/?id=3601
[173] Mediacentar. (2020). Lični podaci "na izvolite". https://www.media.ba/bs/magazin-mreze-i-web/licni-podaci-na-izvolite
[174] V-Dem Institute. V-Dem Indicators. Country Graph. Accessed on September 6, 2022. https://www.v-dem.net/data_analysis/CountryGraph/
[175] Ibid.
[176] BIRN. (2021). Online Intimidation: Controlling the Narrative in the Balkans. Annual digital Rights Report 2021. https://balkaninsight.com/wp-content/uploads/2021/12/ONLINE-INTIMIDATION-CONTROLLING-THE-NARRATIVE-IN-THE-BALKANS.pdf
[177] Ibid.

Disinformation is widely recognized as a problem among media and is seen as an issue of media professionalism and independence.[178] RTRS and the Srna news agency were identified by Zašto Ne as the producers of the greatest amount of disinformation in the country. In addition, Zašto Ne remarked that during the 2018 elections, BiH citizens were "bombarded" with disinformation on social media.[179] The issue of sharing disinformation online was exacerbated during the COVID-19 pandemic by mounting misinformation and disinformation about the virus and COVID-19 vaccines, including conspiracy theories, that were shared online. Adding to the disinformation challenge in RS, in 2021 the RS government passed a decree stating that it will not comply with the national law that makes genocide denial a crime.

Media in BiH have been subject to cyberattacks. The BIRN database of registered digital rights violations (August 2020 through August 2021) includes 22 cases of information security breaches,[180] with the media being a victim in some of the recorded cases. For example, the website nezavisne.com was the target of a cyberattack in August 2021. Media outlets Žurnal and Nomad were targeted with distributed denial of service attacks in February 2021.[181] The most recent attack occurred in early summer 2022, when Buka's Facebook page was hacked, disabling the page administrators' ability to upload new posts or edit existing ones or to perform any other activity on the page.[182] However, because of other pressures they face, including verbal and physical threats and financial challenges, media in BiH do not prioritize cybersecurity.[183]

DIGITAL GOVERNMENT: DELIVERY OF GOVERNMENT SERVICES

There are various functioning e-government services in BiH, but these services lack interoperability, which poses a challenge for streamlining service delivery. Even the most sophisticated internationally funded e-government projects are stymied by the inadequate framework for e-signatures.[184] Very limited ownership of e-signature technology in the economy and society has been identified as a key constraint to the continued development and provision of e-services. Only a few end-to-end e-services are currently available, but there are several closed-loop and isolated e-service systems, notably tax administrations, which offer e-services based on their own internal regulations and allow taxpayers to submit tax declarations using internally issued digital signatures.

---

[178] Zašto Ne. (2019). Disinformation in the Online Sphere the Case of BiH. https://zastone.ba/app/uploads/2019/05/Disinformation_in_the_online_sphere_The_case_of_BiH_ENG.pdf

[179] Zulejhić, E. (2021). Research: Misinformation in the election process in BiH. https://zastone.ba/istrazivanje-dezinformacije-u-izbornom-procesu-u-bih/

[180] BIRN. (2021). Online Intimidation: Controlling the Narrative in the Balkans. Annual digital Rights Report 2021. https://balkaninsight.com/wp-content/uploads/2021/12/ONLINE-INTIMIDATION-CONTROLLING-THE-NARRATIVE-IN-THE-BALKANS.pdf

[181] Civicus Monitor. (2021). https://monitor.civicus.org/country/bosnia-herzegovina/

[182] Karic, Sejla. A Range of Digital Rights Violations Disrupts the Region. Balkan Investigative Research Network. Published on: August 8, 2022. https://balkaninsight.com/2022/08/08/a-range-of-digital-rights-violations-disrupts-the-region/

[183] USAID/BiH. (2021). Brief Media Assessment Update.

[184] USAID/BiH MEASURE-BiH. (2018). Assessment Of Bosnia and Herzegovina - Governance And E-Administration. http://www.measurebih.com/uimages/MEASURE-BiH20E-Governance20E-Administration20Assessment20Final20Report2012Dec2018.pdf

Internet Governance in BiH

BiH created its own Internet Governance Forum, the primary platform for internet governance discussions in the country, in 2015. Civil society organizations were most active in 2017, when the Center for Internet Governance (a joint BiH and Bulgarian organization) organized the School for Internet Governance in Jahorina, BiH. Approximately 25 universities, NGO, private sector, and government representatives attended. The Council of Europe representatives presented several tools and described best practices. Little has been published on the topic since 2017, the final year the national Internet Governance Forum was convened. Thereafter, there has not been significant interest or outside funding to continue.

Many government processes, including those for paying taxes or providing information to the statistics agency, still require submission of paper forms. As a result of long-standing challenges to horizontal and vertical interoperability among public institutions in BiH, citizens have long been expected to submit documents in person, often going from one counter to another, even though the Law on General Administrative Procedures states that public institutions should exchange the documents through official channels.[185] Yet in mid-2022, BiH saw some key changes that bode well for the digitalization process. As of August 2022, all transit procedures and customs declarations must be submitted to the system of the Indirect Tax Administration, only by electronic means, and every transit application must be certified with a new qualified digital signature. Amendments to the FBiH Law on Administrative Procedure, adopted in July 2022, will further enable electronic communications and digital signatures in official administrative procedures and court proceedings. This move, which was supported by the USAID E-Governance Activity,[186] will also pave the way for creation of new end-to-end services offered by FBiH.

One of the key impediments to digital transformation of public administration in BiH is the capacity of BiH institutions to maintain and further develop ICT systems that will support the maintenance of existing ICT systems and established e-services, and that will foster development of new e-services.[187]

Positive strides have been made, however. For example, the Indirect Taxation Authority has made advancements in digitizing submission of excise declarations. Another example is CMDA, which has developed the public procurement monitoring platform pratimotendere.ba, which uses green, yellow, and red flags to indicate the corruption risk level of a procurement. The UNDP's eCitizen application enables governments to receive and respond to citizen requests and complaints if, for example, a manhole cover is missing. UNDP believes that lower levels of government are much more interested in cooperation and that eCitizen will enable more impactful services with time.

E-SERVICES

E-governance encompasses the use of digital services to enhance government services. These include government-provided citizen and business services (such as tax payment, document requests, and registration), government transparency (minutes of meetings, public procurement processes and plans), and consultation practices (ranging from citizen involvement to e-voting).

[185] Ibid.

[186] USAID. Fact Sheet: E-Governance Activity. https://www.usaid.gov/bosnia-and-herzegovina/fact-sheet/fact-sheet-e-governance-bosnia-and-herzegovina

[187] Ibid.

The focus on governance (rather than government) emphasizes that digital services can be provided at a variety of levels of government (local through the state, by public service providers, and by regional and international organizations), and that they require the participation of numerous stakeholders. Citizens' trust in digital communications and services, from data protection and privacy to reliability and digital skills, is linked to e-governance. According to a report published by the initiative for digital transformation of the Western Balkans (Digital WB6+),[188] compared with the European Union and the Western Balkans, BiH is in the 92nd place in the World Bank's E-Government Index, well below the EU average and the last among Western Balkans countries.[189]

USAID works on increasing the transparency of public procurement in BiH

USAID/BiH's E-Governance Activity provides technical assistance to the Public Procurement Agency (PPA) to establish procurement IT and application and related processes in four pilot cantons, including Sarajevo, Tuzla, Zenica, Doboj, and Gorazde.

In its 2021 report on BiH, the EC highlights the slow implementation of e-services.[190] The legal framework for user-centric administrative services varies substantially across the country. A new law on electronic identification and trust services for electronic transactions, which complies with the EU acquis, is still pending adoption. To foster efficient and user-centric administrative services delivery, BiH must simplify and harmonize business registration procedures and ensure full, mutual recognition between entities, including on concessions and licensing. Until then, the opinion of citizens about public services is likely to remain very low.

Examples of progress achieved in e-government services thus far include the introduction of an electronic system of business registers in Brčko District in April 2021 and the establishment of one-stop shops for citizens or businesses in the RS and Brčko District.[191] Citizens can fully register a business or make changes to existing registration without setting foot inside a bank or government building. Furthermore, the Brčko District business registration system is the first government service that is aligned with open-data standards by which business registration data are public and can be downloaded in an open-data format. The Government of Brčko District is hoping to pave the way for new types of services to be offered based on open data. The FBiH has been slower to implement e-registration legislation, which was finally approved in November 2020.[192] It is expected that the FBiH will provide

[188] According to this report, "The Digital WB6+ Initiative was established in April 2017 by Deutsche Telekom, Telenor, Telekom Austria, EY, SAP as well as the Committee on Eastern European Economic Relations, Chambers Investment Forum, German-Croatian Chamber of Commerce, German-Serbian Chamber of Commerce, Chamber of Commerce and Industry of Serbia, Economic Chamber of Macedonia, Croatian Chamber of Economy, and Hrvatska Udruga Poslodavaca to foster digital transformation in the Western Balkans and facilitate the path towards the EU."

[189] The Digital WB6+ Initiative. (2018). The Impact of Digital Transformation on the Western Balkans. https://wb6digital.files.wordpress.com/2018/01/wb6-study.pdf. According to this report, "The digital WB6+ Initiative was established in April 2017 by Deutsche Telekom, Telenor, Telekom Austria, EY, SAP as well as the Committee on Eastern European Economic Relations, Chambers Investment Forum, German-Croatian Chamber of Commerce, German-Serbian Chamber of Commerce, Chamber of Commerce and Industry of Serbia, Economic Chamber of Macedonia, Croatian Chamber of Economy, and Hrvatska Udruga Poslodavaca to foster digital transformation in the Western Balkans and facilitate the path towards the EU."

[190] European Commission. (2021). Bosnia and Herzegovina Report. https://ec.europa.eu/neighbourhood-enlargement/bosnia-and-herzegovina-report-2021_en

[191] E-Register of Business Subjects in the Brčko District of BiH. (n.d.). https://bizreg.osbd.ba/

[192] FBiH Official Gazette, No. 27/05, 68/05, 43/09, 63/14, 85/21. https://www.feb.ba/wp-

online business registration by the end of 2022, and that it will be based on the BiH state e-signature law. RS had a long-term strategy for the development of e-government for 2019–2022. There was also a program for public administration reform in 2018–2022. This allowed RS to move faster with some digitization processes, but since the COVID-19 pandemic, the positive trend has slowed down. While these are the only documents adopted that exist in BiH, they are not considered to be substantive.

The lack of utilization and accessibility of e-signatures has been identified as a key limitation to further development and provision of e-services to citizens and the business community. Only a limited number of end-to-end e-services are available at this time, because most of the existing processes require at least one visit to a bank or government office to confirm payment. There are several closed-loop and isolated e-service systems. examples of which include the tax administrations, which offer e-services regulated by internal procedural guidebooks that rely on nonqualified digital signatures for taxpayers to submit tax declarations. The lack of e-signature utilization is hindering almost all e-service projects, whether or not they were set up to be closed-loop or hybrid solutions. In these systems, most work can be done online, but paper documents must still be submitted. Instead of replacing hand-signed hard copies with digital documents and e-signatures, agencies must process both digital copies and hand-signed paper copies.

Whereas businesses in RS can submit their yearly balance sheets in electronic form, if signed in accordance with the Law on Electronic Signature of RS,[193] according to the FBiH Law on Accounting and Auditing,[194] in FBiH, yearly balance sheets must be submitted in paper form as well as on compact disc. This is due in part to a lack of trust among accountants, the person who submits reports, and the institutions that receive reports. Yet for many years, the tax administration has required medium and large tax-paying organizations/entities to submit their tax declarations online and has allowed small tax-paying organizations/entities to submit their declarations only in writing. Larger organizations are presumed to have more technical capacity that would enable them to submit tax declaration electronically. However, the tax administration is moving in the direction of having all taxpayers submit their declarations electronically.

GSB AND DATA EXCHANGE

One important tool that will enable the government to deliver digital services more efficiently is the GSB,[195] a system that enables government databases to exchange data and information. This is useful when a government service requires data from multiple sources to be approved and provided.

GSB services were introduced in BiH in 2017. Specifically, with World Bank support through their Investment and Institutional Strengthening Project, GSB was introduced at the BiH Council of Ministers, FBiH Government, RS Government, and Brčko District Government levels. In addition, coordinating bodies for GSB implementation have been established by the national government, as well as by the

content/uploads/2021/10/af930-zakon-o-registraciji-preciscen.pdf

[193] Official Gazette of RS, No. 59/08.

[194] Official Gazette of FBiH, No. 83/09, 15/21.

[195] The term "bus" (short for "omnibus") comes from the computer hardware field and originally referred to a bundle of parallel wires that connect key components, including the central processing unit, memory, and peripherals. Today, any shared communication channel that allows different components to share information might be referred to as a "bus."

governments of RS and FBiH.[196] In FBiH, GSB integrates the databases of Tax Administration and Inspections. In RS, GSB integrates the databases of four government organizations, including the Intermediary Agency for IT and Financial Services, the RS Tax Administration, the Health Insurance Fund of RS, and the RS General Secretariat. All of these institutions were integrated within the GSB in 2017, whereas no initiative or assessment of other institutions' capacity to join GSB happened since then. The entity- and state-level governments adopted the framework for interoperability, which defines the usage of GSB as mandated data-exchange interoperability for all future IT projects, while following the European Interoperability Framework 2.0.[197]

However, the prospects for a well-functioning GSB face many challenges. First, implementation of GSB is hindered by the long delay in establishing a certification authority (CA) in BiH. Second, the validity of data exchanged electronically is not recognized under BiH law. BiH has established an interoperability body, but the entities have several autonomous IT systems that vary in quality and that are not interoperable with one another. Thus, the potential of the GSB limits the autonomous nature of these systems and approaches.

Another challenge is the lack of qualified personnel to install, manage, and use these systems. For example, FBiH estimates that 80 to 90 percent of the data in its database could and should be exchanged between government agencies. However, according to DECA KIs, 90 percent of government workers are not familiar with existing GSB interoperability infrastructure. Yet the General Secretariat of the Government of FBiH, which is in charge of administering the GSB within the FBiH Government, is concerned about whether they will be able to find people in BiH who are qualified to maintain and further improve the GSB framework.

Additionally, public institutions are not required to obtain approval before installing IT systems. Even though interoperability frameworks have been adopted at the state and entity levels and the national interoperability framework suggests that BiH governmental offices exchange data over GSB, this data-exchange effort produced limited results.

One approach might be to assign management of the GSB, including coordination with all government agencies, to one institution or agency. Yet a well-functioning GBS would need to be maintained and managed at all levels of government, requiring a level of organizational sophistication beyond the capacity of any existing institution.

Promising digital reforms

While BiH's digital ecosystem has many areas where national reforms could advance the digitalization process, some reforms were mentioned repeatedly, by diverse stakeholders, during the research, including

- electronic data exchange recognized by the law
- digitalization strategy
- CERT
- broadband plan

In the meantime, as a result of the limited number of GSB services, citizens and businesses must continue to submit paper documents in person and, in many cases, the same document to many different government offices. The USAID E-Governance Activity plans to extend the number of services

[196] USAID/BiH MEASURE-BiH. (2018). Assessment Of Bosnia and Herzegovina - Governance And E-Administration. p.10. http://www.measurebih.com/uimages/MEASURE-BiH20E-Governance20E-Administration20Assessment20Final20Report2012Dec2018.pdf

[197] FBiH: https://fbihvlada.gov.ba/bosanski/zakoni/2016/odluke/631.html ; State Level: https://www.vijeceministara.gov.ba/elektronska_vlada/Akti/OdlukaSI53_18.pdf

offered through the GSB to automate as many processes as possible and to validate citizen data on behalf of citizens.

DIGITAL SIGNATURES

The BiH Parliament passed the Law on Electronic Signature in 2006 but has yet to implement it. The implementation of the Law has long been delayed because the Bureau for Monitoring and Accreditation of Certifiers was established only recently, in 2018. The corresponding entity legislation is not harmonized with the EU acquis. It should be noted that the current Law on Electronic Signature of BiH is harmonized with Directive 1999/93/EC, and it should be harmonized with Regulation 910/2014 of the European Parliament and the Council of Europe. Because the European Union recognizes only the supervisory body at the state level, it is necessary to harmonize regulations at lower government levels; otherwise, electronic signatures issued on the basis of entity laws would not meet interoperability requirements and could not be used outside BiH. At this moment, three certified authorities are registered at the state level, including Halcom D.D. Ljubljana (since October 3, 2019), the BiH Indirect Tax Authority (since May 12, 2021),[198] and, as of April 4, 2022, the Agency for Identification Documents, Registers and Data Exchange (IDDEEA).[199]

As outlined earlier in the report, the tax administrations in the FBiH and RS have for years used internally self-signed e-signatures to facilitate e-taxation services. These closed-circuit IT systems have successfully functioned for many years, enabling business-related tax declarations to be submitted through e-tax services online systems.

Policy design and delivery capacities and mechanisms are insufficient because they are limited by complex vertical and horizontal cross-government collaboration, which undermines the quality of public service delivery and the country's ability to grow. The pace of public administration reform is slow in general. The Strategic Framework of Public Administration Reform in BiH 2018–2022[200] has expired, with no clear replacement in sight.[201]

The cost of e-signatures should also be considered because it has a direct relationship with citizens' and businesses' desire for e-services. The volume of available e-services has to be high enough to justify the initial cost. Exhibit 9 illustrates the costs of each qualified digital service.

[198] BiH Ministry of Communications and Transport. (2021). Registar ovjeritelja u BiH (Registry of Certification Authorities in BiH). http://www.mkt.gov.ba/Content/OpenAttachment?id=2ef8e2de-2ea7-4f83-bdf4-580c1d74af1a&lang=bs
[199] Ibid.
[200] Public Administration Reform Coordinator's Office. (2018). Strategic Framework for Public Administration Reform in BiH 2018-2022. https://parco.gov.ba/en/rju/o-rju-2/strateski-okviri-za-rju/
[201] UNDP. (2020). Digital Transformation in the Public Sector in BiH, Project Document. p. 4. https://info.undp.org/docs/pdc/Documents/BIH/Digital_transfromation_prodoc.docx.pdf

Exhibit 9. Overview of trust providers in BiH (qualified electronic signatures)[202]

NAME	BIH OFFICE FOR SUPERVISION AND ACCREDITATION	VALID FOR	COST IN USD	
			CITIZENS	BUSINESSES
Halcom D.D.	Registered[203]	3 years[204]	$125[205]	$125
BiH Indirect Tax Authority	Registered[206]	5 years[207]	$110[208]	$110
RS Ministry of Scientific and Technological Development, Higher Education and Information Society*	Not registered	unknown	$91	$607**

* Information is based on independent newspaper article (capital.ba).

** Businesses are issued a qualified electronic seal.

RS has a three-in-one solution, whereby its Ministry of Scientific and Technological Development, Higher Education and Information Society plays the role of (1) CA issuer; (2) central coordinator of all certificates, and (3) certificate inspector.[209] While the Ministry site claims that it issues digital certificates "in accordance with relevant international standards and recommendations," "trust services" (which include certification authorities) have not been regulated by EU member states since 2016, and qualified certificate providers "are recognized [sic] independently of the Member State where the Qualified Trust Service Provider is established or where the specific qualified trust service is offered."[210] Additionally, according to the U.S. Government's Chief Information Officers, the U.S. government has not run a CA since 2016 and does not have any plans to do so in the future.[211] Because IDDEEA only recently became a CA, citizens are hopeful that it will quickly start offering e-services. In the past, IDDEEA offered several online services for identification document processing on its website that can now be converted to end-to-end, fully digitized e-services based on its latest certification with the state-level Law on Electronic Signature.

