Bosna i Hercegovina
Regulatorna agencija za komunikacije

Босна и Херцеговина
Регулаторна агенција за комуникације

Bosnia and Herzegovina
Communications Regulatory Agency

An update on Bosnia and Herzegovina telecom and Internet infrastructure landscape, including regulatory developments and challenges

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RIPE NCC Fifth South East European (SEE)

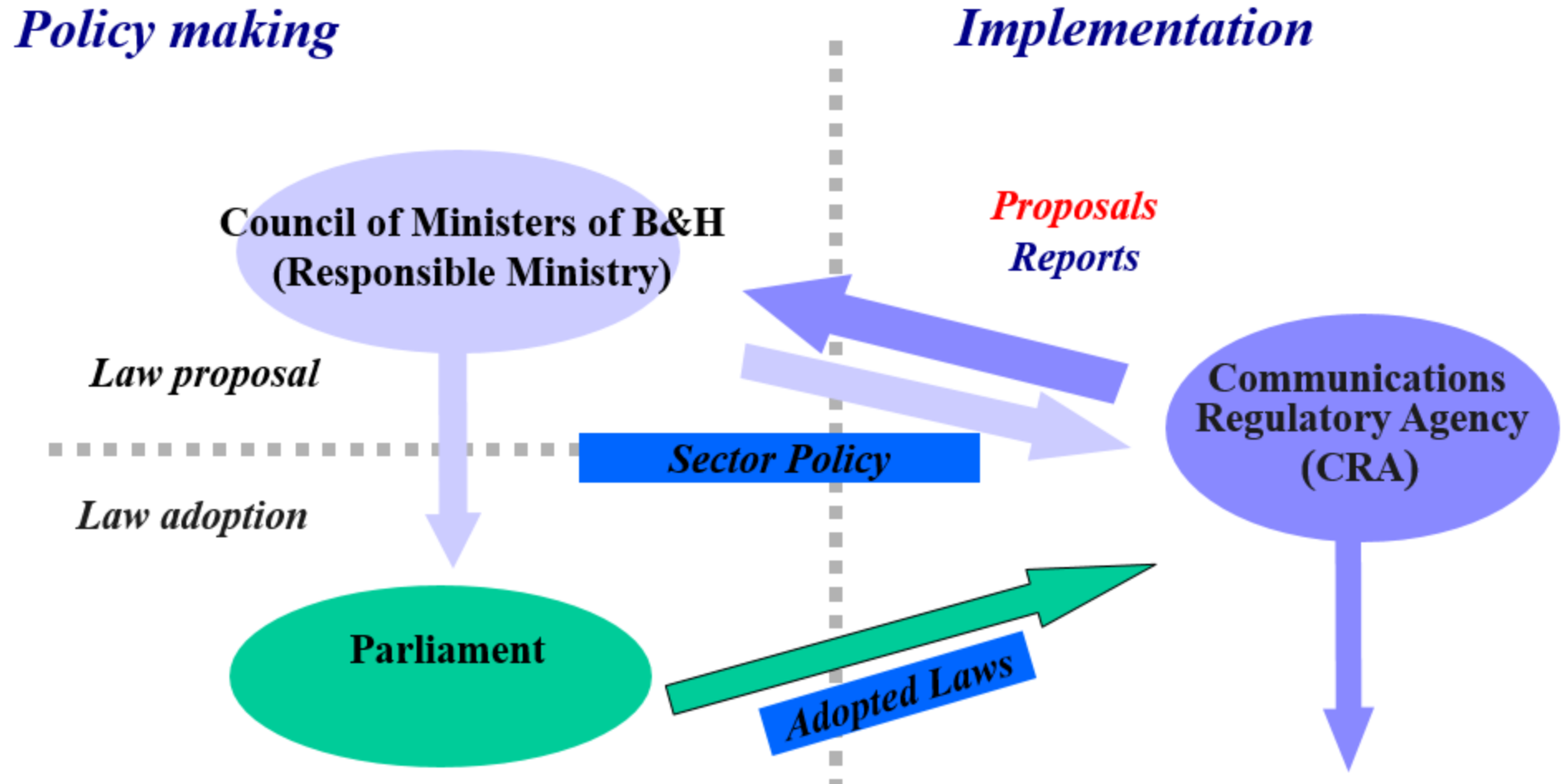**Roundtable for Governments and Regulators**

Sofia, 7 April 2025.

Agenda

1. Introduction - Regulatory framework

❑The Agency operates on the state level, and its mandate is defined by the Law on Communications of Bosnia and Herzegovina

❑Need for adoption of Law on electronic communications in line with the EU acquis.

Policy making

Implementation

Council of Ministers of B&H
(Responsible Ministry)

Proposals
Reports

Law proposal

Sector Policy

Communications
Regulatory Agency
(CRA)

Law adoption

Parliament

Adopted Laws

2. Telecom and Internet landscape in BiH

❑ 3 Incumbent Operators (mobile telephony, fixed telephony, internet)

❑ 58 Internet Service Providers

❑ 67 Network Operators

❑ 8 Alternative Fixed Telephony Operators

❑ 5 Mobile Service Providers

2. Telecom and Internet landscape in BiH

FIXED INTERNET	31.12.2023.
Number of ISP operators	63
Total number of fixed internet subscribers	907.951
Total number of subscribers via xDSL connection	455.381
Total number of subscribers via cable modem	270.869
Number of subscribers via FWA (Fixed Wireless Access) connection	65.331
Total number of subscribers via leased lines	2.096
Total number of subscribers via FTTH connection	114.251
Total number of subscribers via other technologies	23
MOBILE INTERNET	**31.12.2023.**
Number of mobile internet subscribers via standard mobile broadband access	2.208.915
Number of mobile internet subscribers via dedicated broadband access	17.747

Table 1. Fixed and Mobile Internet,

Source: www.rak.ba

2. Telecom and Internet landscape in BiH

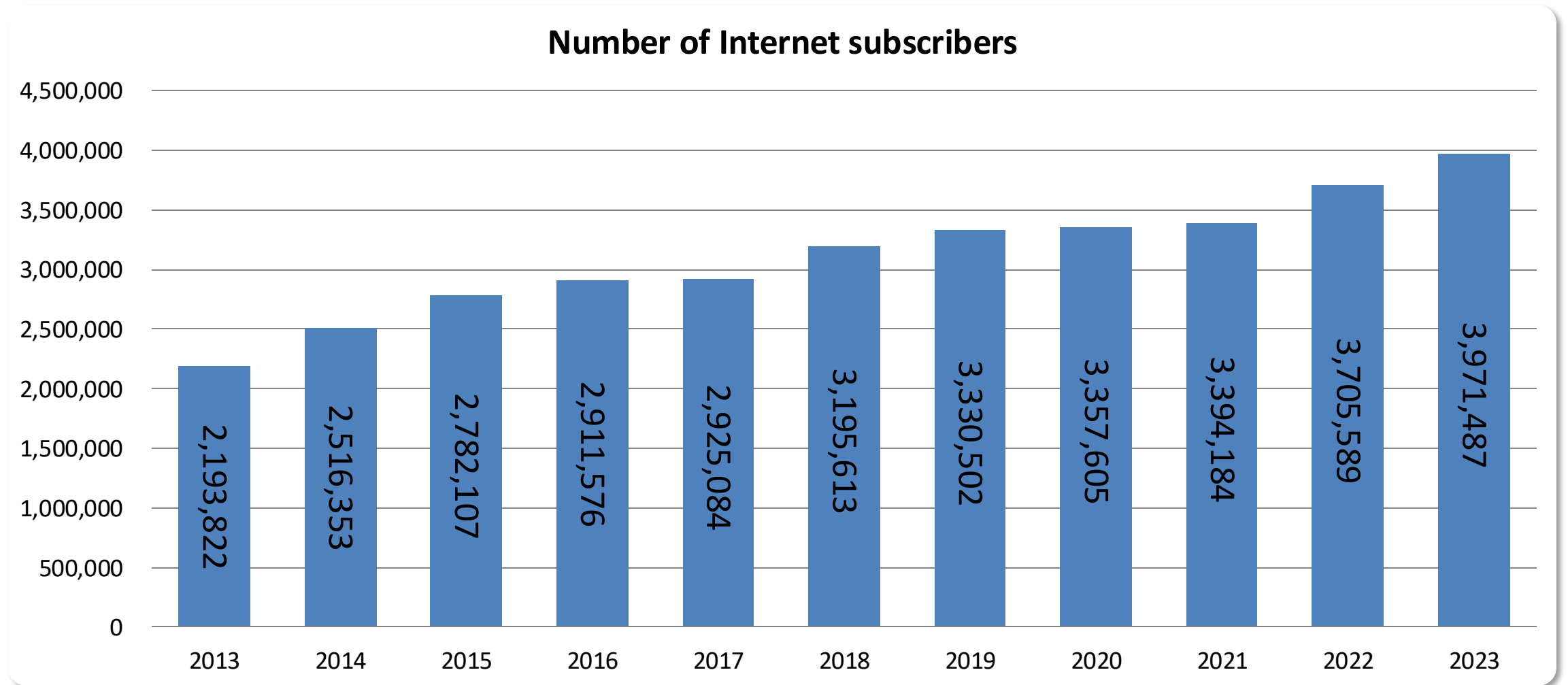**Number of Internet subscribers**

Figure 1. Number of Internet subscribers (2013–2023),

Source: www.rak.ba

2. Telecommunications indicators

Percentage ratio of broadband connections in BiH by access technologies
(fixed network 2016-2023)