[202] The Agency for Identification Documents, Registers, and Data Exchange (IDDEEA) was entered into the Register of Trust Providers on 15 April 2022, but the cost and terms of its services have not yet been approved by the BiH Council of Ministers. The draft decision can be accessed at the following link: https://ekonsultacije.gov.ba/legislativeactivities/details/120188

[203] BiH Ministry of Communications and Transport. (2020). List of registered providers. http://www.mkt.gov.ba/Content/OpenAttachment?id=2ef8e2de-2ea7-4f83-bdf4-580c1d74af1a&lang=en

[204] Halcom Certification Agency. (2019). Price list, https://support.halcom.com/wp-content/uploads/2022/12/Cjenovnik-Halcom-CA-za-pravna-lica_2022.pdf

[205] Ibid.

[206] BiH Ministry of Communications and Transport. (2020). List of registered providers. http://www.mkt.gov.ba/Content/OpenAttachment?id=2ef8e2de-2ea7-4f83-bdf4-580c1d74af1a&lang=en

[207] BiH Indirect Tax Administration (ITA). ITA Rules and conditions. http://ca.uino.gov.ba/bs/dokumenti/UINO_CP_1_0_BS.pdf

[208] ITA. ITA certification price list. http://ca.uino.gov.ba/bs/usluge/cjenovnik.html

[209] "Registration Body", Ministry of Scientific and Technological Development, Higher Education and Information Society of the Republic of Srpska https://www.vladars.net/eng/vlada/ministries/MST/CA/about/regbody/Pages/default.aspx

[210] European Commission. (2016). Questions & Answers on Trust Services under eIDAS. https://digital-strategy.ec.europa.eu/en/news/questions-answers-trust-services-under-eidas

[211] The HTTPS-Only Standard. Does the US government operate a publicly trusted certificate authority. https://https.cio.gov/certificates/#does-the-us-government-operate-a-publicly-trusted-certificate-authority

DIGITAL GOVERNMENT: MANAGEMENT OF GOVERNMENT SYSTEMS

As in other sectors of society, polarized political interests have severely limited collaboration. In this case, the polarization has resulted in diverse, non-interoperable e-governance systems. Furthermore, polarization has led to a "piecemeal" approach in which international donors have a stake in where various virtual tools and services are set up. There have been, however, multiple attempts to make comprehensive reforms to these systems.[212] One idea that has been discussed has been a single, digitized "centralized public procurement module system" that serves all branches of the national government.

In BiH, the Ministry of Transport and Communications is responsible for core e-governance and digital transformation, and the Council of Ministers has some administrative support roles. In RS the Ministry of Scientific and Technological Development, Higher Education and Information Society is responsible for the e-government strategy.[213] In FBiH, the General Secretariat is responsible for implementation of some e-government services, such as implementation of a public key infrastructure. Otherwise, the Ministry of Justice and the Ministry of Transport and Communications are responsible for digital transformation.[214]

[212] Ibid.
[213] UNDP. (2020). Digital Transformation in The Public Sector in Bosnia and Herzegovina: Project Document, p. 5. https://info.undp.org/docs/pdc/Documents/BIH/Digital_transfromation_prodoc.docx.pdf
[214] USAID/BiH MEASURE-BiH. (2018). Assessment of Bosnia and Herzegovina - Governance and E-Administration. http://www.measurebih.com/uimages/MEASURE-BiH20E-Governance20E-Administration20Assessment20Final20Report2012Dec2018.pdf


Wishlist of Government Services for Digitalization
INDIVIDUALS
Births, deaths and marriage certificates
Personal income taxes
Social services and registration
Construction e-permit
Government employment portal
E-medical appointment scheduling
Cadasters
Citizens documents renewal (ID cards and passports)
Voter registration
Electronic employment booklet
School and university online application process (e-class)
Car registration
COMPANIES
Social support payments
Business registration
Cadasters
Certificate of paid tax dues
Construction e-permit

DIGITAL GOVERNMENT: ELECTRONIC VOTING

Electronic voting has not yet been implemented in BiH; however, initiatives to introduce electronic voting at voting sites recently were introduced. In June 2021, the Research Sector of the Parliamentary Assembly of BiH published a research brief, *Electronic Voting in Elections in Some European Countries and Brazil*,[215] to educate BiH parliamentarians on how this technology is applied in other countries.[216] The Election Law of BiH would have to be modified to allow fully electronic voting. Experts further believe that implementation of e-voting in BiH would have to be accompanied by an information awareness campaign.

The Central Election Commission (CEC) of BiH is also an advocate for the introduction of new technologies.[217] Furthermore, in December 2021 the Coalition for Free and Fair Elections Pod lupom conducted a campaign in more than 70 cities and municipalities in BiH, during which more than 70,000 citizens signed a petition calling for "prevention of election theft and fraud on election day by introducing electronic voter identification and ballot scanning machines."[218] According to the European Union, government officials in BiH have never seriously considered deploying voting machines to polling stations, because not all citizens have internet access, and many of the voters have low digital literacy levels, which could lead to confusion while using the machines.

High Representative Imposed Technical Changes to the Election Law

In July 2022, the High Representative of the International Community in BiH, Christian Schmidt, imposed technical changes to the election law that improve the integrity of the election process. including the introduction of technology to monitor the election process. The technical changes include the definition of the abuse of information services of public institutions for the election campaign. Also, technical amendments have recognized hate speech as strictly prohibited for election candidates, especially emphasizing hate speech that occurred via the internet and social media. Fines from 3,000 to 30,000 BAM are clearly stipulated for above mentioned violations.

The European Union did support development of a strategy for the CEC. Although it was not formally adopted, other donors began supporting aspects of the strategy, including ballot scanners and tablets used for voter identification and data transfer from polling stations. For example, the CEC introduced an SMS-based service for confirming the location of voters' polling stations, which has the aim of shortening the amount of time required to count ballots.

However, there are concerns related to digital voting. For example, violence against women increases during the election processes and, in most cases, is initiated by social network users (74.7 percent).

---

[215] BiH Parliamentary Assembly. (2021). Electronic voting in elections in some European countries and Brazil. https://www.parlament.ba/Publication/Read/18753?title=elektronsko-glasanje-na-izborima-u-pojedinim-evropskim-drzavama-i-brazilu&pageId=0&title=elektronsko-glasanje-na-izborima-u-pojedinim-evropskim-drzavama-i-brazilu&pageId=0

[216] BiH Parliamentary Assembly. (2021). Electronic voting in European countries and Brazil. https://www.parlament.ba/Publication/Read/18753?title=elektronsko-glasanje-na-izborima-u-pojedinim-evropskim-drzavama-i-brazilu&pageId=0&title=elektronsko-glasanje-na-izborima-u-pojedinim-evropskim-drzavama-i-brazilu&pageId=0

[217] Srpska Info. (2021). Kako izgleda elektronsko glasanje na izborima i zašto neke države dižu ruke od njega. https://srpskainfo.com/ovom-bih-tezi-kako-izgleda-elektronsko-glasanje-na-izborima-i-zasto-neke-drzave-dizu-ruke-od-njega/

[218] Coalition for Free and Fair Elections – Pod lupom. https://podlupom.org/v2/

Online psychological violence, however, is poorly regulated by the criminal codes in BiH.[219] And while not strictly a digital question, it is worth noting that in BiH, no other ethnicity besides Serbs, Croats, and Bosniaks are allowed to run for office.[220] This rule has remained in place, even after the European Court of Human Rights ruled in 2009 that the rule constitutes discrimination.

DIGITAL GOVERNMENT: ENGAGING CITIZENS AND ORGANIZATIONS

Political fractions in BiH typically pander to their respective ethnic groups. According to USAID/BiH's study on e-governance and e-administration, "Confrontation among diverging political interests has led to further fragmentation of e-governance systems and to a piecemeal approach among international development organizations and agencies, which have tried many times and at different levels to jump-start reform processes with little or no success."[221] Indeed, politicians in BiH promote and give credence to conspiracy theories.[222]

There is a consistent lack of a willingness to engage citizens and address media literacy, much less algorithmic transparency—which could help illuminate which opinions are held by people and those that are generated automatically by computers. Furthermore, citizens are lethargic and unmotivated to engage in civic or political activities, whereas their perception of NGOs acting as citizens' agents is generally poor.[223]

SMART CITIES

There are several smart city initiatives in BiH, with a diversity of governments and private-sector partners.

UNDP has supported smart city activities—for example, in Sarajevo and Banja Luka—through its Accelerators Lab. These have included efforts to leverage technology to improve public transportation, improve air quality, introduce smart parking, and more. In Banja Luka, one initiative implemented with the Ministry of Internal Affairs saw the installation of a camera at an intersection to catch people driving without a seat belt or speaking on their cell phones. Also, The Bit Alliance has collaborated with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) to implement smart city projects in Prijedor, Tešanj, Zenica, Zvornik, and Pale. EBRD is financing an active traffic management system with Sarajevo Canton that will enable traffic lights and tram systems to run more smoothly together.

In 2018, the City of Sarajevo signed an MOU with Huawei to implement smart city activities, including "comprehensive supervision projects, intelligent management systems, public safety systems and intelligent traffic control system."[224]. In 2021, Huawei organized a smart technologies road show through

---

[219] USAID/BiH MEASURE-BiH. (2019). Gender Analysis for Bosnia and Herzegovina: 2019 Follow-up. https://measurebih.com/uimages/Gender20Analysis20201920Follow-Up20Final20Report.pdf
[220] Bertelsmann Stiftung. (2022). The Bertelsmann Stiftung's Transformation Index (BTI). Bosnia and Herzegovina Country Report. https://bti-project.org/en/reports/country-report/BIH
[221] USAID/BiH MEASURE-BiH. (2018). Assessment of Bosnia and Herzegovina E-Governance and E-Administration. http://measurebih.com/assessment-of-bosnia-and-herzegovina-e-governance-and-e-administration-
[222] Zašto Ne. (2019). Disinformation in the Online Sphere the Case of BiH. p.16.
[223] USAID/BiH. (2021). 2020 National Survey of Citizens' Perceptions. http://measurebih.com/uimages/NSCP-BiH20202020Report.pdf
[224] Xinhua Silk Road Database. (2018). Huawei aids Bosnia and Herzegovina in building smart cities. https://en.imsilkroad.com/p/118790.html

several European cities, including Sarajevo and Banja Luka,[225] and sponsored trips to China and Dubai for two state ministers to see the company's latest innovations.[226]

Case Study: Proactive Local Communities

The mayor of Tešanj, a municipality of 43,000 people in the FBiH, captured the imagination of what effective leadership can do to advance BiH's digital ecosystem. The inhabitants of the municipality characterized Suad Huskić's approach as forward-thinking and highly communicative.

Despite the municipality's small size and financial difficulties, the mayor supported digital transformation of the municipal services, and the municipality became one of the most advanced in the digital domain. The municipality of Tešanj took the initiative and introduced a Document Management System (DMS) using their own funds several years ago. Since then, all internal communication between municipal staff has been switched to digital format. With the support of UNDP's Municipal Environmental and Economic Governance (MEG) project, the Municipality of Tešanj digitalized several e-citizen services, including online complaints - 48 hours, public hearings, e-forms, etc. In 2021, Tešanj won a smart city project financed by GIZ support and implemented in collaboration with the Bit Alliance and two IT companies. The smart city project includes the implementation of smart city solutions, such as "GoParking" and "Citizen Patrol." Local communities included in the project receive licenses to use the abovementioned digital solutions, including technical support for the project's duration.

Another bright example is the City of Prijedor, located in the RS, with more than 89,000 inhabitants. Their digitalization path started in 2008, when they adopted a local development strategy that defined IT infrastructure development as one of the key objectives. The City of Prijedor created several e-government processes, such as a virtual register where persons whose registries are kept in the City of Prijedor, including diaspora, can obtain excerpts from registries and proof of citizenship online. Similarly to the Municipality of Tešanj, Prijedor developed a DMS with support from a local company – the system helped them convert all requests into electronic format, enabling citizens and municipal staff to monitor the status of requests online. As part of the MEG project, they developed an online public debate, which has not been very popular among citizens compared to the platform for online complaints on infrastructural problems that the municipality must respond to within 48 hours.

Proactive local communities such as Prijedor and Tešanj face interoperability issues because of the absence of the DMS system at other levels of government that they share data with. In the context of e-government development, local communities recognized that sharing information between institutions at different government levels is a fundamental aspect that all institutions should recognize.

TRAFFICKING IN PERSONS

BiH is a country of origin, destination, and transit of trafficked persons. Victims of human trafficking in BiH are forced to commit criminal acts, exploited for sex, and forced into manual labor exploitation, domestic service, child pornography, and forced marriage.[227] Most of the identified potential victims of

[225] Nemanja V. (2021). Huawei in Banja Luka and Sarajevo showed the future of smart technology. www.nezavisne.com, https://www.nezavisne.com/nauka-tehnologija/internet/Huawei-u-Banjaluci-i-Sarajevu-pokazao-buducnost-pametne-tehnologije/696623

[226] Zoric, T. (2022). Huawei paid for the trip to two state ministers and invited them to presentations. https://detektor.ba/2022/01/07/huawei-placao-put-dvojici-drzavnih-ministara-i-pozivao-ih-na-prezentacije/

[227] Council of Ministers of BiH. (2020). Strategy for Combating Human Trafficking in BiH 2020-2023. http://msb.gov.ba/PDF/290120205.pdf

human trafficking in BiH are children who are citizens of BiH.[228] BiH does not meet the standards for the elimination of trafficking, yet it is making efforts to comply with the minimum standards.[229]

The BiH Strategy for Combating Human Trafficking (2020–2023) recognizes the role of the digital environment in the exploitation of female and male minors for pornography.[230] However, DECA KIs perceive that digital tools are widely used by the perpetrators for other forms of human trafficking as well, specifically for identification and communication with (potential) victims. Unfortunately, however, there is no comprehensive study that has assessed and captured the use and role of digital tools in trafficking persons in BiH. Yet the digital environment continues to pose a security risk, especially among those with lower digital literacy, including children. According to a Save the Children study, almost every second child in BiH received a message or accepted unknown persons as friends on social networks, slightly less than one-third of children corresponded with strangers, and 11.4 percent of children agreed to meet unknown persons they met online.[231]

The government's capacity to effectively address cybercrime, including online child sexual abuse, remains modest.[232] In October 2021, the Government of FBiH adopted a strategic program for the safety of children in the digital environment for the 2021–2024 period that aims to ensure the protection of the youngest members of the population from risks in the online world.[233] The program does not refer to human trafficking only but, rather, to all types of online child victimization. The Action Plan adopted as part of the program envisages improvements in the current legislation, institutional capacities and cooperation, prevention, and responsive measures related to online child abuse.[234] However, while none of the activities outlined in the Action Plan have been implemented thus far, some of the activities envisaged by the Action Plan exist in RS. For example, the Action Plan for FBiH includes activities related to the establishment of a CERT for FBiH, strengthening digital literacy through a regular school curriculum, and establishing a register of pedophiles in FBiH,[235] all of which are already implemented in RS.

CSOs and the international community are heavily engaged in preventing sexual exploitation and abuse of children in the digital environment. A consortium for child protection in BiH, consisting of UNICEF,

---

[228] GRETA. (2022). Evaluation Report: BiH – Third Evaluation Round: Access to Justice and Effective Remedies for Victims of Trafficking in Human Beings. https://rm.coe.int/greta-evaluation-report-bosnia-and-herzegovina-3rd-evaluation-round/1680a70b3b

[229] U.S. Department of State. (2021). 2021 Trafficking in Persons Report: BiH. https://www.state.gov/reports/2021-trafficking-in-persons-report/bosnia-and-herzegovina/

[230] Council of Ministers of BiH. (2020). Strategy for Combating Human Trafficking in BiH 2020-2023. http://msb.gov.ba/PDF/290120205.pdf

[231] Save the Children. (2016). Behavior and Habits of Children on the Internet: Attitudes of Children, Parents, and Computer Science Teachers. https://nwb.savethechildren.net/sites/nwb.savethechildren.net/files/library/Izvjestaj-ponasanje-djece-na-internetu.pdf

[232] European Commission. (2021). Commission Staff Working Document: BiH 2021 Report. 2021 Communication on EU Enlargement Policy. https://ec.europa.eu/neighbourhood-enlargement/bosnia-and-herzegovina-report-2021_en

[233] End Violence Against Children, Save the Children, HO International Forum of Solidarity-Emmaus, UNICEF. (2021). Strategic Program: Children Safety in Digital Environment in FBiH (2021-2024). https://nwb.savethechildren.net/sites/nwb.savethechildren.net/files/library/Knjiga%20Strate%C5%A1ki%20Program%20WEB.pdf

[234] Ibid.

[235] In July 2022, the House of Peoples of the Parliament of FBiH adopted draft amendments to the FBiH Criminal Code that will enable the establishment of a registry of pedophiles in FBiH. A forensic DNA database at the state level has yet to be established.

Save the Children, and IFS-EMMAUS, established the Safer Internet Center in BiH and introduced a web platform, helpline, and hotline for reporting illegal content in the online environment (e.g., child abuse, online child sexual abuse material, inappropriate online communication, child trafficking cases). This still does not meet the EU expectation that BiH establish a coordination office to work with the European Multidisciplinary Platform against Criminal Threats, which would seek to counter all forms of cybercrime, including trafficking.[236]

The UN's International Organization for Migration (IOM) has worked to leverage technology to counter the serious problem of trafficking of persons in BiH. With USAID support, they first created a database of all trafficking victims and perpetrators in BiH and made it available to police officers working on trafficking cases. Over time, they have improved the platform to enable NGOs working to counter trafficking to enter data as well. IOM also created a web and mobile Tool for Vulnerability Assessment and made it available for both Android and iOS mobile operating systems. The tool enables for people to report situations they observe where they believe someone is being trafficked.

Despite these efforts, the number of convictions for online sexual trafficking or exploitation in BiH are still low. In 2020, police identified 70 potential trafficking victims, and courts convicted only 34 perpetrators. The European Union believes that BiH laws need to be further aligned with the EU acquis to increase the impact of law enforcement on the problem of cyber-trafficking.

[236] European Commission. Bosnia and Herzegovina Report 2021. https://neighbourhood-enlargement.ec.europa.eu/bosnia-and-herzegovina-report-2021_en

PILLAR 3: DIGITAL ECONOMY

Digital economy assesses the role of digital technology in economic activities. It explores the use of digital technologies in the financial, trade, and fintech environment. This pillar also examines the availability and characteristics of the country's digital talent pool and its role in shaping the digital economy.

KEY FINDINGS

Modest digital transformation hinders accelerated private-sector growth: Development of BiH's digital economy is limited by a persistently low level of technology adoption and digitalization in both the public and private sectors, as well as by high levels of emigration. Despite a significant growth of the ICT industry, the domestic economy overall is not sufficiently leveraging new technologies and innovations so that businesses increase their competitiveness. Furthermore, schools and company worker training programs are not producing enough qualified IT workers to meet the continuously increasing demand. The COVID-19 pandemic highlighted the need for an accelerated digital transformation in all industries, and the digitalization of business is justifiably seen as driving change in business and consumer behavior and offering new growth prospects.

BiH is a net exporter of digital talent: Despite government inaction and policy failures, BiH is a net exporter of talent, predominantly because of the leadership of private IT companies and (some) higher education institutions in workforce training, which has enabled BiH IT companies to find their place in international IT service markets.

Dynamic IT sector: The IT sector in BiH is one of the fastest-growing sectors. Employment in this sector increased by 67 percent from 2015 to 2020,[237] and in 2020 it accounted for 4.5 percent of BiH's GDP.[238] The question for policymakers and donors is how they can help the rest of the economy benefit from this growth.

Challenges to expansion of digital financial services (DFS): The barriers to expanding the uptake of DFS in BiH include its challenging topography; the prevalence of traditional social and financial structures that depend on community- and cash-based networks; low trust in digital platforms; low digital literacy; and low levels of financial inclusion.

Recent policy changes bode well for digitalization: Both the FBiH government and the Indirect Tax Authority have taken recent steps to make digital documents and signatures and digital processes to be the norm. These steps are expected to lead consumers to increase their use of digital services.

[237] German Cooperation Office (GIZ) in BiH. (2020). Innovation and digitalization in SMEs in Bosnia and Herzegovina. https://b2bit.ba/wp-content/uploads/2020/04/Innovation_and_digitalisation_in_SMEs_in_BH_BASELINE_STUDY_V2.pdf
[238] Agency for Statistics of BiH. (2021). Gross Domestic Product of BiH 2020: Production Approach. https://bhas.gov.ba/data/Publikacije/Saopstenja/2021/NAC_02_2020_Y1_0_BS.pdf

DIGITAL TRANSFORMATION CHALLENGES FOR BUSINESSES

The digital transformation of BiH businesses is at a very early stage. Approximately 63 percent of all enterprises have a website. Unsurprisingly, 89.5 percent of large and 78.6 percent of medium-sized enterprises have websites, compared to 58 percent of small businesses.[239] Although the level of internet usage among enterprises is high (99 percent have internet access),[240] the share of medium-to-high, value-added and technology products is low, with the economy's innovation performance[241] experiencing a decrease over the last two years.[242] Companies have varying capacities to pursue digitalization on their own. Many have low capacities and imperfect access to information and a lack of understanding of how digitalization might affect their business models. Only 15 percent of businesses employ ICT professionals (15.4 percent in RS;[243] data for FBiH are unavailable),[244] while 11 percent of companies have employees responsible for digitalization and a team responsible for digital transformation.[245] At the same time, only 12 percent of enterprises organize and deliver training to improve the ICT skills of their employees.[246] In 2020, the COVID-19 pandemic wreaked havoc on the BiH economy, causing a 5.5 percent decrease in GDP and the first decrease in fiscal revenues since 2009.[247] In that year, 20 percent of businesses sold their products online, and 11 percent of businesses reported that they had increased their efforts to sell goods or services online because of the pandemic.[248]

While government officials interviewed shared that they are aware of the importance of innovation capacity and its direct link to improved economic performance, the government in BiH (at any level) has not made any major investments in building up innovation capacity. The authorities' unresponsiveness towards the ICT-centric innovation ecosystem is recognized as a major threat to the digital ecosystem in BiH.[249] In the Global Innovation Index for 2021, an index that measures an economy's innovative capacity and output, BiH was ranked 75th out of 132 countries; neighboring Croatia, Montenegro, and Serbia ranked 42nd, 50th, and 54th, respectively.[250] The country's poor index ranking stems from modest scores obtained across all seven index pillars,[251] with business sophistication and creative

---

[239] Agency for Statistics of BiH. (2021). Gross Domestic Product of BiH 2020: Production Approach. https://bhas.gov.ba/data/Publikacije/Saopstenja/2021/NAC_02_2020_Y1_0_BS.pdf

[240] Agency for Statistics of BiH. (2021). Usage of information and communication technologies in enterprises. https://bhas.gov.ba/data/Publikacije/Saopstenja/2021/IKT_04_2021_Y1_0_BS.pdf

[241] While not a formal term, the European Commission in this report explains that it considered BiH's "preparations of industry towards a green, digital transformation and global competitiveness in line with the EU industrial strategy" when evaluating the country's innovation performance.

[242] European Commission. (2021). Bosnia and Herzegovina Report. p. 89. https://ec.europa.eu/neighbourhood-enlargement/bosnia-and-herzegovina-report-2021_en

[243] RS Institute of Statistics. (2021). Statistical Yearbook of RS, 2021. https://www.rzs.rs.ba/static/uploads/bilteni/godisnjak/2021/StatistickiGodisnjak_2021_WEB_II.pdf

[244] Agency for Statistics of BiH. (2020). Usage of information and communication technologies in enterprises. https://bhas.gov.ba/data/Publikacije/Saopstenja/2020/IKT_04_2020_Y1_0_BS.pdf

[245] Association for Digital Transformation in BiH. (2021). Studija o digitalnoj transformaciji kompanija u BiH. https://www.udt.ba/wp-content/uploads/2021/11/Studija_final.pdf

[246] Agency for Statistics of BiH. (2020). Usage of information and communication technologies in enterprises. https://bhas.gov.ba/data/Publikacije/Saopstenja/2020/IKT_04_2020_Y1_0_BS.pdf

[247] https://bti-project.org/en/reports/country-report/BIH

[248] Agency for Statistics of BiH. (2021). Usage of information and communication technologies in enterprises 2021. https://bhas.gov.ba/data/Publikacije/Saopstenja/2021/IKT_04_2021_Y1_0_BS.pdf

[249] BiH Official Gazette, No. 46/17. https://docs.rak.ba/articles/aa3ed3af-d56e-4b8b-a62e-6816c2440397.pdf

[250] Cornell University, INSEAD, and WIPO. (2020). Global Innovation Index 2021. https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2021.pdf

[251] Institutions, Human Capital and Research, Infrastructure, Market Sophistication, Business Sophistication,

Example of Donor Support for Business Digital Transformation

UNDP's DigitalBIZ project introduced Digital Pulse, a self-assessment online tool that enables companies that want to digitalize to assess their current digital performance and provides recommendations for the immediate steps to consider in addressing the identified digital gaps.

outputs assessed as the least developed. For example, only about one-third of BiH enterprises introduced new or significantly improved products, services, or delivery processes in the last three years. Most of these (59 percent) were new only for the enterprises that introduced them, whereas they already were available in the market.[252] Almost two-thirds of companies (62 percent) do not have a strategy for innovation, and only 16 percent have a research and development strategy.[253] As a result, BiH lags behind most Western Balkan and European countries; only Albania ranked lower when the Global Innovation Index for 2021 was assessed.[254]

Public and donor support for innovation in BiH is not substantial. Expenditures for research and development amounted to only 0.2 percent of the country's total GDP in 2020, half of which was spent by higher education institutions (56 percent), followed by the business (39 percent) and government sectors (5 percent).[255] The biggest portion of the funds invested in research and development in the business sector comes from enterprises' own resources (52 percent), followed by resources from the private nonprofit sector (41 percent), government resources (4 percent), and funds from abroad (3 percent).[256] According to a Regional Cooperation Council (RCC) study, only 33 percent of BiH enterprises received financial support for innovation activities from government authorities at any level.[257] Likewise, only 21 percent of enterprises are satisfied with support for innovative ideas from public sources.[258] However, enterprises view the current level of collaboration between universities and businesses seeking to solve practical problems as insufficient to strengthen innovation capacity in the country.[259] They believe collaboration between universities and private sector has the greatest potential to drive innovation, and since it is underutilized, the level of innovation in BiH is lower than it otherwise might have been.

The level of adoption of advanced digital technologies is relatively low and uneven, with digital channels used predominantly for social media (73 percent) and mobile services (46 percent).[260] As Exhibit 10

Knowledge and Technology Outputs, and Creative Outputs

[252] Regional Cooperation Council. (2022). Balkan Barometer – Private Sector Opinion. https://www.rcc.int/download/docs/Balkan%20Barometer%202022%20-%20BO.pdf/56acb2cb729b5f1a74308ea7052bda10.pdf

[253] Association for Digital Transformation in BiH. (2021). Studija o digitalnoj transformaciji kompanija u BiH. https://www.udt.ba/wp-content/uploads/2021/11/Studija_final.pdf

[254] Cornell University, INSEAD, and WIPO. (2020). Global Innovation Index 2021. https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2021.pdf

[255] Agency for Statistics of BiH. (2022). Science, Technology, and Digital Society: Research and Development, 2020. https://bhas.gov.ba/data/Publikacije/Saopstenja/2022/RDE_01_2020_Y1_1_BS.pdf

[256] Ibid.

[257] Regional Cooperation Council. (2022). Balkan Barometer – Private Sector Opinion. https://www.rcc.int/download/docs/Balkan%20Barometer%202022%20-%20BO.pdf/56acb2cb729b5f1a74308ea7052bda10.pdf

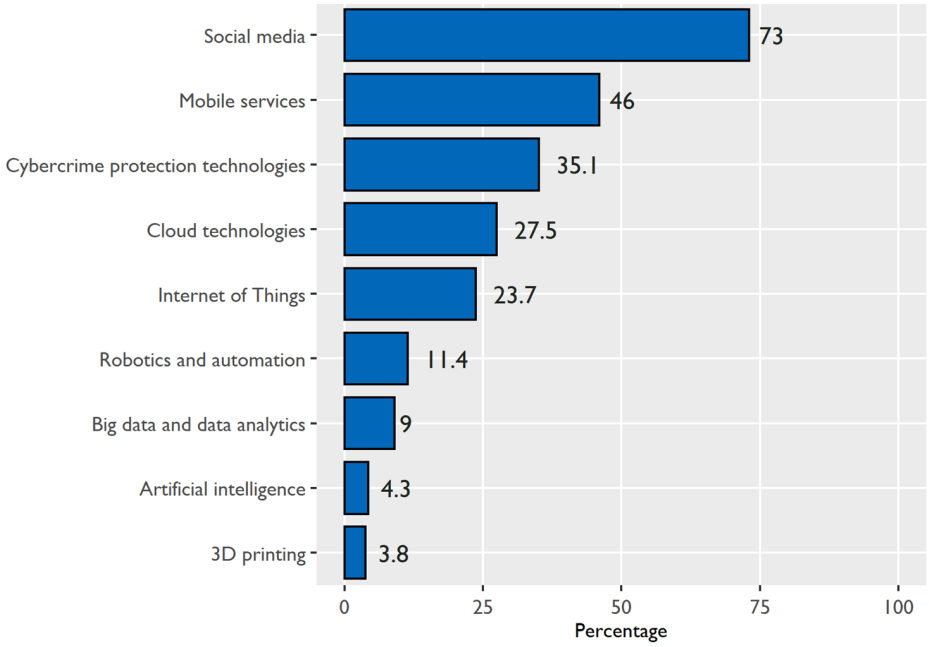
[258] Ibid.

[259] Ibid.

[260] Association for Digital Transformation in BiH. (2021). Studija o digitalnoj transformaciji kompanija. https://www.udt.ba/studija-o-digitalnoj-transformaciji-kompanija-u-bosni-i-hercegovini-i-faza/

shows, one in three enterprises in BiH invests in technology for cyber-protection, whereas about 75 percent of businesses in BiH stated that they did not experience any internet security problems.[261] About 19 percent of companies have had security issues caused by viruses; 7 percent, by attacks on the network; 8 percent, by ID misrepresentation or theft; and 4 percent, by illegal access to the network.[262]

Exhibit 10. Digital technologies used by BiH companies



Source: Association for Digital Transformation in BiH.

According to a study conducted by GIZ that focused on the tourism sector and the wood and metal processing sectors, subject-matter experts (SMEs) operating in these sectors have the greatest need for support in improving and digitalizing their business models, digitalizing their products and/or services (e.g., introducing a new product with an integrated digital solution), improving their digital marketing, and building digital technology skills among their employees (Exhibit 11).[263] A need for improving digital marketing is especially important among tourism organizations. Whereas some organizations invested heavily in their online presence, others have an almost invisible online presence and need support in

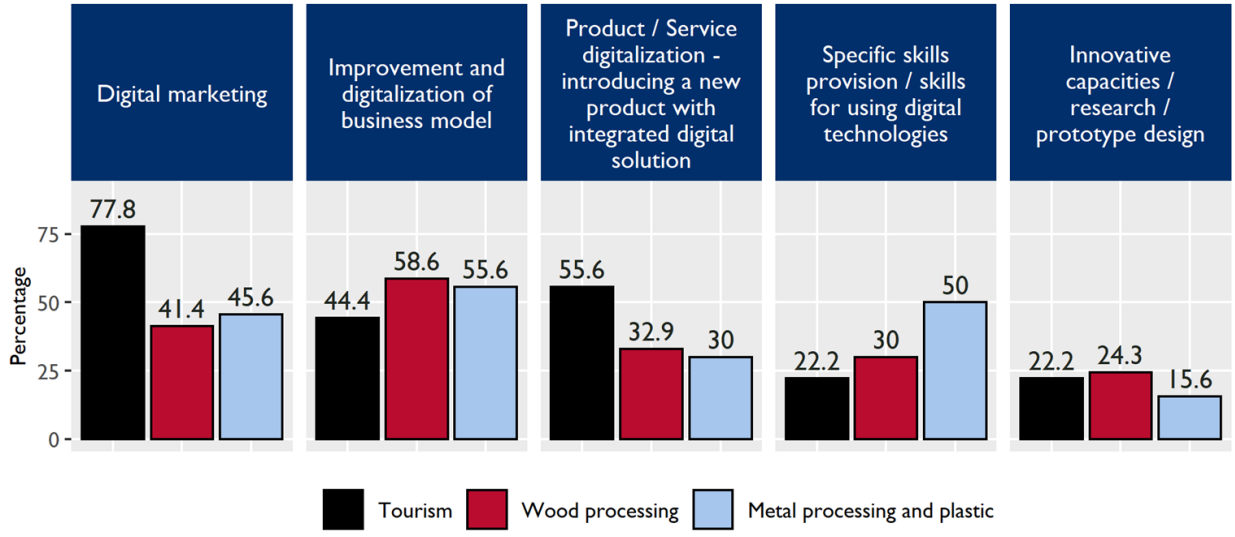
[261] Regional Cooperation Council. (2022). Balkan Barometer 2022 – Private Sector Opinion. https://www.rcc.int/download/docs/Balkan%20Barometer%202022%20-%20BO.pdf/56acb2cb729b5f1a74308ea7052bda10.pdf

[262] Ibid.

[263] GIZ. (2020). Innovation and Digitalisation in SMEs in BiH: Baseline Study. https://b2bit.ba/wp-content/uploads/2020/04/Innovation_and_digitalisation_in_SMEs_in_BH_BASELINE_STUDY_V2.pdf

creating and managing targeted, measurable, and conversion-driven social media posts and campaigns.[264,265,266,267,268]

Exhibit 11. Areas in which support with digitalization is needed



Source: GIZ.

Although local IT companies could help fill in the identified "digital gaps of SMEs in BiH, cooperation between the growing IT sector and other industries is relatively low. Thus far, only a small portion of IT companies (26 percent) have developed a product/service for local SMEs, whereas the estimates show that, even if the IT sector becomes more oriented to local SMEs as potential customers, the majority of their work will remain focused on the market (58 percent).[269]

USAID support digital transformation in the tourism sector

USAID/BiH, through its five-year Sustainable Economic Growth Activity in BiH (Turizam), is launching a digital transformation initiative for the tourism sector. With tourism boards, clusters. and collaborating partners, Turizam transfers innovations in online marketing and social media campaigns through training and deploys matching marketing campaign funds close to $1 million.

Despite its importance for the economy, digitalization does not have a prominent place in the relevant government strategic documents that define policies and guidelines for the development of reforms. Additionally, business support services and products are limited, which is especially pronounced in the area of support for business digitalization and other business innovations.[270] However, some progress

[264] USAID. (2021). Digital Revolution Marketing and Social Media Campaign Plans: Tourism Organization Republika Srpska.
[265] USAID. (2021). Digital Revolution Marketing and Social Media Campaign Plans: Tourist Board of Herzegovina and Neretva.
[266] USAID. (2021). Digital Revolution Marketing and Social Media Campaign Plans: Trebinje Tourism Office.
[267] USAID. (2021). Digital Revolution Marketing and Social Media Campaign Plans: Tourism Organization of Tuzla.
[268] USAID. (2021). Digital Revolution Marketing and Social Media Campaign Plans: Visit Sarajevo.
[269] Ibid.
[270] DigitalBIZ Project. (2021). Digitalna transformacija u poslovnom sektoru (DigitalBIZ) - O nama.

The role of digital innovation hubs in strengthening digital transformation

There are few digital innovation hubs (DIB) in BiH that serve as one-stop-shops that help companies become more competitive in their business and production processes, products, or services using digital technologies. These include: INTERA Technology Park in Mostar, HUB387 Sarajevo, LabHub Sarajevo, and Onex Banja Luka. The Innovation Center Banja Luka - ICBL - manages a business incubator where approximately 80 percent of start-up companies are in the ICT sector, the rest are in different business service provision sectors. The Business Innovation and Technology (BIT) Center in Tuzla is an incubator that provides hard and soft infrastructure for ICJ-based startups and SMEs. Since 2005, it has hosted over 53 companies, employed more than 500 highly skilled individuals and has enabled more than 6,000 people to improve technical and entrepreneurial skills through workshops and training programs.

has been made. For example, the RS Ministry of Scientific and Technological Development, Higher Education and Information Society, the RS Ministry of Economy and Entrepreneurship, the RS Chamber of Commerce, Banja Luka Innovation Center, and GIZ established a network for digital transformation of the economy in RS in late 2019. As part of this initiative, the Center for Digital Transformation of the Chamber of Commerce of the RS was founded and modeled after the Center for Digital Transformation in Serbia. The center aims to support businesses in applying digital solutions in their business processes to increase the competitiveness of the economy. GIZ works on the same initiative in Tuzla Canton as well.

E-COMMERCE

E-commerce, while small, is undoubtedly growing in BiH. In 2020, 17 percent of businesses sold goods online and realized a 5 percent increase in business.[271] However, for the majority of companies engaged in e-commerce (88 percent), the online sale of goods and services accounts for less than 50 percent of total sales,[272] and approximately 70 percent of online merchants also have a physical store. In 2021, only 16 percent of small enterprises (10–49 employees) had online shops compared to 23 percent of medium-sized enterprises (50–249 employees) and 25 percent of large companies (250+ employees).[273] Companies offering accommodation services and food (44 percent) and repair and maintenance of computers and communication equipment (43 percent) have online sales more often than enterprises engaged in other activities.[274] On the other hand, only 2 percent of companies engaged in electricity, gas, steam, and water or wastewater management, and 6 percent of real estate companies sell their goods or services online.[275] The extent of online sales to external markets is limited. Whereas 94 percent of companies that were engaged in e-commerce sold their goods or services locally in 2020, only 31 percent made sales to EU countries and 18 percent to non-EU countries.[276] The situation is somewhat worse when only SMEs are considered: In 2020, only 9 percent of small businesses and 12

(https://digitalnaekonomija.ba/bs-Latn-BA/about)

[271] Agency for Statistics of BiH. (2022). Use of Information and Communication Technology in BiH, 2021. https://bhas.gov.ba/data/Publikacije/Bilteni/2022/IKT_00_2021_TB_1_BS.pdf

[272] Regional Cooperation Council. (2022). Balkan Barometer 2022 – Private Sector Opinion. https://www.rcc.int/download/docs/Balkan%20Barometer%202022%20-%20BO.pdf/56acb2cb729b5f1a74308ea7052bda10.pdf

[273] Agency for Statistics of BiH. (2022). Use of Information and Communication Technology in BiH, 2021. https://bhas.gov.ba/data/Publikacije/Bilteni/2022/IKT_00_2021_TB_1_BS.pdf

[274] Ibid.