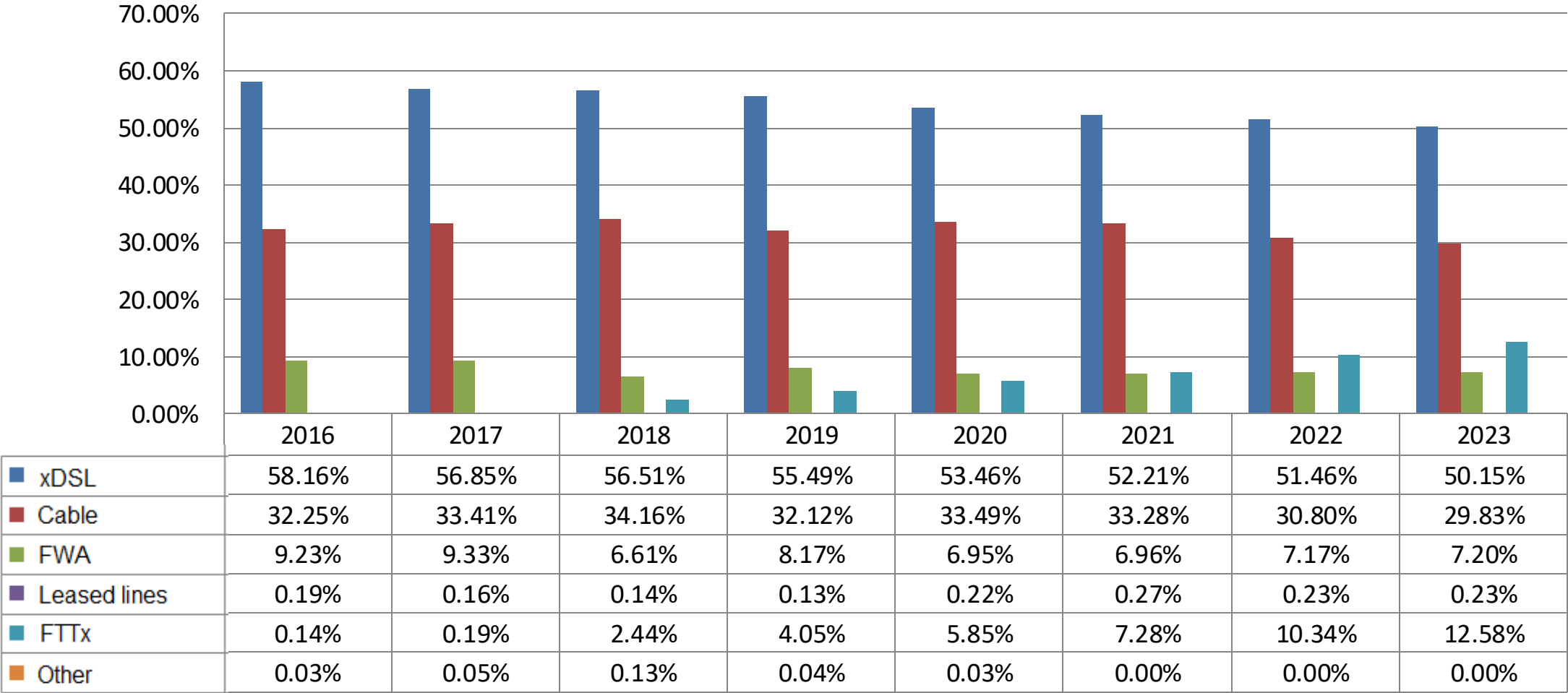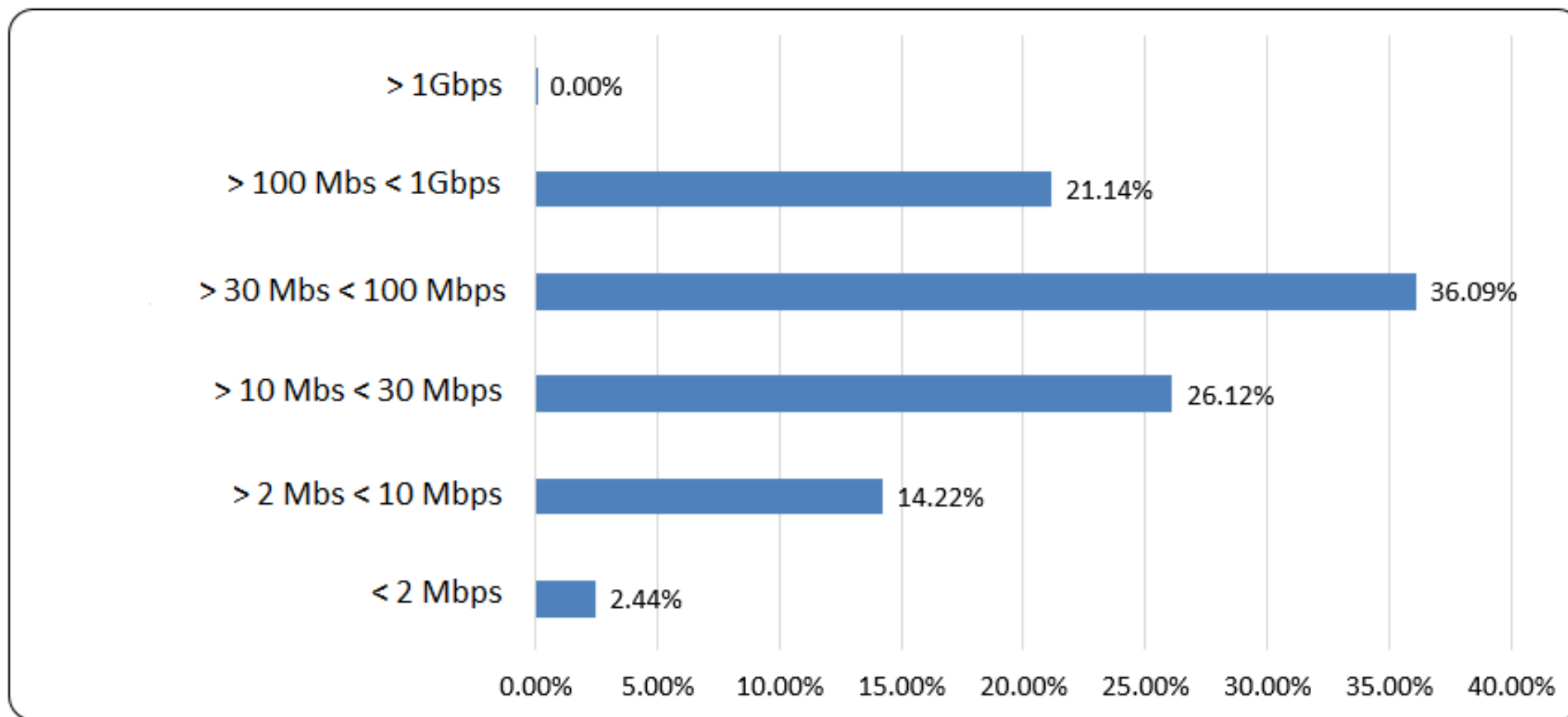|	2016	2017	2018	2019	2020	2021	2022	2023
xDSL	58.16%	56.85%	56.51%	55.49%	53.46%	52.21%	51.46%	50.15%
Cable	32.25%	33.41%	34.16%	32.12%	33.49%	33.28%	30.80%	29.83%
FWA	9.23%	9.33%	6.61%	8.17%	6.95%	6.96%	7.17%	7.20%
Leased lines	0.19%	0.16%	0.14%	0.13%	0.22%	0.27%	0.23%	0.23%
FTTx	0.14%	0.19%	2.44%	4.05%	5.85%	7.28%	10.34%	12.58%
Other	0.03%	0.05%	0.13%	0.04%	0.03%	0.00%	0.00%	0.00%