[275] Ibid.

[276] Ibid.

percent of medium enterprises sold their goods over online platforms to EU countries.[277] These data indicate that smaller companies are struggling to implement online platforms necessary to reach broader EU markets. Yet more than half (65 percent) of online sales in 2021 were made to the foreign market.[278] Online sale of goods is challenged by courier service costs defined by the Law on Post Offices of BiH. According to the law, a minimum tariff for courier services is 9.01 BAM (almost 5 USD),[279] which hinders the cost-effectiveness of online sale of low-cost products. International shipping fees are very high, and complex export procedures make the sale of goods to international buyers, such as the European Union or the United States, highly inefficient and uncompetitive.

Data presented by the eCommerce Association of BiH show positive trends, even in the face of COVID-19 challenges. Between January 2020 and November 2021, the number of new online stores increased by 35 percent.[280] The transaction volume increased by 350 percent, and the number of transactions increased by 400 percent.[281]

The popularity of e-commerce is fast growing in BiH. E-commerce trading platforms, such as OLX, have seen a major increase in popularity. When comparing the number of products sold from March 2020 to March 2021, sales increased from 3,169,750 articles to 4,318,754 articles, a 36 percent increase.[282] However, according to NSCP-BiH data, in 2021, only 39 percent of BiH citizens bought goods from online stores of companies registered in BiH, 24 percent of citizens bought goods online outside of BiH, 20 percent bought services online, and only 16 percent used PayPal or other online payment methods.[283] Men, more often than women, tend to buy goods online. Additionally, buying merchandise online is more common among young people than adults. However, the largest discrepancies in purchasing goods online are among citizens with different education levels and household income. According to the multiple regression analysis run by the DECA team, education level is a predictor of the use of e-commerce services. Specifically, the more educated an individual is, the more likely it is for them to use e-commerce services. For example, citizens with a university diploma are almost two times more likely to buy goods and services online and almost three times more likely to use PayPal or other online payment methods compared to citizens with a secondary school diploma. Likewise, whereas the majority of citizens with a household income exceeding 3,000 BAM per month buy goods online in BiH (82 percent), every second citizen coming from a household with a monthly income of 1,001–3,000 BAM and every fourth citizen coming from a household with a monthly income of up to 1,000 BAM buy goods online in BiH (Exhibit 12).[284]

---

[277] Association for Digital Transformation in BiH. (2021). Study of Digital Transformation of Companies in BiH. https://www.udt.ba/wp-content/uploads/2021/06/Study-on-DT-in-BiH-phase-I-FINAL-web.pdf

[278] Central Bank of BiH. (2022). Payment systems in BiH in 2021. https://www.cbbh.ba/content/DownloadAttachment/?id=0c3f6563-7f6d-4f44-b9b1-057e75fb2a92&langTag=bs

[279] Official Gazette of BiH, No. 33/05

[280] *eCommerce Association in BiH*. (2022). https://e-comm.ba/

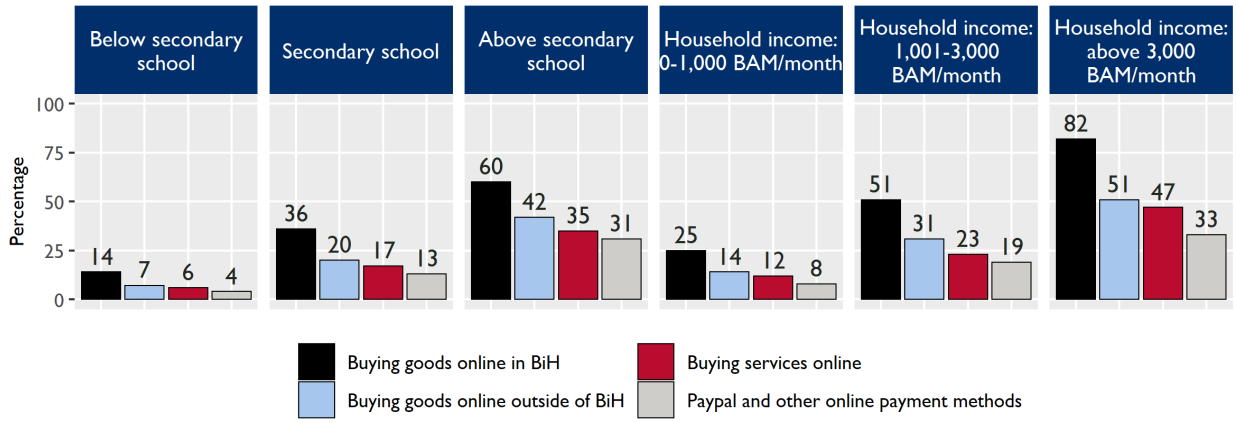
[281] Ibid.

[282] Blog.olx.ba. (2021). E-commerce in BiH. https://blog.olx.ba/2021/05/21/e-commerce-u-bih/

[283] USAID. (2022). National Survey of Citizens' Perceptions in BiH, 2021.

[284] Ibid.

Exhibit 12. Use of e-commerce in BiH



Source: National Survey of Citizens' Perceptions in BiH (2021).

DIGITAL FINANCIAL LITERACY

Digital financial services are not used often by BiH citizens. Socio-economic conditions, coupled with modest financial literacy, are the primary factors that impede greater financial inclusion of BiH citizens.[285] In 2021, almost 2 million debit cards were in use;[286] however, only 9.7 percent of the population had a credit card.[287] Both debit and credit cards are most often used to make payments in super/hypermarkets[288] and in clothing/shoe stores, and to withdraw cash at banks/ATMs. In addition, every second debit card holder uses their card when making payments at gas stations, whereas one in two credit card holders uses a credit card to buy furniture or some technical equipment.[289] However, only 33 percent of citizens (34 percent of men and 31 percent of women) use a credit card for everyday payments, such as for groceries.[290] Likewise, every third BiH citizen uses online banking services (33 percent of men and 31 percent of women) and pays bills online (27 percent of men and 24 percent of women).[291] As with e-commerce services, more educated citizens are more likely to use DFS. Specifically, highly educated citizens are almost ten times more likely to use a credit card and online banking, and to pay bills online, compared to those with no secondary school diploma.[292] Yet according to data published by the Central Bank of BiH, only 39 percent of e-banking users were actively using the service in 2021.[293]

[285] Mastercard. (2022). MasterIndex 2022: BiH, Results on use of payment cards and online payments.
[286] Central Bank of BiH. (2022). Card Operations in BiH: 2021. https://cbbh.ba/press/ShowNews/1428?title=Karti%C4%8Dno-poslovanje-u-BiH-u-2021.:-Pove%C4%87anje-broja-aktivnih-kartica,-vrijednosti-i-broja-transakcija
[287] Center for Open Access in Science. (2021). Digital Literacy, Education and Employment Status: Evidence from Bosnia and Herzegovina https://centerprode.com/ojss/ojss0502/coas.ojss.0502.03071h.pdf
[288] Hypermarkets are large stores (larger than supermarkets) that offer a variety of products at their original or discounted prices.
[289] Ibid.
[290] USAID. (2022). National Survey of Citizens' Perceptions in BiH, 2021.
[291] Ibid.
[292] Ibid.
[293] Central Bank of BiH. (2022). Payment systems in BiH in 2021. https://www.cbbh.ba/content/DownloadAttachment/?id=0c3f6563-7f6d-4f44-b9b1-057e75fb2a92&langTag=bs

Online payments have been increasing in the last three years by an average rate of 11.6 percent.[294] The new "normal" environment brought about by the COVID-19 pandemic is perceived to have contributed to an increase in online payments. In addition, withdrawing cash from ATMs continues to increase by 8.2 percent annually, on average.[295] However, the former trend of strong traffic growth at point-of-sale (POS) terminals decreased with the pandemic; using POS for making payments dropped by almost 8 percent in 2021.[296]

Modest financial and digital literacy hinder the accelerated expansion of DFS. Citizens are mostly concerned about someone else misusing their personal data and the security of online payments when engaging in online banking or buying merchandise online.[297] Low trust in online services and limited knowledge of technology indicate why the digital marketplace in BiH is a hybrid-mode marketplace in which sales are digital but the final stage is door-to-door delivery service with payment on delivery. (Fifty percent of e-commerce activities end with payment on delivery.)[298] The NSCP-BiH also found that 56 percent of all respondents think it is unsafe to enter confidential information online.[299]

ONLINE SHOPPING AND CONSUMER BEHAVIOR

Among online shoppers, use of courier services that offer expeditious door-to-door delivery and payment collection as one service is very popular. Couriers even provide services that let buyers open a package and inspect the product before they pay for it. Importantly, no credit card is necessary to use these services, which also contributes to the popularity of these services. The big players are Post.ba, EuroExpress, X Express, In-time, and A2B, all of which provide a door-to-door delivery and payment collection for a relatively low fee that ranges between approximately 5 and 9 USD.

Indeed, people still prefer to pay for their online purchases in cash. The reason for the low number of people who pay for goods on digital platforms is that they do not trust these technologies. According to a 2019 World Bank study of DFS in the Western Balkans implemented by Cambridge University, 77.7 percent of people who made online purchases paid for them in cash.[300] Additionally, it is still not possible for consumers to pay most of their bills online, though energy companies continue to encourage people to switch to electronic billing.

When it comes to digital money and online transfers, few local banks have created digital payment services as part of their mobile banking system. One example is mCash[301] from Sberbank.ba. However, the popularity of these systems is very low because they require a bank account and visits to an ATM to withdraw cash based on a unique transaction PIN.

---

294 Ibid.
295 Ibid.
296 Ibid.
297 2022 Balkan Barometer, https://www.rcc.int/download/docs/Balkan%20Barometer%202022%20-%20PO.pdf/21e2192c1d34cc6194ecb029d7b5997f.pdf
298 Mastercard. (2022). MasterIndex 2022: BiH, Results on use of payment cards and online payments.
299 USAID. (2022). National Survey of Citizens' Perceptions in BiH, 2021.
300 "Fintech Innovation in the Western Balkans: Policy and Regulatory Implications & Potential Interventions" https://www.jbs.cam.ac.uk/wp-content/uploads/2020/08/2020-ccaf-fintech-innovation-western-balkans.pdf
301 Sberbank.ba. mCash User Manual. https://sberbank.ba/upload/docs/korisnicko_uputstvo_za_uslugu_mcash_Oyy.pdf

PAYMENT SYSTEMS

Currently, there are few online payment gateways in BiH. The two leading online payment getaways are Monri (WebPay) and WSPay. Both of these gateways offer integration to checkout shopping carts in e-shops. The Monri company is part of the Payten Group, which is also one of the largest POS terminal providers for traditional shops. Two other getaways are owned by banks; the RaiffeisenBank - ePay[302] and Unicredit - pay@web[303] provided as services by local banks. Most banks have implemented 3D secure service as part of their credit card protection for online payments. A 3D secure program is the global standard for verifying customers' identities in the system of secure internet transactions. Additionally, the customer is required to verify their identity as a confirmation that they are the authorized card holder.[304]

With regards to payment systems, the Central Bank of BiH (CBBH) has operated a modern payment system since introducing the new gyro clearing system in 2019. All interbank transactions of up to 10,000 BAM (approximately 5,800 USD)[305] are conducted through this system. Looking to the future, BiH needs to adopt legislation to align with the EU acquis (Payment Service Directive II, the Electronic Money Directive II, and the Single Euro Payments Area [SEPA] Regulation) to be able to accede to the SEPA schemes for communities of banks or financial institutions outside the European Economic Area.

Currently, it is not possible to pay for government services with a credit card. When payments are made to government accounts, public revenue payment slips—a special method of payment—are used. They require additional information, including the budget allocation code, city code, reference numbers, and citizen ID number, all of which are defined by instructions for allocating budget funds developed by multiple ministries of finance. All these codes need to be provided for payments to be allocated to the appropriate government institution. In addition, government institutions often require copies of payment slips to be enclosed as part of the application process. Because there is no electronic payment system in place for public service delivery, there are no fully digitalized public services. All services require citizens to appear in person (multiple times) at relevant administrative points across the system.

Since 2002, a number of local banks have joined in the creation of the payment processor center called BamCard.ba. BamCard is the only clearinghouse and processing center that supports banks' card businesses in BiH. They also provide additional services, such as the personalization of credit cards. The majority of larger internationally owned banks use card processing centers outside BiH as part of their global business practices.

The latest newcomer in digital services is OPA (Online Payment Platform). The OPA was created in 2019 as a joint venture of BH Telecom, Raiffeisen bank, Comtrade, and QSS.[306] BH Telecom is trying to promote this payment platform as part of its online services with limited success. The platform includes

---

[302] Raiffeisen bank BH. Spisak trgovaca e-pay. https://rbbh-aa0d.kxcdn.com/sites/default/files/dokument-u-tekstu/Spisak%20e-pay%20052020.pdf

[303] Unicredit Bank BH. E-commerce. https://www.unicredit.ba/en/poduzetnici/proizvodi_i_usluge/karticno_poslovanje.html

[304] More information is available here: https://www.youtube.com/watch?v=2kc-FjU2-mY

[305] Where appropriate, amounts in Bosnian BAM were converted to USD using the BiH Central Bank official exchange rate for December 31, 2021 (BAM:USD 1.726). https://www.cbbh.ba/CurrencyExchange/?lang=hr

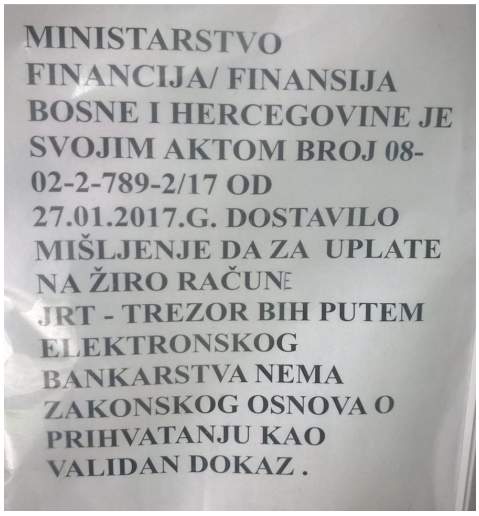
[306] Al Jazeera Balkans. OPA, a unique payment platform, introduced. Al Jazeera Balkans. Published on: December 5, 2019. https://balkans.aljazeera.net/news/economy/2019/12/5/predstavljena-opa-jedinstvena-platforma-za-placanje

online payment, money transfer, and mobile applications on Android and IOS devices but requires a link to a checking account at Raiffeisen bank.

The 2022 MasterIndex, an annual survey of Mastercard holders, found that there are only approximately 9,500 POS devices in use per million residents in BiH, compared to an average of 24,400 per million residents in Central European countries. For its part, the CBBH said in 2021 there were 30,371 POS devices "installed."[307]

An example of this inefficiency is shown in Exhibit 13. This image of a notice posted outside the Ministry of Finance illustrates the digital divide and the slow implementation of the e-signature law. On one hand, commercial banks are slow to implement e-signatures as part of the e-banking system, which exports payment proof without digital signatures and only includes an image of the stamp. On the other hand, government institutions are trying to find an approach to handling digital transformation based on outdated laws and bylaws. As a result, the cost is borne by citizens and businesses. While e-banking payment transfers cost between 20 and 40 cents, paper-based payment orders—which also require clients to physically visit the bank—cost between 1.50 and 1.80 USD. This is for the same transfer processed manually by a bank teller. Considering that many government services entail multiple payments, it is clear that costs for citizens and businesses add up quickly.

Exhibit 13. Notice of the BiH Ministry of Finance about digital payment slips posted on a government building



The notice reads, "The Ministry of Finance BiH, based on its decision number 08-02-2-789-2/17 from July 27, 2017, has proclaimed that there are no legal grounds to accept validity of proof of electronic payment to the Treasury accounts."

According to the CBBH, in 2020 the CBBH payment systems processed 43,774,406 transactions, 60 percent of which were completed on the basis of paper-based payment orders (accompanied by paper payment confirmation slips), and 40 percent were carried out in the form of electronic payments.[308] Considering the difference in cost of paper-based and electronic payments (1.65 USD vs. 0.30 USD, respectively), increasing the share of electronic payments could generate significant savings. Exhibit 14 provides an overview of potential savings that would be generated even if the number of transactions remains the same, but the ratio of electronic payments increases to 50 percent or 70 percent. One way to achieve this outcome might be to reduce the number of payments required to access a government service. For example, to register a car in the Sarajevo Canton, one must make three to five different payments to different budget accounts.[309]

[307] Central Bank of BiH. Card operations in 2020: Increase of the number of active cards, the value and number of transactions. CBBH. Published on: April 12, 2021. https://cbbh.ba/press/ShowNews/1337?lang=en
[308] Central Bank of BiH. (2020). Payment Systems in BiH in 2020. https://www.cbbh.ba/content/DownloadAttachment/?id=0c3f6563-7f6d-4f44-b9b1-057e75fb2a92&langTag=bs
[309] Ministry of Interior Affairs. Canton Sarajevo. Administrative procedure for car registration in Canton Sarajevo. https://ap.ks.gov.ba/administrativni-postupak/128

Exhibit 14. Potential savings from an increase in the use of electronic payments in CBBH payment systems (in USD)

	# OF TRANSACTIONS	% OF PAPER-BASED PAYMENT TRANSACTIONS	% OF ELECTRONIC PAYMENTS	TOTAL COST OF PAPER-BASED PAYMENT TRANSACTIONS	TOTAL COST OF ELECTRONIC PAYMENTS	POTENTIAL SAVINGS (ESTIMATE)
Actual data	43,774,406	60%	40%	43,336,661.94	5,252,928.72	
Scenario 1	43,774,406	50%	50%	36,113,884.95	6,566,160.90	5,909,544.81
Scenario 2	43,774,406	30%	70%	21,668,330.97	9,192,625.26	17,728,634.43

Note. Calculation conducted by the DECA team based on data provided in the CBBH's Payment Systems in BiH in 2020 report.

CRYPTOCURRENCIES

There is no state-level regulation of cryptocurrencies in BiH, and the CBBH has no legal mandate to define or regulate cryptocurrencies. Although there were some initiatives for drafting legislation allowing the BiH government to regulate cryptocurrencies,[310] no law has ever been passed. Because cryptocurrencies are not legal unless explicitly allowed by law, no banks currently deal with them. The Government of RS made movements in regulating cryptocurrencies by adopting the Law on Amendments to the Law on the Securities Market[311] in 2022. By amending the law, the RS Securities Commission was given the role of keeping records of persons who provide virtual currency exchange services and wallet depository services, and of cooperating and exchanging data, information, and documentation with other competent authorities regarding the implementation of laws and other regulations governing the prevention of money laundering and financing of terrorist activities.[312]

Yet, for the past three years, the RS has been the site of the largest legal dispute in Europe related to cryptocurrencies. In March 2022, a Banja Luka district court ordered the BiH affiliate of Italy-based UniCredit Bank to pay approximately 144 million USD in compensation for its closure of the accounts of Bitminer Factory, a cryptocurrency mining company based in Gradiška, RS, which had planned to use environmentally friendly power from the Bočac 2 hydroelectric power station.[313] The Bitminer Factory received payments for the tokens it planned to issue via UniCredit, and the bank said it could not engage in such transactions.[314] The fine incurred was approximately 25 percent of UniCredit's assets in BiH.

[310] Erazo, Felipe. "Bosnia and Herzegovina is preparing a draft bill to regulate cryptocurrencies". Bitcoin.com. Published on May 12, 2021. https://news.bitcoin.com/bosnia-and-herzegovina-is-preparing-a-draft-bill-to-regulate-cryptocurrencies/

[311] Official Gazette of RS, No. 63/22.

[312] Ibid.

[313] Isichei, Anthonia. "UniCredit fined $144 million for illegally closing crypto mining firm's accounts". CryptoPotato. Published on March 29, 2022. https://cryptopotato.com/unicredit-fined-144-million-for-illegally-closing-crypto-mining-firms-accounts/

[314] "Court orders Unicredit Bank Banja Luka to pay EUR 130 mil compensation to cryptocurrency miner". Intellinews. Published on: April 1, 2022. https://www.intellinews.com/court-orders-unicredit-bank-banja-luka-to-pay-130mn-compensation-to-cryptocurrency-miner-240044/?source=bosnia-and-herzegovina

In the meantime, the CBBH, which is monitoring the experiences of other countries, maintains the stance that cryptocurrencies should be treated as financial instruments rather than actual money.[315] In May 2022 BiH, due largely to its lack of enabling legislation, was ranked the fourth least crypto-friendly country in Europe by crypto proponents.[316] It is not clear whether relevant BiH authorities (including Central Bank and banking agencies) are aware of or have plans to adopt and implement legal, regulatory, supervisory, and enforcement frameworks that are consistent with international standards and guidance that apply to the crypto/digital assets ecosystem.

The Balkan Crypto Exchange (BCX), established by Digital Assets Management, is the first platform in BiH for buying, selling, exchanging, trading, storing, and managing digital assets. BCX works on the principle of stock exchange business, wherein the Digital Crypto Exchange (DCX) offers ATMs for several cryptocurrencies in eight locations throughout BiH.[317] The first BiH cryptocurrency in the country is called RXC.[318]

ICT INDUSTRY AND DIGITAL TALENT POOL

ICT is an emerging industry that employs 27,056 people in BiH (3.2 percent of the total number of employed persons).[319] Women make up 38.4 percent of persons employed in the ICT sector.[320] As of 2021, the most prosperous sector in the ICT industry is the IT sector. About two-thirds of employees in the IT sector are people younger than 35 years of age.[321] Between 2019 and 2021, the annual income of IT companies in BiH increased by 23.7 percent on average each year. Estimates show that more than 75 percent of revenues generated by the IT sector came from exports.[322] In 2019, the average monthly net salary in the IT sector was 920 USD, which was almost two times more than the overall average salary in BiH.[323] The annual growth rate of the average salary in the IT sector is about 9 percent.[324]

The majority of persons employed in the IT sector are young, highly educated workers (85.3 percent). Three-quarters of employees are IT specialists, engineers, and other technical professionals, whereas one-quarter comprises other specialists, for example, non-IT staff, administration, and human resources. About 30 percent of employees in the IT industry are women. Three out of four IT specialists, engineers, and other technical professionals are men, whereas slightly more women than men work as

[315] "CBBH: Cryptocurrencies should be viewed as a financial instrument, not as money". FENA News. Published on: April 17, 2022. https://www.fena.news/bih/business-and-economy/cbbh-cryptocurrencies-should-be-viewed-as-a-financial-instrument-not-as-money/
[316] Buckler, N. "The Least Crypto-Friendly Countries in the world for Enthusiasts". beINcrypto. Published on May 17, 2022. https://beincrypto.com/the-least-crypto-friendly-countries-in-the-world-for-enthusiasts/
[317] DCX ATMs are available in Gradiška, Banja Luka, Prijedor, Derventa, Sarajevo, and Tuzla.
[318] Crypto.ba. RXC White Paper. https://oblak.crypto.ba/s/TF8774EY5PjBKYD
[319] Agency for Statistics of BiH. (2022). Persons in paid employment by activity, April 2022. https://bhas.gov.ba/data/Publikacije/Saopstenja/2022/LAB_02_2022_04_1_BS.pdf
[320] Ibid.
[321] BIT Alliance. (2019). IT MANIFESTO: Strategic Plan of IT Industry Development in BiH. https://www.dropbox.com/s/1tzm0gvjnx7v7q5/IT_Manifesto_ENG.pdf?dl=0
[322] Government of Sarajevo Canton. (2021). Canton Sarajevo Development Strategy 2021-2027. http://zpr.ks.gov.ba/sites/zpr.ks.gov.ba/files/strategija_razvoja_ks_2021-2027._strateska_platforma_nacrt_prosirena_verzija_0.pdf
[323] UNDP. (2020). Analiza potrebnih vještina za softversku industriju. https://www.ba.undp.org/content/bosnia_and_herzegovina/bs/home/library/razvoj/analiza-potrebnih-vjetina-za-softversku-industriju-u-bosni-i-her.html
[324] Ibid.

non-IT staff (administration, human resources, etc.) (54 percent).[325] These data conform with the education statistics. For example, of the 4,224 students who studied computing in FBiH in the 2021–2022 academic year, only 30 percent were women.[326]

One of the biggest challenges to further growth of the IT sector in BiH is maintaining a qualified workforce, given competition for talent and ongoing brain drain. Estimates show that BiH is facing a deficit of about 6,000 people in the IT sector.[327] As of end-2019, the number of open positions for IT specialists was much larger than the number of available IT specialists, with almost half of vacant positions remaining unfilled.[328] As a result, BiH misses the opportunity to generate about 0.8 billion USD each year.[329] To address this issue and ensure that the full potential of the IT sector is leveraged, government authorities are introducing supportive measures, although these are still not substantial. For example, in 2018 the University of Sarajevo initiated a two-year study of IT professionals, conducted at two faculties (Faculty of Electrical Engineering Sarajevo and Faculty of Natural Sciences and Mathematics Sarajevo) to enable professional development and training of programmers for IT needs through two-year education program.[330] In 2022, the Government of the Sarajevo Canton decided to fully cover costs of the study for students who enroll in the IT professional study programs in the 2022–2023 academic year.[331]

Examples of initiatives to prepare BiH workers to enter the digital workforce

- The USAID Workforce and Higher Access to Markets Activity in BiH (WHAM) focused on accelerating employment in SMEs in the metal processing, wood processing, textile/apparel, and ICT sectors. Main activities included provision of training or assistance with in-house training in the latest technologies.
- As part of a 2019 pilot project in the RS 100 individuals with university diplomas who had not found a job in their profession attended the first IT adult training program organized by the Ministry Of Science and Technology Development, the Higher Education and Information Society of Republika Srpska at the Innovation Center in Banja Luka.
- Within the FBiH Civil Service Agency, an online platform was created to assist "the in-house training for civil servants.
- The e-Commerce Association has started offering an online course in conjunction with the Burch University.

[325] UNDP. (2020). Analiza potrebnih vještina za softversku industriju. https://www.ba.undp.org/content/bosnia_and_herzegovina/bs/home/library/razvoj/analiza-potrebnih-vjetina-za-softversku-industriju-u-bosni-i-her.html

[326] Institute for Statistics of FBiH. (2022). Higher Education 2021/2022. Statistical Bulleting 344. http://fzs.ba/wp-content/uploads/2022/06/Bilten-2022.pdf

[327] BIT Alliance. (2019). IT MANIFESTO: Strategic Plan of IT Industry Development in BiH. https://www.dropbox.com/s/1tzm0gvjnx7v7q5/IT_Manifesto_ENG.pdf?dl=0

[328] UNDP. (2020). Analiza potrebnih vještina za softversku industriju. https://www.ba.undp.org/content/bosnia_and_herzegovina/bs/home/library/razvoj/analiza-potrebnih-vjetina-za-softversku-industriju-u-bosni-i-her.html

[329] BIT Alliance. (2019). IT MANIFESTO: Strategic Plan of IT Industry Development in BiH. https://www.dropbox.com/s/1tzm0gvjnx7v7q5/IT_Manifesto_ENG.pdf?dl=0

[330] "Published competitions for admission to the two-year IT specialist study at the University of Sarajevo". Bit Alliance. Published on June 13, 2018. https://bit-alliance.ba/bs/objavljeni-konkursi-za-upis-na-dvogodisnji-it-specijalisticki-studij-na-univerzitetu-u-sarajevu/

[331] Zugic, M. For Students Enrolling in the First Cycle of IT Study Programs, the Study Costs will be Borne by the Sarajevo Canton. Accessed on July 22, 2022. https://vlada.ks.gov.ba/aktuelnosti/novosti/studentima-koji-upisuju-i-ciklus-it-studijskih

Research shows, however, that the current education system cannot produce enough workers to meet IT sector demand in the next 30 years. In addition, because of the low level of technical skills and a low number of university graduates, 60 percent of IT companies must train new employees for four to six months to bring them up to the required level of IT skills to do their jobs.[332] Considering that the IT industry has been growing 10 times faster than the rest of the BiH economy, the problem of digital skills within the BiH workforce is expected to worsen.[333] At the same time, the IT sector faces issues with IT workforce outflow. This challenge stems from a broader brain drain that BiH is experiencing. Current migration flows from BiH are characterized predominantly by the emigration of highly skilled people.[334] According to the 2021 Global Cities Talent Competitiveness Index, BiH ranks 132nd among 134 countries in talent retention.[335] One of the biggest challenges in attracting and retaining an IT workforce within government institutions is that BiH must comply with compensation policies that make them less attractive employers compared to those in the private sector. Of 18 government institutions that were asked whether they have issues with attracting and retaining IT employees, all confirmed that they are facing this challenge. The record-high brain drain causes enormous economic losses. Every work-capable person who emigrated from BiH represents, on average, more than 25,000 USD of future annual GDP that could have been generated if they were productively employed in BiH.[336] To combat brain drain and retain their employees, IT companies are offering better employment conditions, higher salaries, and attractive benefits.[337]

The Challenge of Brain Drain

According to the 2021 wave of NSCP-BiH, one in five BiH citizens considers leaving the country, whereas every third citizen who considers leaving BiH already took some concrete steps towards emigration, i.e., applied for a job, education, or scholarship, submitted residence visa application, collected information about moving abroad, etc. Young people, more often than adults, consider leaving the country (44 percent versus 14 percent, respectively). High unemployment and poor living conditions are not the main drivers of emigration in BiH. Instead, the main reasons why citizens consider emigrating include: (i) access to better public services (91 percent), (i) systemic corruption in BiH society (89 percent), (iii) better opportunities in life for their children (88 percent), (iv) helping people/family by sending help from abroad (84 percent), and (v) feeling that their rights and freedoms are violated in BiH (79 percent).

On the other hand, BiH's comparative advantage for attracting investments into the IT sector builds on a relatively low cost of labor, a time zone that at least partially overlaps with its most important markets, and proficiency of IT experts in multiple European languages.[338] Diasporans are especially

[332] UNDP. (2020). Analiza potrebnih vještina za softversku industriju. https://www.ba.undp.org/content/bosnia_and_herzegovina/bs/home/library/razvoj/analiza-potrebnih-vjetina-za-softversku-industriju-u-bosni-i-her.html
[333] Ibid.
[334] Efendic, A., Babic, B., Rebmann, A. (2014). Diaspora and Development: BiH. https://doc.rero.ch/record/235757/files/30Diaspora_and_development_-_BiH.pdf
[335] INSEAD (2021). The Global Talent Competitiveness Index 2021: Talent Competitiveness in Times of COVID. https://www.insead.edu/sites/default/files/assets/dept/fr/gtci/GTCI-2021-Report.pdf
[336] Westminster Foundation for Democracy. (2020). Cost of Youth Emigration from Bosnia and Herzegovina. https://www.wfd.org/wp-content/uploads/2020/06/Cost-of-Youth-Emigration-from-BH_official_version-1-1.pdf
[337] IOM. (2022). Emigration of Health and Information and Communication Technology Professionals from Bosnia and Herzegovina: Challenges and Opportunities. https://bih.iom.int/sites/g/files/tmzbdl1076/files/documents/emigration-of-health-and-information-eng.pdf
[338] Government of Sarajevo Canton. (2021). Canton Sarajevo Development Strategy 2021-2027. http://zpr.ks.gov.ba/sites/zpr.ks.gov.ba/files/strategija_razvoja_ks_2021-2027._strateska_platforma_nacrt_prosirena_verzija_0.pdf

interested in investing in the IT sector. Diasporans perceive that the IT sector offers the best prospects in terms of job creation and income generation and is a low-hanging fruit for investment, considering the IT sector does not require large capital to start a business, unlike some other sectors (e.g., metal processing).

Investment from the BiH Diaspora

According to the BiH Ministry of Human Rights and Refugees, the BiH worldwide diaspora numbers about 2 million people in more than 50 countries. However, the diaspora's potential for supporting the country's socioeconomic development has not been fully exploited.

USAID/BiH has been supporting diaspora investors through its economic growth portfolio and diaspora continues to be one of the strategic programming priorities of the Mission. The USAID-funded Diaspora Invest Activity, which closed in 2022, catalyzed the economic contributions of the BiH diaspora to foster the country's socio-economic development by engaging with the diaspora investors in a structured way, providing incentives for diaspora investment, and establishing local platforms for business services and investment facilitation.

However, investing in BiH is difficult, even for the hardy investor. While the Law on the Policy of Foreign Direct Investments,[339] allows foreign investors to invest in any type of business in BiH except the military, entering the country's market is challenging. BiH often ranks far lower than its neighbors in ease of doing business, due in part to the onerous procedures for starting a new business. Aside from opaque public procurement procedures and state-owned monopolies,[340] other major challenges include "endemic corruption, complex legal/regulatory frameworks and government structures, nontransparent business procedures, insufficient protection of property rights, and a weak judicial system."[341] Compounding an already arduous investment process, the political challenges between RS and FBiH and the fact that entities have jurisdiction over their respective financial sectors[342] mean that BiH does not constitute a single economic space.[343]

This reality has a direct bearing on BiH's EU ambitions. The EU Digital Agenda focuses on "creating secure digital spaces and services, creating a level playing field in digital markets with large platforms and strengthening Europe's digital sovereignty."[344] Given BiH's trajectory towards EU membership, it is unclear how this may affect the character of BiH's digital outsourcing sector, or whether Western Balkan countries may adopt data-sharing arrangements in the short term.

[339] Official Gazette of BiH, No. 4/98, 17/98, 13/03, 48/10, 22/15
[340] Bertelsmann Stiftung. (2022). The Bertelsmann Stiftung's Transformation Index (BTI). Bosnia and Herzegovina Country Report. https://bti-project.org/en/reports/country-report/BIH
[341] U.S. Department of State. 2021 Investment Climate Statements: Bosnia and Herzegovina. https://www.state.gov/reports/2021-investment-climate-statements/bosnia-and-herzegovina/
[342] Fintech (World Bank)
[343] Berelsmann Stiftung. (2022). Business Transformation Index (BTI). Bosnia and Herzegovina Country Report 2022. https://bti-project.org/en/reports/country-report/BIH
[344] Ratcliff, C., Martinello, B., Ciucci M., Sofsky, F., Kaiser, K.P. "Digital Agenda for Europe." European Parliament. Published on January 2022. https://www.europarl.europa.eu/factsheets/en/sheet/64/digital-agenda-for-europe

ANNEX A. METHODOLOGY

The BiH DECA was conducted by USAID/BiH's Monitoring and Evaluation Support Activity (MEASURE II), which put together a seven-member team which included five research specialists (MEASURE II staff) and two digitalization specialists —one international and one local—with technical expertise in digital infrastructure, access, media, governance, and digital financial services (DFS). MEASURE II was able to adapt the National Survey of Citizens' Perceptions (NCSP-BiH), one of its annual products, to generate public opinion data about DECA-relevant issues. In addition, MEASURE II's prior support and familiarity with USAID/BiH and its 2020–2025 CDCS helped ensure smooth and efficient adaptation of the DECA process and outputs to the needs of USAID/BiH. The results of the DECA are expected to inform future USAID/BiH programs.

METHODOLOGY

The BiH DECA included the following four components:

1. **USAID/BiH engagement:** USAID/BiH designated its Digital Development Advisor as point of contact (POC) within the Mission. This POC was responsible for leading communication with the DECA implementation team, helping identify key informants, and reviewing relevant documents during planning, analysis, and report-writing stages. The POC also attended selected interviews during the interview stage and helped organize a virtual introduction and presentation of preliminary DECA findings at USAID/BiH.

This modality of engagement with USAID/BiH was essential for ensuring the research team's understanding and alignment with USAID/BiH's priorities, but it also helped in reaching target interviewees and achieving the desired mix of interviewee profiles.

2. **Desk research:** The desk research used a standardized template the USAID/Washington DECA team created, organized around four pillars (Mission priorities and background, digital infrastructure and adoption; digital society, rights, and governance; digital economy). The research team reviewed over 200 documents published by USAID/BiH and its IPs, government institutions and agencies, international organizations, civil society, academia, and media. Specifically, the desk research included three components:

    a. quantitative analysis of open-source data and indices to produce regional comparisons (e.g., GSMA, World Economic Forum, International Telecommunication Union, and Varieties of Democracy);

    b. internet research guided by high-level questions under each pillar about the state of BiH's digital ecosystem; and

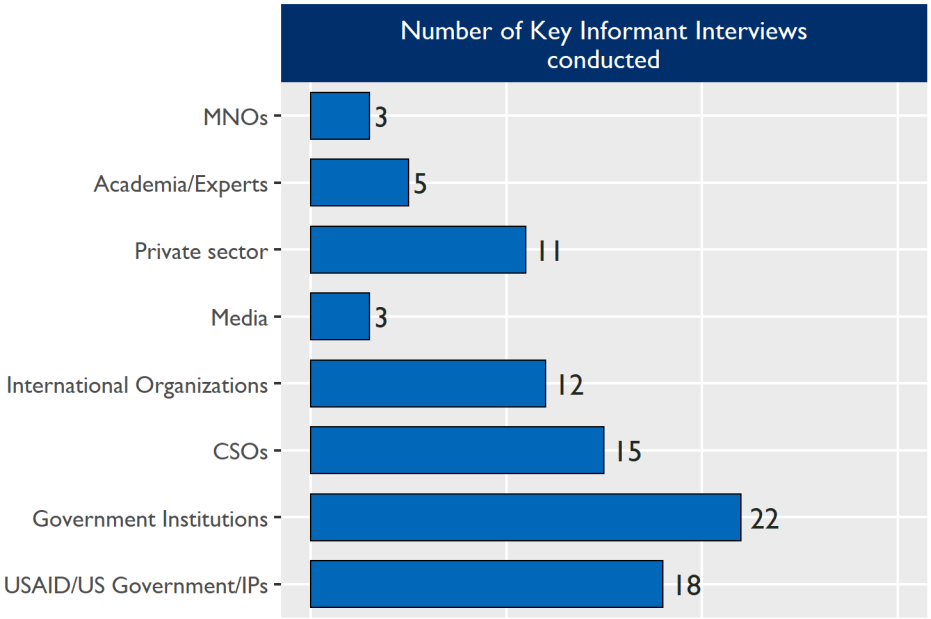
    c. review of USAID/ BiH's CDCS, funding allocations, and digitally relevant programming.

A complete list of reviewed documentation is provided in Annex C. The desk research was shared with the USAID/BiH POC prior to the start of the key interviews stage and it was used to inform the interview guides.

3. **Key informant interviews (KIIs):** In close cooperation with USAID/BiH, the research team compiled a list of target stakeholders across the private and public sectors, academia, civil society, international organizations, government institutions and agencies, and within USAID/BiH. An initial set of KIs were identified through USAID/BiH networks, with additional KIs added during the research process and via referrals from completed interviews. The research team regularly evaluated the list of scheduled interviews to ensure that the mix of KIs is modified to fill identified gaps.