Figure 2. Percentage ratio of broadband connections in BiH (2016–2023), Source:www.rak.ba

2. Telecom and Internet landscape in BiH

Figure 3. Share of broadband internet subscribers by access speeds in BiH,
Source: www.rak.ba
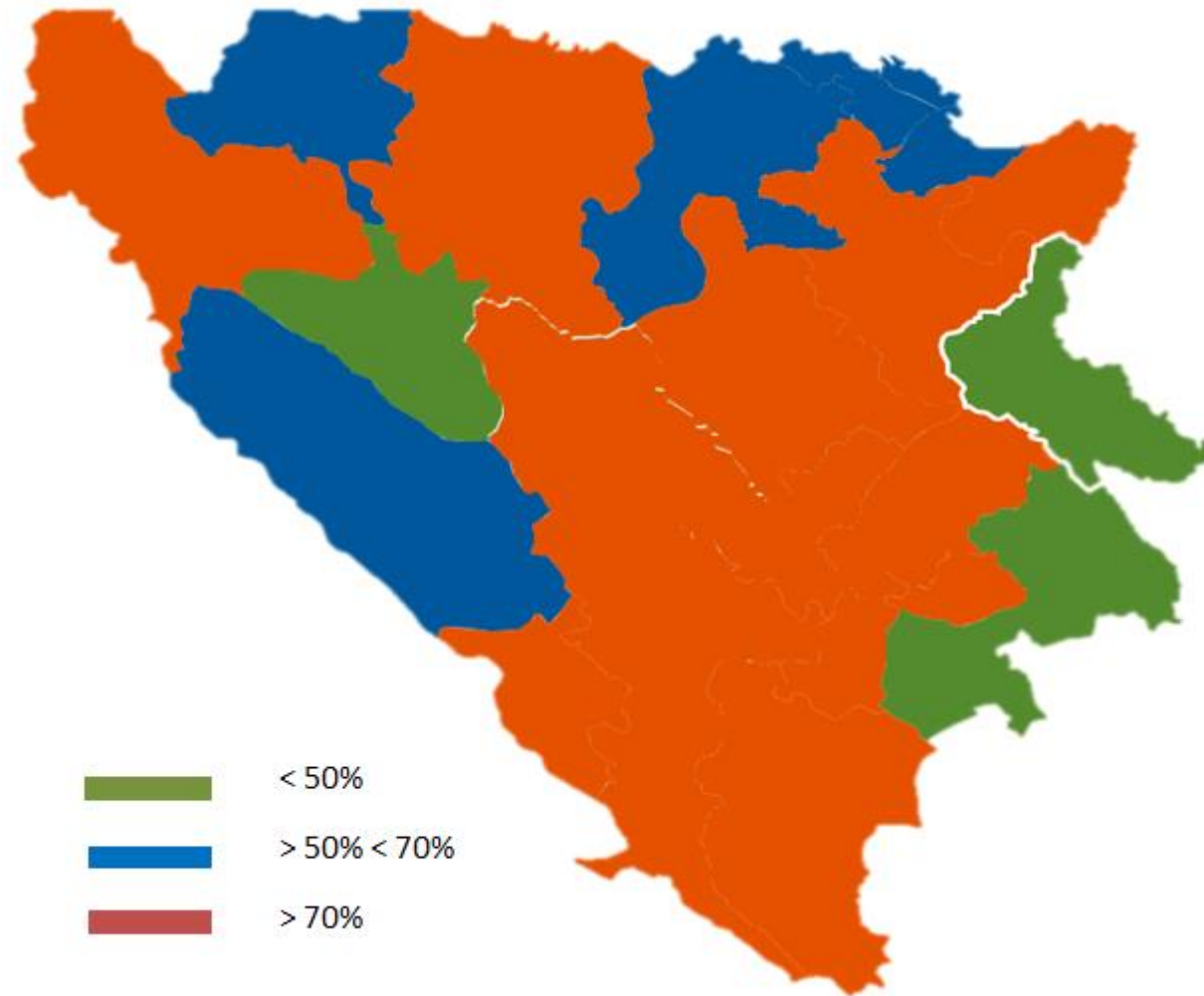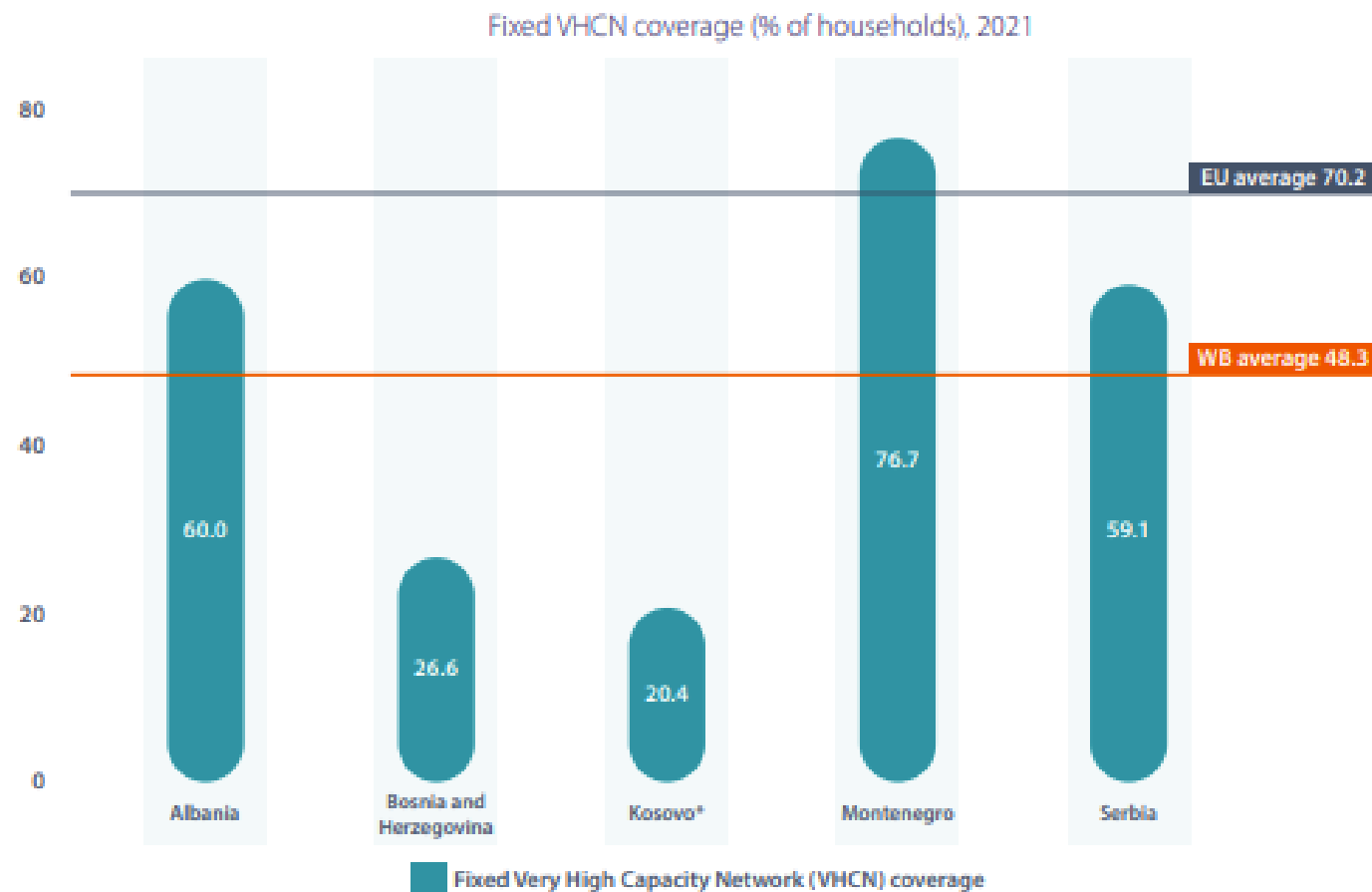
2. Telecom and Internet landscape in BiH

Figure 4. Graphical representation of % broadband household penetration in BiH, Source: www.rak.ba

2. Telecom and Internet landscape in BiH

Indicator	Status	Progress Score Target=100		Value
Internet users Individuals aged 15+ using the Internet %	⬤ Advanced	▰▰▰▰▰▱	83	83.4% Target is considered met if at least 95% of individuals use the Internet
Homes connected Households with Internet access at home %	⬤ Advanced	▰▰▰▰▰▱	81	81.6% The target is met if at least 95% of households have Internet access.
Mobile phone ownership Individuals who own a mobile cellular telephone %	⬤ Advanced	▰▰▰▰▰▱	87	87.9% The target is met if at least 95% of the population own a mobile phone.
High-speed fixed broadband Equal to or above 10 Mbit/s % fixed broadband subscriptions	⬤ Advanced	▰▰▰▰▰▱	83	83.3% Target is considered met if at least 95% of fixed broadband subscriptions have an advertised speed of at least 10 Mbit/s.

Table 2. Bosnia and Herzegovina Universal and Meaningful Connectivity indicators,
Source: ITU Dashboard for Universal and Meaningful Connectivity, https://datahub.itu.int/dashboards/umc/?e=BIH

2. Telecom and Internet landscape in BiH

Fixed VHCN coverage (% of households), 2021

EU average 70.2

WB average 48.3

Albania 60.0
Bosnia and Herzegovina 26.6
Kosovo* 20.4
Montenegro 76.7
Serbia 59.1
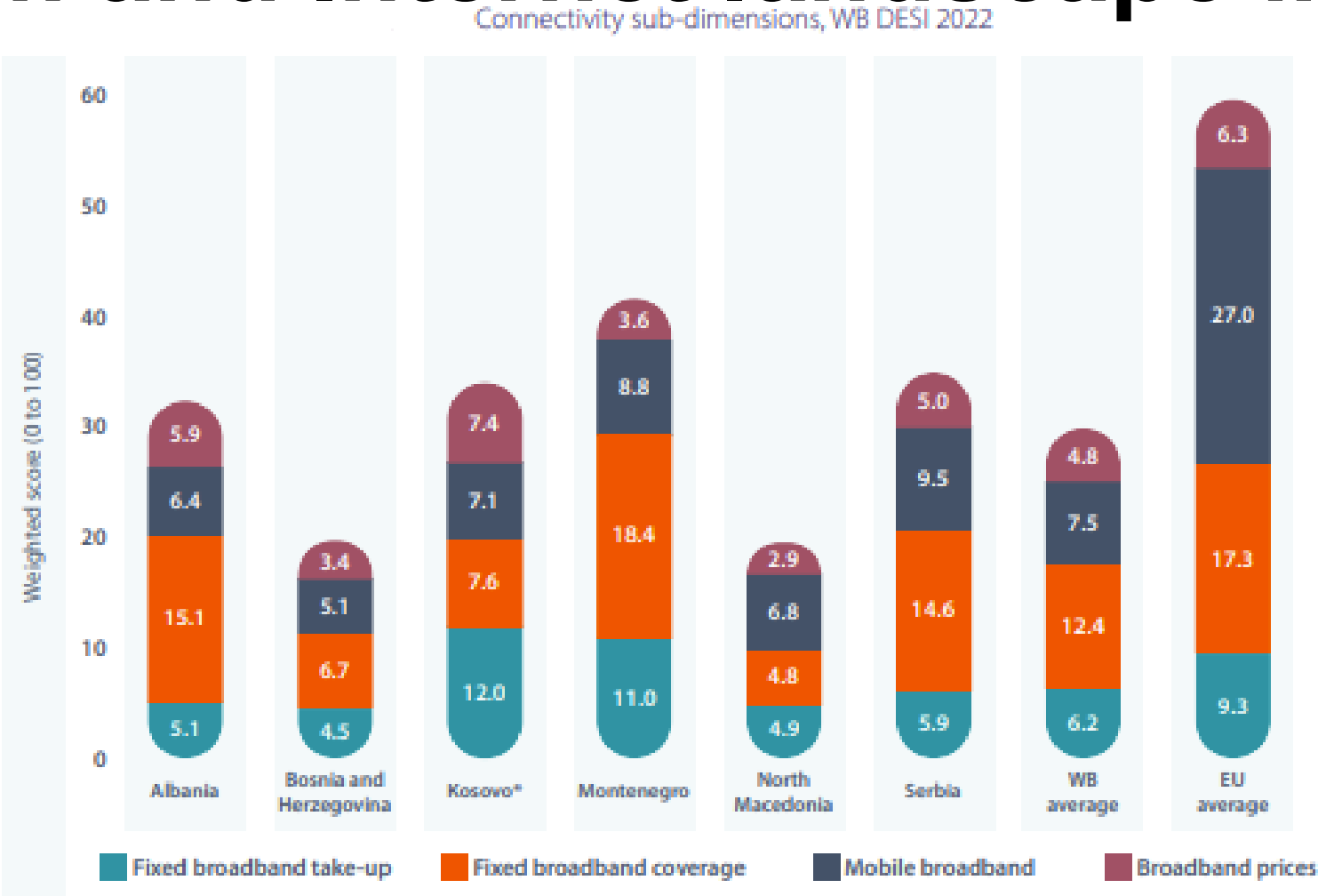
■ Fixed Very High Capacity Network (VHCN) coverage

Source: AKEP (Albania), ARKEP (Kosovo*), RAK (Bosnia and Herzegovina), EKIP (Montenegro), RATEL (Serbia), EU DESI 2022 (EU average)
Data on VHCN coverage for North Macedonia are not available

Figure 5. Fixed Very High- Capacity Coverage (VHCN)