Exhibit A-1 presents the KIIs arranged by sector. The KIs were approximately evenly balanced between the government on the state, entity, cantonal, and local level and the private sector. The private-sector KIs included prominent IT and e-commerce companies, business associations, among others.

Exhibit A-115. Summary of key informant interviews



In observance of the public health restrictions related to the COVID-19 pandemic, the KIIs stage was conducted virtually, mostly via the Zoom platform. The team held 87 KIIs and two focus group discussions (FGDs) with 122 participants in total (some interviews were attended by two or three interviewees). The research team typically conducted two to four interviews per day. All KIIs/FGDs were attended by at least two team members, a lead interviewer and a notetaker. To improve the conditions for triangulation of findings, the interview teams were not fixed, with team members changing their partners and roles. The questions for each KII were drawn from the question bank which was developed prior to the start of the KII stage, but the questions were tailored as needed based on the profile of the given KI and information obtained in previous KIIs.

National Survey of Citizens' Perceptions in BiH (NSCP-BiH): Relevant findings from the latest wave of the NSCP-BiH (2021) were integrated into the DECA research process to fill gaps, confirm findings, and illuminate individual-level perspectives on BiH's digital ecosystem. The NSCP-BiH is an annual survey (conducted since 2015) that explores citizens' perceptions and experiences related to a broad range of questions, including governance, the judiciary, elections, corruption, civil society, the

media, education, inter-ethnic relationships, violence, social inclusion, and emigration. The survey is conducted with a nationally representative sample of 3,000 respondents. The seventh survey round was conducted in January and February 2022, and it included questions about the BiH digital ecosystem: satisfaction with online public services, ownership and use of digital devices, internet, and DFS. The analysis of the responses has been integrated into the DECA report.

ANALYSIS

During the first phase of the DECA (desk research), the research team acquired a broad overview of the state of the digital ecosystem in BiH. In order to fill in the gaps in knowledge and understanding that were left following the desk research, the DECA team collected information from selected KIs.

During the interview stage, the research team conducted debriefs at least twice a week. These meetings not only ensured that all team members were briefed on each interview but also facilitated the identification and triangulation of emerging themes that were then tested in subsequent interviews. Midway through the interviews, the team identified primary themes and commenced preliminary synthesis of findings. Thematic coding was the main method used to analyze interview transcripts and notes, and it was complemented by triangulation of findings within the research team.

Upon completing the KIIs, the team convened to review the identified main themes, triangulate findings and confirm their validity against interview notes and complement them with the NSCP-BiH data. The findings were organized, and the report was structured around the three DECA pillars (digital infrastructure and adoption; digital society, rights, and governance; and digital economy).

LIMITATIONS

The DECA team employed different approaches to mitigate various potential research biases and ensure the report's findings are generated in a timely and objective fashion. The following summarizes the limitations encountered and MEASURE II's mitigation efforts:

Team members' digital expertise: The majority of the team members were research specialists with at best lay person's understanding of digitalization issues. This limitation was to a considerable extent overcome through the advice and guidance of two external experts – one international, one local, who not only directed the efforts of the team's generalist members, but also effectively complemented one another. The two digitalization specialists also led or participated in a large majority of most important or technically most intricate interviews. The team also made an effort to utilize prior experience of its members by assigning the members with relevant backgrounds to each of the DECA pillars.

Response bias: The assessment team triangulated data across multiple data sources, including KIIs, NSCP-BiH, and the literature reviewed, to verify and enhance the credibility of findings and provide a more comprehensive overview of challenges and opportunities for strengthening the digital ecosystem in BiH.

Limitations related to ensuring potential KIs' buy-in for participation in the research: A large portion of KIIs were selected through USAID/BiH networks and partially complemented by accessing the informal networks of the team's two digitalization experts. Special efforts to reach KIs

from outside the capital of Sarajevo were relatively successful, although not as much as the virtual format of interviews would allow.

Interviewer bias: Interviewers' conduct and actions may lead KIs to respond in a certain way. Therefore, the interviewers were trained to ask questions in a non-leading way. The assessment team also made sure that respondents understood that their candid opinions were most highly appreciated and ensured that respondents know that their responses would not be attributed to them and that their identity would not be released.

Inability to conduct in-person KIIs due to the COVID-19 pandemic and related safety measures: Because of the COVID-19 situation, the majority of KIIs were held in an online format.

ANNEX B. DEFINITIONS

Definitions from USAID Digital Strategy 2020-2024 unless otherwise mentioned.

Civil Society Organizations (CSOs): CSOs represent a wide array of stakeholders: community groups, non-governmental organizations (NGOs), labor unions, indigenous groups, charitable organizations, faith-based organizations, professional associations, and foundations.

Computer Emergency Response Team (CERT): group of security experts who respond to cybersecurity incidents.[345]

Critical Infrastructure: Critical infrastructure is an asset or system which is essential for the maintenance of vital societal functions. The damage to a critical infrastructure, its destruction or disruption by natural disasters, terrorism, criminal activity or malicious behavior, may have a significant negative impact for the security of the European Union and the well-being of its citizens.[346]

Cybersecurity: The prevention of damage to, protection of, and restoration of computers, electronic communications systems, electronic communications services, wire communication, and electronic communication, including information contained therein, to ensure its availability, integrity, authentication, confidentiality, and non-repudiation.

Cyber Hygiene: The practices and steps that users of computers and other devices take to maintain system health and improve online security. These practices are often part of a routine to ensure the safety of identity and other details that could be stolen or corrupted.

Data Privacy: The right of an individual or group to maintain control over, and the confidentiality of, information about themselves, especially when that intrusion results from undue or illegal gathering and use of data about that individual or group.

Data Protection: The practice of ensuring the protection of data from unauthorized access, use, disclosure, disruption, modification, or destruction, to provide confidentiality, integrity, and availability.

Digital Divide: The distinction between those who have access to the internet and can make use of digital communications services, and those who find themselves excluded from these services. Often, one can point to multiple and overlapping digital divides, which stem from inequities in access, literacy, cost, or the relevance of services. Factors such as high cost and limited infrastructure often exacerbate digital divides.

Digital Economy: The use of digital and internet infrastructure by individuals, businesses, and government to interact with each other, engage in economic activity, and access both digital and nondigital goods and services. As the ecosystem supporting it matures, the digital economy might grow to encompass all sectors of the economy—a transformation driven by both the rise of new services and entrants, as well as backward linkages with the traditional, predigital economy. A diverse array of

[345] Technopedia. "Computer Emergency Response Team", accessed June 2022, https://www.techopedia.com/definition/31003/computer-emergency-response-team-cert
[346] European Commission. "Critical Infrastructure", accessed June 2022, https://ec.europa.eu/home-affairs/pages/page/critical-infrastructure_en

technologies and platforms facilitate activity in the digital economy; however, much activity relies in some measure on the internet, mobile phones, digital data, and digital payments.

Digital Ecosystem: The stakeholders, systems, and enabling environment that together empower people and communities to use digital technology in order to gain access to services, engage with each other, or pursue economic opportunities. A digital ecosystem is conceptually similar to, but broader than, a digital economy. Although certain aspects of the digital ecosystem have country-wide reach, other features differ across geographies or communities. The critical pillars of a digital ecosystem include (1) a sound, enabling environment and policy commitment; (2) robust and resilient digital infrastructure; (3) a capable workforce and digital service providers (e.g., both public and private institutions); and (4) empowered end users of digitally enabled services.

Digital Identity: The widely accepted Principles on Identification define identity as "a set of attributes that uniquely describes an individual or entity." Digital identification (ID) systems often require registering individuals onto a computerized database and providing certain credentials (e.g., identifying numbers, cards, digital certificates, etc.) as proof of identity. Government actors can set up these systems to create foundational, national ID programs, or donors or non-governmental organizations (NGOs) for functional purposes to identify beneficiaries, e.g., for humanitarian assistance and service delivery.

Digital Literacy: The ability to access, manage, understand, integrate, communicate, evaluate, and create information safely and appropriately through digital devices and networked technologies for participation in economic, social and political life. This may include competencies that are variously referred to as computer literacy, information and communication technology literacy, information literacy, and media literacy.

Digital Trade (or E-commerce): According to the World Trade Organization, the production, distribution, marketing, sale, or delivery of goods and services by electronic means.

Disinformation: Disinformation is defined as false information spread with the specific intent to deceive, manipulate, or influence behavior. It differs from misinformation because it requires malign intent.

E-government: E-government has been employed to mean everything from "online government services" to "exchange of information and services electronically with citizens, businesses, and other arms of government." Traditionally, e-government has been considered as the use of ICTs for improving the efficiency of government agencies and providing government services online. Later, the framework of e-government has broadened to include use of ICT by government for conducting a wide range of interactions with citizens and businesses as well as open government data and use of ICTs to enable innovation in governance.[347]

Hate Speech: The use of speech to make direct attacks against an individual or a group of people based on a series of protected characteristics, such as race, ethnicity, nationality, religion, sex, sexual orientation, gender identity, and physical or mental ability.

[347] United Nations, E-governance, accessed June 2022, https://publicadministration.un.org/egovkb/en-us/about/unegovdd-framework

Gross National Income: The gross national income (GNI), previously known as gross national product (GNP), is the total domestic and foreign output claimed by residents of a country, consisting of gross domestic product (GDP), plus factor incomes earned by foreign residents, minus income earned in the domestic economy by nonresidents.

Internet Service Providers (ISPs): ISPs include both fixed-line and wireless technologies. Wireless ISPs operate over unlicensed spectrum. ISPs include both small, local services and global providers.

Misinformation: Misinformation refers to any false or inaccurate information, such as rumors and hoaxes. Social media platforms are regularly used to spread misinformation.

Mobile Network Operators (MNOs): MNOs provide cellular voice and data services. MNOs provide internet services through wireless technologies, operating over licensed spectrum. Many companies, such as BH Telecom or M:tel, are both ISPs and MNOs, because they offer both fixed and mobile internet services.

ANNEX C: LITERATURE

Action Plan of the Council of Ministers of BiH for the Implementation of the Initiative "Open Government Partnership" for the period 2019–2021. https://www.opengovpartnership.org/members/bosnia-and-herzegovina/#current-action-plan

Agency for Statistics of BiH. Census of Population, Households and Dwellings in BiH - Final Results. 2013. https://www.popis.gov.ba/popis2013/doc/RezultatiPopisa_BS.pdf

Agency for Statistics of BiH. Use of Information and Communication Technology in BiH. https://bhas.gov.ba/data/Publikacije/Bilteni/2021/IKT_00_2020_TB_1_BS.pdf

American Chamber of Commerce in BiH. White Paper – Strategic and Action Plan for Overcoming the Problems of Business Community in BiH and Obstacles to the USA Investment in BiH. https://amcham.ba/uploads/files/AmCham-BiH-White-Paper-Action-Plan-952829e94940ec442d87b0d346879ce6d109a64e.pdf

Anti-corruption plan 2016-2017. https://bhas.gov.ba/data/Dokumenti/Planovi/Plan_borbe_protiv_korupcije_BHAS_2016_2017.pdf

Anti-corruption plan 2018-2019. http://www.mhrr.gov.ba/PDF/Plan%20borbe%20protiv%20korupcije%202018-2019.pdf

Bank Association of BiH. The Most Current Open Issues of Commercial Banking in BiH: White Book. November 2019. https://ubbih.ba/assets/files/white_book_e.pdf

Begović, Muhamed; Avdagić-Golub, Irma; Memić, Belma. European digital guidelines as a basis for the digitalization process in BiH – a review of current state. Conference Paper – May 2022.

BiH Foreign Trade Chamber Bulletin. Special Issue on Digital Transformation. 2019. https://www.komorabih.ba/wp-content/uploads/2020/01/Infokom-76_web.pdf

BiH Law on Communications. https://www.rak.ba/bs-Latn-BA/articles/80

BiH Ministry of Communications and Transport. List of registered providers. 2020. http://www.mkt.gov.ba/Content/OpenAttachment?id=2ef8e2de-2ea7-4f83-bdf4-580c1d74af1a&lang=en

BIT Alliance. IT Manifesto. https://bit-alliance.ba/itmanifesto/

Bljesak.info. "BiH bilježi porast prijava patenata." Accessed February 20, 2022. https://bljesak.info/gospodarstvo/posao/bih-biljezi-porast-prijava-patenta/374566

Broadcasting policy. https://docs.rak.ba/articles/84c93765-2de2-4529-ac36-67ae95a1bc21.pdf

Capital.ba "Besplatni elektronski potpis koštaće 150KM, a pečat 1.000KM." Accessed January 11, 2022. https://www.capital.ba/besplatni-elektronski-potpis-kostace-150-km-a-pecat-1-000-km/

CBBH. Card Operations in BiH: 2021. https://cbbh.ba/press/ShowNews/1428?title=Karti%C4%8Dno-poslovanje-u-BiH-u-2021.:-Pove%C4%87anje-broja-aktivnih-kartica,-vrijednosti-i-broja-transakcija

CBBH. Payment systems in BiH in 2021. 2022. https://www.cbbh.ba/content/DownloadAttachment/?id=0c3f6563-7f6d-4f44-b9b1-057e75fb2a92&langTag=bs

Center for Open Access in Science. Habibija-Ražanica, Azra; Mekić, Ensar. Digital Literacy, Education and Employment Status: Evidence from BiH. 2021. https://centerprode.com/ojss/ojss0502/coas.ojss.0502.03071h.pdf

Check Point Research. Threat Intelligence Report: Bosnia and Herzegovina. 2020.

Civicus Monitor. 2021. https://monitor.civicus.org/country/bosnia-herzegovina/

Clingendael Institute and the Think for Europe Network (TEN). The EU as a promoter of democracy or 'stabilitocracy' in the Western Balkans? February 2022. https://www.clingendael.org/sites/default/files/2022-02/the-eu-as-a-promoter-of-democracy-or-stabilitocracy.pdf

Coalition for Free and Fair Elections - Pod lupom. https://podlupom.org/v2/

Communications Regulatory Agency. Analysis of the call termination market in individual public telephone networks at a fixed location. 2018. https://rak.ba/bs-Latn-BA/reports

Communications Regulatory Agency. Annual Report of the Communications Regulatory Agency. 2020. https://rak.ba/bs-Latn-BA/reports

Communications Regulatory Agency. Development medium-term strategic plan of the Communications Regulatory Agency for the period 2019-2021. https://rak.ba/hr/development-plan

Communications Regulatory Agency. Integrity Plan 2015. https://www.rak.ba/bs-Latn-BA/rf-regulations

Communications Regulatory Agency. Media literacy and protection of children. https://rak.ba/hr/brdcst-media-literacy

Communications Regulatory Agency. Overview of the Telecommunications Market in BiH. 2020. https://rak.ba/hr/telecom-market-analysis

Communications Regulatory Agency. Rulebook on the internal organization of the Communications Regulatory Agency. https://rak.ba/hr/brdcst-regulations

Communications Regulatory Agency. Rulebook on Internal Reporting of Corruption and Protection of Persons Reporting Corruption in the Communications Regulatory Agency. https://rak.ba/hr/brdcst-regulations

Communications Regulatory Agency. Rulebook on media representation. https://rak.ba/hr/brdcst-regulations

Communications Regulatory Agency. Rulebook on the procedure for resolving violations of licensing conditions and regulations of the Communications Regulatory Agency. https://rak.ba/hr/brdcst-regulations

Communications Regulatory Agency. Rulebook on the implementation of the provisions of the Law on Personal Data Protection in the Communications Regulatory Agency. https://rak.ba/hr/brdcst-regulations

Communications Regulatory Agency. Review of violations and appropriate penalties imposed by the Communications Regulatory Agency. https://rak.ba/hr/brdcst-regulations

Cornell University, INSEAD, and WIPO. Global Innovation Index. 2021. https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2021.pdf

Council of Europe. Project Summary: Media and Information Literacy: for human rights and more democracy. January 2021.

Council of Ministers of BiH. Strategy for Combating Human Trafficking in BiH 2020-2023. http://msb.gov.ba/PDF/290120205.pdf

CSIRTS Network. Accessed January 2, 2022. https://csirtsnetwork.eu/

Čizmić, Elvir; Šestić, Munira; Hrnjić, Anes; Softić, Senad. Magnitude of COVID-19 Pandemic Impact on Entrepreneurial Companies' Operations in Developing Countries. 2021.

Čolak, Krunoslav; Tušek, Krunoslav; Pušeljić, Mato. The Role of Management in the Process of Digital Transformation.

DAI Global. Digital Development in the Western Balkans: Bosnia and Herzegovina. 2020. https://dai-global-digital.com/digital-development-in-the-western-balkans-bosnia-and-herzegovina.html

Decision on Determination of the Computer Response Emergency Team for Institutions of BiH. 2017. http://www.sluzbenilist.ba/page/akt/g4E0HNrVpsc=

Decision on a policy of zero tolerance for acts of sexual harassment and gender-based harassment. June 2020. Odluka o politici nulte tolerancije prema djelima seksualnog uznemiravanja i uznemiravanja na osnovu spola (dkpt.gov.ba)

Decision on prices of roaming services in public mobile communication networks. 2021. http://sluzbenenovine.ba/page/akt/YiG9lpFMxoc=

Decision on the adoption of the interoperability framework of BiH. June 2018. http://www.sluzbenilist.ba/page/akt/yTFlwJyPk0o=

Democracy Reporting International. Digital Democracy Risk Assessment, methodological note. July, 2020.

Detektor.ba. "Osnivanje državnog tima za računarske incidente potrebno za sigurnije korištenje interneta." Accessed June 2, 2022. https://detektor.ba/2022/06/01/osnivanje-drzavnog-tima-za-racunarske-incidente-potrebno-za-sigurnije-koristenje-interneta/

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. Innovation and Digitalisation in SMEs in Bosnia and Herzegovina. 2020. https://b2bit.ba/wp-content/uploads/2020/04/Innovation_and_digitalisation_in_SMEs_in_BH_BASELINE_STUDY_V2.pdf

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. Development Study for Information Technology in BiH. 2001. https://www.esiweb.org/pdf/bridges/bosnia/GTZ_IT.pdf

Developing Telecoms. "Western Balkans ends regional roaming charges." Accessed May 27, 2022. https://developingtelecoms.com/telecom-business/telecom-regulation/11444-western-balkans-ends-regional-roaming-charges.html#:~:text=In%20fact%2C%20the%20Roam%20Like,Montenegro%2C%20North%20Macedonia%20and%20Serbia.

Digital WB6+. The Impact of Digital Transformation on the Western Balkan –Tackling the Challenges towards Political Stability and Economic Prosperity. https://wb6digital.files.wordpress.com/2018/01/wb6-study.pdf

EBRD. Bosnia and Herzegovina Country Strategy 2022-2027. April 2022.

EBRD. Investor Perceptions and the Broadband Sector: A survey by the European Bank for Reconstruction and Development

E-comm.ba. "MasterIndex BiH 2021: U BiH kontinuirano raste broj korisnika online plaćanja, a njihovo povjerenje u online kupovinu ostaje stabilno." Accessed May 27, 2022. https://e-comm.ba/masterindex-u-bih-kontinuirano-raste-broj-korisnika-online-placanja-a-njihovo-povjerenje-u-online-kupovinu-ostaje-stabilno/

e-Commerce Statistics for Bosnia and Herzegovina. Accessed June 3, 2022. https://www.statista.com/outlook/dmo/ecommerce/bosnia-and-herzegovina

e-Governance Academy Foundation. National Cyber Security Index BiH 2021. https://ncsi.ega.ee/country/ba/

Election Law of Bosnia and Herzegovina. PRIJEDLOG (izbori.ba)

Electronic communications sector policy of Bosnia and Herzegovina for the period 2017-2021. aa3ed3af-d56e-4b8b-a62e-6816c2440397.pdf (rak.ba)

European Commission. City Digital Transformation: Leveraging advanced digital technologies for growth and competitiveness at the local level.

European Commission. Commission Staff Working Document: BiH 2021 Report. 2021 Communication on EU Enlargement Policy. https://ec.europa.eu/neighbourhood-enlargement/bosnia-and-herzegovina-report-2021_en

European Commission. Economic Reform Programs of Albania, Montenegro, North Macedonia, Serbia, Turkey, BiH and Kosovo. 2021. https://ec.europa.eu/info/publications/2021-economic-reform-programmes-albania-montenegro-north-macedonia-serbia-turkey-bosnia-and-herzegovina-and-kosovo-commissions-overview-and-country-assessments_en

European Commission launches Digital Agenda for the Western Balkans. https://digital-strategy.ec.europa.eu/en/news/european-commission-launches-digital-agenda-western-balkans

European Training Foundation. Digital Skills and Online Learning in BiH. December 2019. https://epale.ec.europa.eu/sites/default/files/digital_factsheet_bosnia_and_herzegovina_0.pdf

European Union. DigiComp 2.2, The Digital Competence Framework for Citizens. 2022.

European Union. The European Digital Competence Framework for Citizens. 2016.

European Union Agency for Cybersecurity. CSIRT by Country – Interactive Map. https://www.enisa.europa.eu/topics/csirts-in-europe/csirt-inventory/certs-by-country-interactive-map#country=Bosnia%20Hercegovina

Europol Operations Directorate. The challenges of countering human trafficking in the digital era. October 2020. https://www.europol.europa.eu/cms/sites/default/files/documents/the_challenges_of_countering_human_trafficking_in_the_digital_era.pdf

FAO. National Gender Profile of Agriculture and Rural Livelihoods: BiH. 2021. https://eca.unwomen.org/sites/default/files/2022-01/2021-09-01%20Gender%2C%20Agriculture%20an%20Rural%20Development%20in%20Bosnia%20and%20Herzegovina-min.pdf

FBiH Government. Decision on adopting the draft Law on Southern Natural Gas Interconnection. https://parlamentfbih.gov.ba/v2/bs/propis.php?id=590

Framework strategy for the development of broadband access in Bosnia and Herzegovina for the period 2019 – 2023. Plan zakonodavnih aktivnosti (ekonsultacije.gov.ba)

Friedrich Ebert Stiftung. Study on BiH Youth. 2019. https://library.fes.de/pdf-files/bueros/sarajevo/15288.pdf

Future Sarajevo. Accessed May 27, 2022. https://smart.sarajevo.ba/bs/

Giga: Global initiative to connect every school to the Internet by 2030. Accessed June 2022. https://giga.global/about-us/

Global Cyber Security Capacity Centre. Cybersecurity Capacity Review – BiH 2019. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3658404

Global Forum on Cyber Expertise. Towards Identifying Critical National Infrastructures in the National Cybersecurity Strategy Process, White Paper.

Government of Sarajevo Canton. Canton Sarajevo Development Strategy 2021-2027. 2021. http://zpr.ks.gov.ba/sites/zpr.ks.gov.ba/files/strategija_razvoja_ks_2021-2027._strateska_platforma_nacrt_prosirena_verzija_0.pdf

GRETA. Evaluation Report: BiH – Third Evaluation Round: Access to Justice and Effective Remedies for Victims of Trafficking in Human Beings. 2022. https://rm.coe.int/greta-evaluation-report-bosnia-and-herzegovina-3rd-evaluation-round/1680a70b3b

Griffin, J. Report: U.S. May Impose Sanctions on Hikivision, Security Infowatch. 2022. https://www.securityinfowatch.com/video-surveillance/article/21266640/report-us-may-impose-sanctions-on-hikvision

GSMA Coverage Maps. Accessed May 27, 2022. https://www.gsma.com/coverage/

Halcom Certification Agency. Accessed June 1, 2022. https://www.halcom.ba/

Haloo Virtual Mobile Network Operator. Accessed June 1, 2022. https://www.haloo.ba/

Henderson, Gwyneth; Kilalić, Jasna; Kontić, Boro. The Media Environment in BiH: An Assessment for USAID/BiH. January 2003.

Hosman, Laura; N. Howard, Philip. Information Policy and Technology Diffusion: Lessons from Bosnia, Croatia, Macedonia, Montenegro, Serbia and Slovenia. 2010. https://www.academia.edu/2668555/Information_Policy_and_Technology_Diffusion_Lessons_from_Bosnia_Croatia_Macedonia_Montenegro_Serbia_and_Slovenia

IDDEEA – Agency for identification documents, registers, and data exchange. "IDDEEA signed in the Register of Accredited Verifies." Accessed May 19, 2022. https://www.iddeea.gov.ba/index.php?option=com_content&view=article&id=875:iddeea-signed-in-the-register-of-accredited-verifies&catid=34:cat-news&Itemid=172&lang=en

INSEAD. The Global Talent Competitiveness Index 2021: Talent Competitiveness in Times of COVID. 2021. https://www.insead.edu/sites/default/files/assets/dept/fr/gtci/GTCI-2021-Report.pdf

International Foundation for Electoral Systems. Cybersecurity and Elections Assessment in BiH. March 2020.

IMEI.info Bosnia and Herzegovina Mobile Network Operators. Accessed June 1, 2022. https://www.imei.info/carriers/bosnia-and-herzegovina/

Index Mundi. Cell phone companies in Bosnia and Herzegovina. Accessed June 1, 2022. https://www.indexmundi.com/bosnia_and_herzegovina/cell-phone-companies-in-bosnia-and-herzegovina.html

Indirect Taxation Authority. ePoslovanje. Accessed January 11, 2022. http://www.new.uino.gov.ba/bs/ePoslovanje

Information Office of the Steering Platform on Research for Western Balkan Countries. Science and Technology Country Report Bosnia and Herzegovina. 2006. https://www.zsi.at/en/object/publication/3611

Information security management policy in the institutions of Bosnia and Herzegovina, for the period 2017 – 2022. http://www.sluzbenilist.ba/page/akt/bM0k8gNBNCU=

Institute for Social Research. Declaration on the Importance of Media and Information Literacy in BiH. 2019. https://fpn.unsa.ba/b/wp-content/uploads/2020/12/Deklaracija-MIP-BIH-2019.pdf

Information society development policy of Bosnia and Herzegovina for the period 2017 – 2021. http://www.sluzbenilist.ba/page/akt/LhPPM81UcxE=

International Republican Institute. Antisemitic Discourse in the Western Balkans: A collection of case studies. 2021. https://www.iribeaconproject.org/sites/default/files/2021-04/Antisemitic%20Discourse%20in%20the%20Western%20Balkans%20%2804-15-21%29.pdf

International Telecommunication Union. 5G Country Report – BiH. https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Events/2020/5G_EUR_CIS/5G_Bosnia%20and%20Herzegovina-final.pdf

International Telecommunication Union. Broadband Mapping Systems in Europe and the Status of Harmonization in the Region. 2020. https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Events/2020/RRF/20-11-26%20Background%20Paper_Broadband%20Mapping%20Systems%20in%20Europe%20and%20Regional%20Harmonization%20Initiatives_final.pdf

International Telecommunication Union. BiH Connectivity in Education – Country Brief. https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Events/2021/ITU-UNICEF%20Connectivity%20in%20education/summary%20report%20per%20country/BiH%202%20Pager_final.pdf

International Telecommunication Union. Digital Development Dashboard. https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/Digital-Development.aspx

International Telecommunication Union. Digital Innovation Profile Bosnia and Herzegovina. 2018. https://www.itu.int/en/ITU-D/Innovation/Documents/Publications/eBAT_Brochure%E2%80%93DIP%20BosniaH_431106_.pdf

International Telecommunication Union. Measuring digital development: Facts and figures. 2020. https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2020.pdf

International Telecommunication Union. Measuring digital development: ICT price trends. 2020. https://www.itu.int/en/ITU-D/Statistics/Documents/publications/prices2020/ITU_ICTPriceTrends_2020.pdf

International Telecommunication Union. Measuring digital development: Facts and figures. 2021. Measuring digital development: Facts and figures 2021 (itu.int)

International Organization for Migration. Emigartion of Health and Information and Communication Technology Professionals from BiH: Challenges and Opportunities. 2022. https://bih.iom.int/sites/g/files/tmzbdl1076/files/documents/emigration-of-health-and-information-eng.pdf

IREX. Vibrant Information Barometer. 2021. https://www.irex.org/sites/default/files/pdf/vibe-bosnia-herzegovina-2021.pdf

Klix.ba "Sarajevo: Forto najavio da će student koji upišu IT smjer imati besplatan studij." Accessed June 9, 2022. https://www.klix.ba/vijesti/bih/sarajevo-forto-najavio-da-ce-studenti-koji-upisu-it-smjer-imati-besplatan-studij/220609088

Klix.ba "Sparkasse Bank I EFSE: Obezbijeđena kreditna sredstva u iznosu od 5 miliona eura za konkurentnost malih I srednjih preduzeća." Accessed March 29, 2022. https://www.klix.ba/biznis/sparkasse-bank-i-efse-obezbijedjena-kreditna-sredstva-u-iznosu-od-5-miliona-eura/220329070

Klix.ba "Trion Tel: Kazna RAK-a je skandalozna, ovo je pokušaj uništavanja naše kompanije." Accessed June 7, 2022. https://www.klix.ba/biznis/trion-tel-kazna-rak-a-je-skandalozna-ovo-je-pokusaj-unistavanja-nase-kompanije/210624156

Klix.ba "Veracomp Exclusive Networks: Kako se odbraniti od cyber napada u tri tačke." Accessed March 22, 2022. https://www.klix.ba/scitech/veracomp-exclusive-networks-kako-se-odbraniti-od-cyber-napada-u-tri-tacke/220321105

Labor and Employment Agency of BiH. Analiza utjecaja pandemije bolesti COVID-19 na tržište rada u BiH. December 2021.

Law on amendments to the law on communications ("Official Gazette of BIH," No. 75/06). http://mkt.gov.ba/Content/OpenAttachment?id=ab956751-48b0-40a8-9537-3f69d452db5b&lang=bs

Law on amendments to the law on communications ("Official Gazette of BIH," No. 32/10). http://mkt.gov.ba/Content/OpenAttachment?id=f56c2528-18ef-48a7-bf1d-0d1e64876938&lang=bs

Law on amendments to the law on communications ("Official Gazette of BIH," No. 98/12). http://mkt.gov.ba/Content/OpenAttachment?id=10778a49-d933-4f02-a21e-aaada8ccb0dd&lang=bs

LRC data. Accessed June 2022. www.boniteti.ba

Market Makers, Valicon. Istraživanje e-commerce tržišta u Bosi I Hercegovini iz perspective potrošača (individua) I poslovnog sektora. July 2019.

MasterIndex BiH 2022. "Građani BiH žele mogućnost plaćanja karticama u medicinskim ustanovama, državnim institucijama i komunalnim preduzećima." Accessed May 27, 2022. https://www.mastercard.ba/bs-ba/vizija/novosti/masterindex-beskontaktno-placanje.html

Media and Civil Society Development Foundation "Mediacentar." Media and Information Literacy in the Western Balkans: Unrealized Emancipatory Potential. 2019. https://www.media.ba/en/publication/media-and-information-literacy-western-balkans-unrealized-emancipatory-potential

Mekić, Ensar; Maksić, Adis; Hadžimusić, Belmin. Digital Literacy and ERP Technology Adoption in BiH. 2017. http://ef.untz.ba/wp-content/uploads/2021/03/2_NOV_2020_DOI_pp_17_30-1.pdf

Ministry of Interior Affairs. Canton Sarajevo. Administrative procedure for car registration in Canton Sarajevo. https://ap.ks.gov.ba/administrativni-postupak/128

Ministry of Transport and Communications of BiH. The medium-term work plan of the Ministry of Transport and Communications for the period from 2020 to 2022. http://www.mkt.gov.ba/Content/Read/srednjorocni-i-godisnji-programi-rada#

Ministry of Transport and Communications of BiH. Work program of the Ministry of Transport and Communications of BiH for 2021. http://www.mkt.gov.ba/Content/Read/srednjorocni-i-godisnji-programi-rada#

M:tel. Accessed June 2022. https://mtel.ba/n363/Investors#tab-three

Nezavisne novine. "Elektronski potpis koči uvođenje e-građevinske dozvole u Srpskoj." Accessed December 23, 2021. https://www.nezavisne.com/novosti/drustvo/Elektronski-potpis-koci-uvodjenje-e-gradjevinske-dozvole-u-Srpskoj/696295

Numbeo. Europe: Prices by City of Internet (60 Mbps or More, Unlimited Data, Cable/ADSL). Accessed February 8, 2022. https://www.numbeo.com/cost-of-living/region_prices_by_city?itemId=33&region=150&displayCurrency=EUR

OECD. Program for International Student Assessment (PISA): BiH. Student Performance – Resources for Education. 2019. https://gpseducation.oecd.org/CountryProfile?primaryCountry=BIH&treshold=5&topic=PI#:~:text=In%20reading%20literacy%2C%20the%20main,30%20points%20higher%20for%20girls

Official Journal of the European Union. Directive (EU) of the European Parliament and of the Council concerning measures for a high common level of security of network and information systems across the Union. 2016. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016L1148&from=EN

OSCE. Guidelines for a strategic cybersecurity framework in Bosnia and Herzegovina. October 2019. Guidelines for a strategic Cybersecurity Framework in Bosnia and Herzegovina | OSCE

OSCE. Hate Monitor. https://www.osce.org/hatemonitorbih

Plan and program of work of the Communications Regulatory Agency for 2021. https://bhas.gov.ba/content/read/90?lang=hr

Public Administration Reform Coordinator's Office. Strategic Framework for Public Administration Reform in BiH 2018-2022. https://parco.gov.ba/en/rju/o-rju-2/strateski-okviri-za-rju/

PwC. Western Balkans: Emerging Cyber threats. March 2022.

Radio Free Europe. "Bosnian Serb Leader Says Secession Plan Delayed By War in Ukraine." Accessed June 2022. https://www.rferl.org/a/bosnia-herzegovina-dodik-secession-ukraine/31886186.html

Regional Cooperation Council. Balkan Public Barometer. https://www.rcc.int/balkanbarometer/results/2/public

Regional Cooperation Council. Report on the State of Application of Digital Economy Society Index (DESI) in Western Balkan Economies. 2021. https://www.rcc.int/pubs/125/report-on-the-state-of-application-of-digital-economy-society-index-desi-in-western-balkan-economies

Regional Cooperation Council. Western Balkans SecuriMeter. 2022. https://www.rcc.int/download/docs/Securimetar%202022_final.pdf/812a4b746e4de5f7f5b657c61a82cd34.pdf

Resonant Voices. Accessed May 11, 2022. https://resonantvoices.info/

RS Institute of Statistics. Statistical Yearbook of RS, 2021. https://www.rzs.rs.ba/static/uploads/bilteni/godisnjak/2021/StatistickiGodisnjak_2021_WEB_II.pdf

Rusi.org "Russia is Weaponising Bosnia and Herzegovina's Gas Dependence." Accessed June 2022. https://rusi.org/explore-our-research/publications/commentary/russia-weaponising-bosnia-and-herzegovinas-gas-dependence

Save the Children. Behavior and Habits of Children on the Internet: Attitudes of Children, Parents, and Computer Science Teachers. 2016. https://nwb.savethechildren.net/sites/nwb.savethechildren.net/files/library/Izvjestaj-ponasanje-djece-na-internetu.pdf

Source.ba "Pročitajte šta znači ukidanje roaming ana Balkanu: Gdje ćete moći jeftino pričati, tipkati I koristiti mobilni internet." Accessed May 27, 2022. https://www.source.ba/clanak/Haris/569118/Procitajte-sta-znaci-ukidanje-roaminga-na-Balkanu--Gdje-cete-moci-jeftino-pricati-tipkati-i-koristiti-mobilni-internet

South East European Network for the Professionalization of Journalism (SEENPM). Media Trust in the Western Balkans: Together Apart. 2021. https://seenpm.org/wp-content/uploads/2021/09/Resilence3-1a-Media-trust.pdf

The Atlantic Initiative. Exploring Ethno-Nationalist Extremism in BiH. 2021. https://atlanticinitiative.org/wp-content/uploads/2021/07/Exploring-ethno-nationalist-extremism-in-Bosnia-and-Herzegovina.pdf

The Digital WB6+ Initiative. The Impact of Digital Transformation on the Western Balkans. 2018. https://wb6digital.files.wordpress.com/2018/01/wb6-study.pdf

The GLOBSEC Vulnerability Index: Evaluating susceptibility to foreign malign influence in 8 Central European & Western Balkan countries. Accessed May 11, 2022. https://www.globsec.org/publications/the-globsec-vulnerability-index-evaluating-susceptibility-to-foreign-malign-influence-in-8-central-european-western-balkan-countries/

The Ombudsmen for Human Rights of BiH. Special Report on Hate Speech in BiH. https://ombudsmen.gov.ba/Download.aspx?id=321&lang=EN

The Sarajevo Stock Exchange. Share issue profiles. Accessed June 2022. http://www.sase.ba/v1/en-us/Market/Issuers-Securities/Issuer-profile

The University of New York in Prague. International Media Assistance in BiH: Lessons Learned. December 2013.

Tomić, Stefan. A Comparative Study: Populism in Bosnia and Herzegovina and Serbia. 2020.

Vladisavljev, Stefan. "China's 'Digital Silk Road' Enters the Western Balkans." June 2021. China's 'Digital Silk Road' Enters the Western Balkans - BFPE English

Vajzović, Emir; Hibert, Mario; Turčilo, Lejla; Vučetić, Vuk; Silajdžić, Lamija. Media and Information Literacy: Learning design for the digital age. 2021. https://fpn.unsa.ba/b/wp-content/uploads/2021/04/MEDIJSKA-I-INFORMACIJSKA-PISMENOST-DIZAJN-UCENJA-ZA-DIGITALNO-DOBA_e-izdanje-1.pdf

Vajzović, Emir. Media and Information Literacy: Research and Development. 2020. https://fpn.unsa.ba/b/wp-content/uploads/2020/12/MEDIJSKA-I-INFORMACIJSKA-PISMENOST-ISTRAZIVANJE-I-RAZVOJ_e-izdanje-1.pdf

UNDP. Analysis of Skills Needed by the Software Industry in BiH. 2019. https://www.undp.org/bs/bosnia-herzegovina/publications/analiza-potrebnih-vje%C5%A1tina-za-softversku-industriju-u-bosni-i-hercegovini

UNDP. Digital Transformation in the Public Sector in BiH Project (2020-2024). 2020. https://info.undp.org/docs/pdc/Documents/BIH/Digital_transfromation_prodoc.docx.pdf

UNDP. "ICT sector as a strategic opportunity for advancement of economy in BiH." Accessed May 11, 2022. https://www.undp.org/bosnia-herzegovina/news/ict-sector-strategic-opportunity-advancement-economy-bih

UNDP. Kanton Sarajevo: Digitalna Uprava 2.0.

UNDP. Smart City Initiative. Accessed May 27, 2022. https://www.undp.org/bosnia-herzegovina/projects/smart-city-initiative

UNDP Strategic Plan 2022-2025. UNDP Strategic Plan 2022-2025 | United Nations Development Programme

UNDP. The World Bank. EU. Roma at a Glance: BiH Fact Sheet. 2018. https://www.undp.org/eurasia/publications/regional-roma-survey-2017-country-fact-sheets

UNESCO. Assessment of media development in BiH: based on UNESCO's media development indicators. 2019. https://unesdoc.unesco.org/ark:/48223/pf0000371223

UNICEF. "Mapiranje IKT Resursa Osnovnih I Srednjih Škola U BiH." March 2022.

UNICEF. Social Impacts of COVID-19 in BiH: Second Household Survey. 2021. https://www.unicef.org/bih/media/6251/file/Social%20Impacts%20of%20COVID-19%20in%20Bosnia%20and%20Herzegovina.pdf

UNIDIR. Cybersecurity Policy. Bosnia and Herzegovina - Cyber Policy Portal

United Nations Office on Drugs and Crime. The effects of the COVID-19 pandemic on trafficking in persons and responses to the challenges. https://www.unodc.org/documents/human-trafficking/2021/The_effects_of_the_COVID-19_pandemic_on_trafficking_in_persons.pdf

USAID. Digital Literacy Primer. How to Build Digital Literacy into USAID Programming.

USAID. FinTech Partnerships Playbook: How donors can pursue private sector engagement to strengthen digital finance ecosystems. April 2019.

USAID and DAI. Digital Ecosystem Framework. August 2021. https://www.usaid.gov/digital-development/digital-ecosystem-framework

USAID's Bureau for Development, Democracy, and Innovation (DDI). Artificial Intelligence Action Plan. May 2022. https://www.usaid.gov/sites/default/files/2022-08/USAID_AI_Plan_05122021.pdf

USAID/BiH's E-Governance Activity. Regulation/Procedures or Amendments to E-Harmonized Legislation. March 2022.

USAID/BiH's Energy Policy Activity. Report on Gap Analysis Regarding BiH Cybersecurity Regulations and Policies and its Compliance with ENC and EU Regulations. January 2021.

USAID/BiH's INSPIRE Activity. Trafficking in persons – court case analysis. June 2022.

USAID/BiH's Monitoring and Evaluation Support Activity. Assessment of BiH E-governance and E-administration. 2018. https://measurebih.com/uimages/MEASURE-BiH20E-Governance20E-Administration20Assessment20Final20Report2012Dec2018.pdf

USAID/BiH's Monitoring and Evaluation Support Activity. Brief Media Assessment Update. 2020. https://www.measurebih.com/brief-media-assessment-update

USAID/BiH's Monitoring and Evaluation Support Activity. Diaspora Assessment. 2021. http://measurebih.com/uimages/Diaspora20Assessment.pdf

USAID/BiH's Monitoring and Evaluation Support Activity. Gender Analysis for BiH: 2019 Follow-Up. 2019. https://measurebih.com/uimages/Gender20Analysis20201920Follow-Up20Final20Report.pdf

USAID/OTI. Media Landscape Profile – Bosnia and Herzegovina. June 2021.

U.S. Department of State. 2021 Trafficking in Persons Report: BiH. 2021. https://www.state.gov/reports/2021-trafficking-in-persons-report/bosnia-and-herzegovina/

Webalkans PLtform. EU funded research shows polarized public trust in the media in BiH. 2021. https://webalkans.eu/en/news/eu-funded-research-shows-polarised-public-trust-in-the-media-in-bih/

Westminister Foundation for Democracy. Cost of Youth Emigration from Bosnia and Herzegovina. 2020. https://www.wfd.org/wp-content/uploads/2020/06/Cost-of-Youth-Emigration-from-BH_official_version-1-1.pdf

Why Not Association: Cvjetićanin, Tijana; Zulejhić, Emir; Brkan, Darko; Livančić-Milić, Biljana. Disinformation in the online sphere, the case of BiH. April 2019.

World Bank. (2019). Enterprise Surveys: Bosnia and Herzegovina. https://www.enterprisesurveys.org/content/dam/enterprisesurveys/documents/country/Bosnia-and-Herzegovina-2019.pdf

World Bank. FinTech Innovations in the Western Balkans: Policy and Regulatory Implications & Potential Interventions. April 2020. https://www.jbs.cam.ac.uk/wp-content/uploads/2020/08/2020-ccaf-fintech-innovation-western-balkans.pdf

World Bank. The Global Financial Inclusion Data/Global Findex – BiH. 2018. http://datatopics.worldbank.org/financialinclusion/country/bosnia-and-herzegovina

World Bank. Western Balkans Regular Economic Report – Greening the Recovery. 2021. https://www.esap.online/observatory/pubs/29/world-bank-western-balkans-regional-economic-report-no-20-fall-2021-greening-the-recovery

World Bank. Women, business and law 2022 – BiH. https://openknowledge.worldbank.org/handle/10986/36945

World Economic Forum. The Global Competitiveness Report. 2019. https://www.weforum.org/reports/how-to-end-a-decade-of-lost-productivity-growth

Xinhua Silk Road Information Service. Huawei aids BiH in building smart city. 2018. https://en.imsilkroad.com/p/118790.html

Zurovac, Lj. Mosig, L, Madoleva S. Konrad Adenauer Stiftung. Media Outlets in BiH. Accessed on July 26, 2022. https://www.kas.de/en/web/balkanmedia/media-outlets1

Zulejhić, E. Research: Misinformation in the election process in BiH. 2021. https://zastone.ba/istrazivanje-dezinformacije-u-izbornom-procesu-u-bih/

ANNEX D. LIST OF RELEVANT LAWS/POLICIES/REGULATIONS/STRATEGIES

LAWS/POLICIES/REGULATIONS/STRATEGIES RELATED TO THE DIGITAL ECOSYSTEM		
1. ***LAW ON COMMUNICATIONS IN BIH 2003***	This Law regulates communications in Bosnia and Herzegovina, and the establishment and work of the Communications Regulatory Agency of Bosnia and Herzegovina in accordance with the Constitution of Bosnia and Herzegovina, which provides for the establishment and operation of common and international communications facilities. According to the Law, communications include telecommunications, radio, broadcasting and associated services and facilities.	LINK
2. ***LAW ON ELECTRONIC SIGNATURE 2006***	The law regulates the use of electronic signatures in legal operations and other legal actions, as well as the rights, obligations, and responsibilities in relation to electronic certificates (verifications).	LINK
3. ***LAW ON ELECTRONIC LEGAL AND BUSINESS TRANSACTIONS 2007***	This Law regulates the legal framework for an electronic legal and business transaction, which includes the provision of ICT services, the obligations of service providers, the conclusion of contracts, and the responsibility of service providers.	LINK
4. ***LAW ON ELECTRONIC DOCUMENTS 2014***	The Law applies to all public institutions, legal entities, and entrepreneurs whenever they participate in activities that include using equipment and programs to produce, transfer, download, and maintain information in electronic form.	LINK
5. ***LAW ON TAX ADMINISTRATION 2005***	This Law introduces an obligation and regulates the tax administration on the territory of BiH.	LINK
6. ***POLICY OF ELECTRONIC COMMUNICATION SECTOR OF BIH 2017-2021***	The policy has set goals that need to be achieved in the sector of electronic communications and deadlines and has identified the institutions in BiH for their realization.	LINK
7. ***BROADCASTING POLICY 2006***	The policy of the broadcasting sector in BiH provides guidelines for implementing the provisions of the Law on Communications and the obligations prescribed by European conventions and regulations of the European Union (EU), also referred to as "directives."	LINK
8. ***THE INFORMATION SOCIETY DEVELOPMENT POLICY 2017–2022***	The Policy defines activities that focus on further and accelerate the development of the ICT sector in BiH. The Council of Ministers of BiH is responsible for implementing the Policy. At the same time, the Ministry of Communications and Transport of BiH is accountable for monitoring the implementation in cooperation with the entity and Brčko District competent institutions.	LINK
9. ***THE INFORMATION SECURITY DEVELOPMENT POLICY OF BIH INSTITUTIONS 2017–2022***	The Policy defines a set of documents that are the basis for implementing information security management systems in the institutions. The policy treats the areas of information security management by the ISO/IEC 27001 standard.	LINK

LAWS/POLICIES/REGULATIONS/STRATEGIES RELATED TO THE DIGITAL ECOSYSTEM		
10. ***THE INFORMATION SOCIETY MANAGEMENT POLICY 2017-2022***	The policy defines organizations' relationships to information assets. In this context, its primary purpose is to inform managers, technicians, and users about the essential requirements for protecting information assets, including those attributes to people, hardware, and software resources and data.	
11. ***LAW ON PROTECTION OF SECRET DATA 2005***	The Law regulates coon bases of a single system of designation, access to, use, keeping, and protection of confidential data from unauthorized disclosure, destruction, and abuse within the competence of BiH, entities, and other levels of government structure of BiH pertaining to public security, defense, foreign affairs or intelligence and security activities, declassification of such information, and security clearance procedure and issuance of security authorization to access confidential data.	LINK
12. ***LAW ON INTELLIGENCE AND SECURITY AGENCY 2004***	In line with the Law, the Intelligence and Security Agency was established, responsible for collecting, analyzing, and distributing intelligence to protect the security, including sovereignty, territorial integrity, and constitutional order of Bosnia and Herzegovina.	LINK
13. ***LAW ON THE PROTECTION OF PERSONAL DATA 2006***	The Law on Protection of Personal Data covers the protection of personal data in the territory of Bosnia and Herzegovina processed by all public institutions, as well as by natural and legal persons, less otherwise specified.	LINK
14. ***FREEDOM OF ACCESS TO INFORMATION LAW OF BIH 2003***	The purposes of the Act are a) to acknowledge that information in the control of public authorities is a valuable public resource and that public access to such information promotes greater transparency and accountability of those authorities and is essential to the democratic process; b) to establish that every person has a right to access this information to the greatest extent possible consistent with the public interest and that public authorities have a corresponding obligation to disclose information; and c) to enable every natural person to request amendment of, and to comment on, their personal information in the control of a public authority.	LINK
15. ***LAW ON THE PUBLIC BROADCASTING SERVICE OF BIH 2005.***	The Law regulates the Public Broadcasting Service of BiH and, in particular, the issues of its registration, activity, and organization.	LINK
16. ***LAW ON GENERAL ADMINISTRATIVE PROCEDURES 2002.***	The Law determines the rules of administrative procedure to which the administrative bodies act, directly applying the regulations and deciding on the rights and obligations or legal interests of natural persons and other parties.	LINK
17. ***BIH ELECTION LAW 2013.***	This law shall regulate the election of the members and the delegates of the Parliamentary Assembly of BiH and the members of the Presidency of BiH. It shall stipulate the principles governing the polls at all levels of authority in BiH.	LINK
18. ***STRATEGIC FRAMEWORK OF PUBLIC ADMINISTRATION REFORM IN BIH 2018–2022***	The primary purpose of the PAR Strategy is to create and sustain a public administration capable of delivering quality services to citizens and businesses, which would operate on the principles of good governance and ensure the implementation of reforms required in the European integration process.	LINK

LAWS/POLICIES/REGULATIONS/STRATEGIES RELATED TO THE DIGITAL ECOSYSTEM		
19. ***STRATEGY FOR THE ESTABLISHMENT OF THE BIH CERT 2011***	This document indicates the necessity and justification of the establishment of BIH CERT, provides guidelines whose monitoring will result in the successful functioning of BIH CERT, and forms a strategic framework defining short-term and midterm goals of BIH CERT.	LINK
20. ***BIH STRATEGY FOR COMBATING HUMAN TRAFFICKING (2020-2023)***	The strategy emphasizes the necessity of defining BiH policies to combat human trafficking for the next four-year period, with particular attention to the planning of strategic goals and measures to prevent, suppress and combat various forms of human trafficking.	LINK
21. ***FBIH STRATEGY FOR DEVELOPMENT 2021-2027***	Recognized the importance of digital literacy – the FBiH will organize training programs, provide budget funds for free and paid programs, develop action plans for digital education, and conduct awareness-raising campaigns on the need to acquire digital skills.	LINK
22. ***FBIH STRATEGIC PROGRAM FOR THE SAFETY OF CHILDREN IN THE DIGITAL ENVIRONMENT FOR THE PERIOD 2021-2024***	The aim of the program is to ensure the protection of the youngest population from risks in the online world.	LINK
23. ***FBIH LAW ON ELECTRONIC DOCUMENT 2013***	The Law regulates the right of federal and cantonal administrative bodies, local government authorities, companies, institutions, and others to use electronic documents in business activities and in administrative proceedings in which electronic equipment and programs can be used in the production, transmission, reception, and storage of information in electronic form.	LINK
24. ***FREEDOM OF ACCESS TO INFORMATION LAW OF FBIH 2001***	The Law regulates access to information for the purpose of: 1. Establishing that information under the control of a public authority represents a significant public good and that public access to information promotes greater transparency and responsibility of public authorities, which is necessary for the democratic process, 2. Determining that every person has the right to access public information, in accordance with the public interest, and that public authorities have a corresponding obligation to communicate information, 3. Enabling any person to request changes and comment on their personal information under the control of a public body.	LINK

LAWS/POLICIES/REGULATIONS/STRATEGIES RELATED TO THE DIGITAL ECOSYSTEM		
25. ***RS LAW ON ELECTRONIC DOCUMENT, ELECTRONIC IDENTIFICATION, AND CONFIDENTIAL SERVICES IN ELECTRONIC BUSINESS OPERATIONS 2008***	The law regulates the use of electronic signatures in legal operations and other legal actions, as well as the rights, obligations, and responsibilities in relation to electronic certificates (verifications).	LINK
26. ***RS LAW ON CRITICAL INFRASTRUCTURE 2019***	The Law regulates the critical infrastructure of the RS, essential sectors of infrastructure in the RS, critical infrastructure management, obligation to prepare risk analysis, security plan of critical infrastructure facilities, cooperation in the field of critical infrastructure, handling of protected data, supervision over the implementation of the law.	LINK
27. ***RS LAW ON INFORMATION SECURITY 2019***	This Law regulates measures for protection against security risks in ICT systems, responsibilities of legal entities, and use of ICT systems.	LINK
28. ***FREEDOM OF ACCESS TO INFORMATION LAW OF RS 2001***	The Law regulates access to information for the purpose of: 1. Establishing that information under the control of a public authority represents a significant public good and that public access to information promotes greater transparency and responsibility of public authorities, which is necessary for the democratic process, 2. Determining that every person has the right to access public information, in accordance with the public interest, and that public authorities have a corresponding obligation to communicate information, 3. Enabling any person to request changes and comment on their personal information under the control of a public body.	LINK
29. ***RS LAW ON TAX PROCEDURE 2020***	This Law governs the organization and competencies of the Tax Administration of the Republic of Srpska, rights, and obligations of taxpayers, the tax procedure, payment of tax liabilities, regular and enforced collection of tax liabilities, as well as other forms of termination of tax liabilities, tax audit, special audit, legal remedy procedure and supervision in the tax field in the Republic of Srpska.	LINK
30. ***RS STRATEGY FOR THE DEVELOPMENT OF E-GOVERNMENT FOR 2019–2022***	The strategy represents the continuation of intensive activities started in 2008 on the preparation and adoption of the Strategy for the Development of the Electronic Government of the Republic of Srpska for the period 2009-2012, as well as a series of activities implemented on the normative, technological and personnel modernization of the electronic public administration system) in the Republic of Srpska.	LINK
31. ***BRCKO DISTRICT LAW ON ELECTRONIC SIGNATURE 2015***	The law regulates the use of electronic signatures in legal operations and other legal actions, as well as the rights, obligations, and responsibilities in relation to electronic certificates (verifications).	LINK

ANNEX E. RELEVANT DONOR PROJECTS

NO.	DONOR	NAME OF THE PROJECT	DURATION	AREA OF SUPPORT	BUDGET (USD)
1.	UNDP	DigitalBIZ project	(Initiation Stage ended May 31, 2022)	Provides support for the digital transformation of the economy through the necessary policies and regulatory changes, capacity development, as well as the development of infrastructure for technology transfer and fostering innovation.	463,700
2.	UNDP, Government of the United Kingdom, Government of the Netherlands	Digital Transformation in the Public Sector Project	2020–2024	Support governments and institutions across all levels to undergo a digital transformation, through enhanced capacities for transparent and effective policy-making, knowledge and resource management.	5,000,000
3.	UNDP	IT Girls	–	The rationale behind the IT Girls initiative lies in the cross-cutting commitment for the participation of women and girls in the labor market and their equal involvement in all career directions outlined in frameworks for the protection and promotion of women's rights and national policies and legislation in BiH.	
4.	UNICEF	GIGA Initiative	2019	Giga, an initiative launched by UNICEF and ITU in September 2019 to connect every school to the Internet and every young person to information, opportunity, and choice, is supporting the response to COVID-19, as well as looking at how connectivity can create stronger infrastructures of hope and opportunity in the "time after COVID."	
5.	GIZ	Strengthening Innovation and digitalization in SMEs in Bosnia and Herzegovina	2019–2022	Support SMEs in developing strategies for innovation and digitalization, and also provide assistance in the implementation of specific projects.	2,500,000
6.	EU	EU4Business	2018–2022	With the aim of strengthening BIH's economy, the EU4Business project stimulates the development of entrepreneurship, export-oriented sectors, tourism and agriculture.	16,100,000
7.	EU and EBRD	Go Digital Programme	2022	Help SMEs invest in the digitalization of their businesses, alongside other investments to improve productivity, operational efficiency and resilience	8,500,000

NO.	DONOR	NAME OF THE PROJECT	DURATION	AREA OF SUPPORT	BUDGET (USD)
8.	OSCE Mission in BiH	Cybersecurity Programme	–	Support to development of a harmonized strategic cybersecurity framework, establishment of Computer Emergency Response Teams (CERTs), and capacity building to fight cybercrime.	
9.	Development Facility of the European Fund for Southeast Europe (EFSE DF)	Programme to support the digital transformation of microfinance institutions	2022	The program assesses the digital readiness of the MFIs, diagnoses organizational constraints, develops a business strategy for digital transformation, and delivers a digital road map and action plan for each of the institutions	
10.	Swiss SDC	MarketMakers	2021–2026	The program strengthens underperforming market functions in the IT and Business/Knowledge-Process-Outsourcing (BPO/KPO) sectors in BiH. MM induces economic growth in private companies and contributes to create new and better jobs. MM further supports youth employment and entrepreneurship by improving conditions for self-employment, business creation and freelancing. Helped create a website to promote employment in the IT sector: http://www.itkarijera.ba/	2,414,598
11.	RCC	Digital Transformation	–	Support effective implementation of the Digital Agenda for the Western Balkans through CRM, and Alignment of WB Digital Agenda with EU Digital Single Market principles and practices and relevant European strategies	
12.	WB	Digital Highway for West Balkans		The Balkans Digital Highway initiative aims to improve access to high-speed broadband services nationally and regionally, in and between participating countries, by setting up a regional wholesale broadband network over OPGW infrastructure of the participating TSOs. Thanks to the outcomes of the Project, the TSOs will be able, in collaboration with each other, to offer seamless wholesale broadband services cross-border and across participating countries.	16,600,000

MONITORING AND EVALUATION SUPPORT ACTIVITY (MEASURE II)

Fra Anđela Zvizdovića 1
UNITIC Tower B, Floor 21
71000 Sarajevo
Bosnia and Herzegovina
Phone: +(387) 033 941 676
contacts@measurebih.com
www.measurebih.com