Source:Western Balkan Digital Economy and Society Index (WB DESI) for 2022

2. Telecom and Internet landscape in BiH

Figure 6. Connectivity sub-dimensions

Source:Western Balkan Digital Economy and Society Index (WB DESI) for 2022

3. IXP in BiH

❑ BHNIX is the first and only Internet exchange point (IXP) in Bosnia and Herzegovina and as such contributes to the overall development of the national Internet ecosystem.
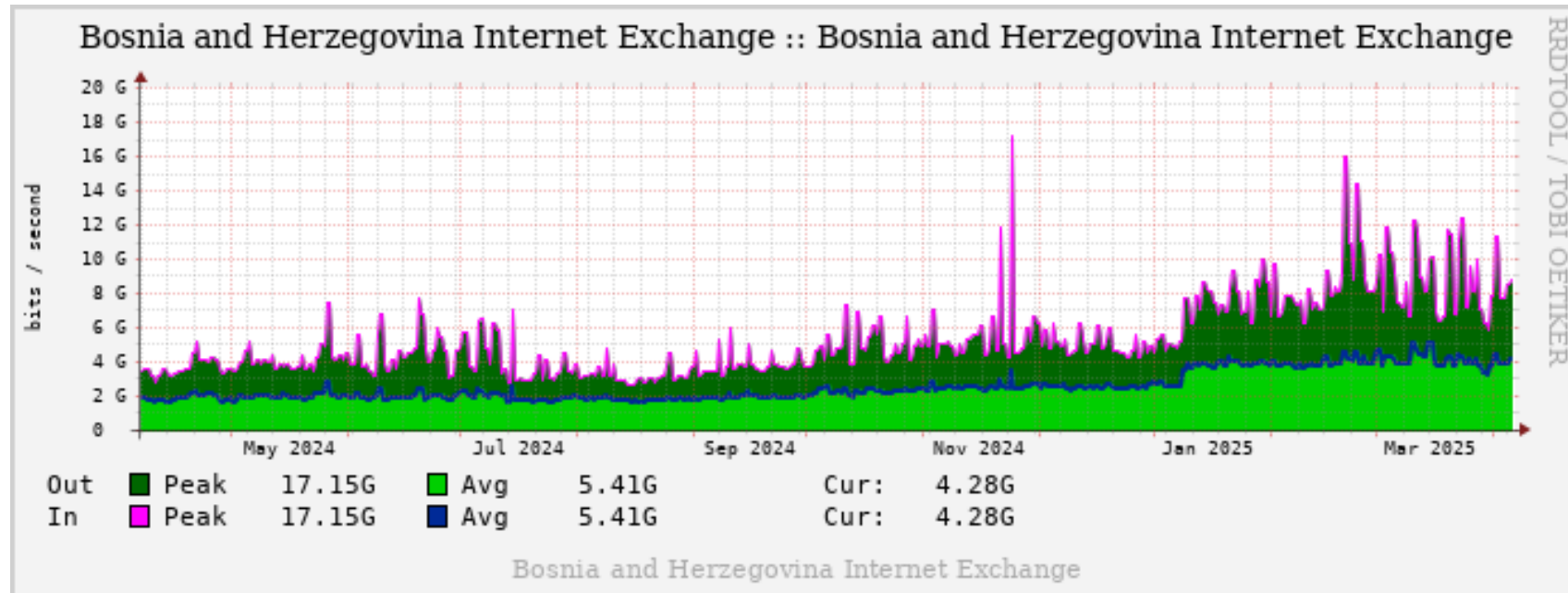

Figure 7. Bosnia and Herzegovina Internet Exchange Public Traffic Statistics
Source: https://portal.bhnix.ba/statistics/ixp

3. IXP in BiH

❑ Some important benefits of the IXP service are:

- Local Internet traffic stays local, which helps development of local Internet community

- Improvement of network performance (reduced packet delays, bandwidth improvement, more efficient routing)

- Promotion of local content and local hosting providers

- Reduction of the Internet traffic transit cost

- Improved user experience while using Internet services,

- Increasing network security (especially important for e-Government)

- Promotion of technical research and excellence in areas of network and Internet technologies

4. RAK NetTest Measurement Statistics

❑ The Agency offers users the ability to use RAK NetTest applications and web versions to test the quality and capacity of their current broadband connection.

❑ With RAK NetTest, the following data is processed:
  •latency, speed and amount of data transmitted in both directions (link / uplink);
  •Features of quality, transparency and reliability (e.g. signal strength, connectivity on different ports, content modifications, referral webpage upload time, traffic volume, server monitoring on server, Traceroute, VoIP test call),
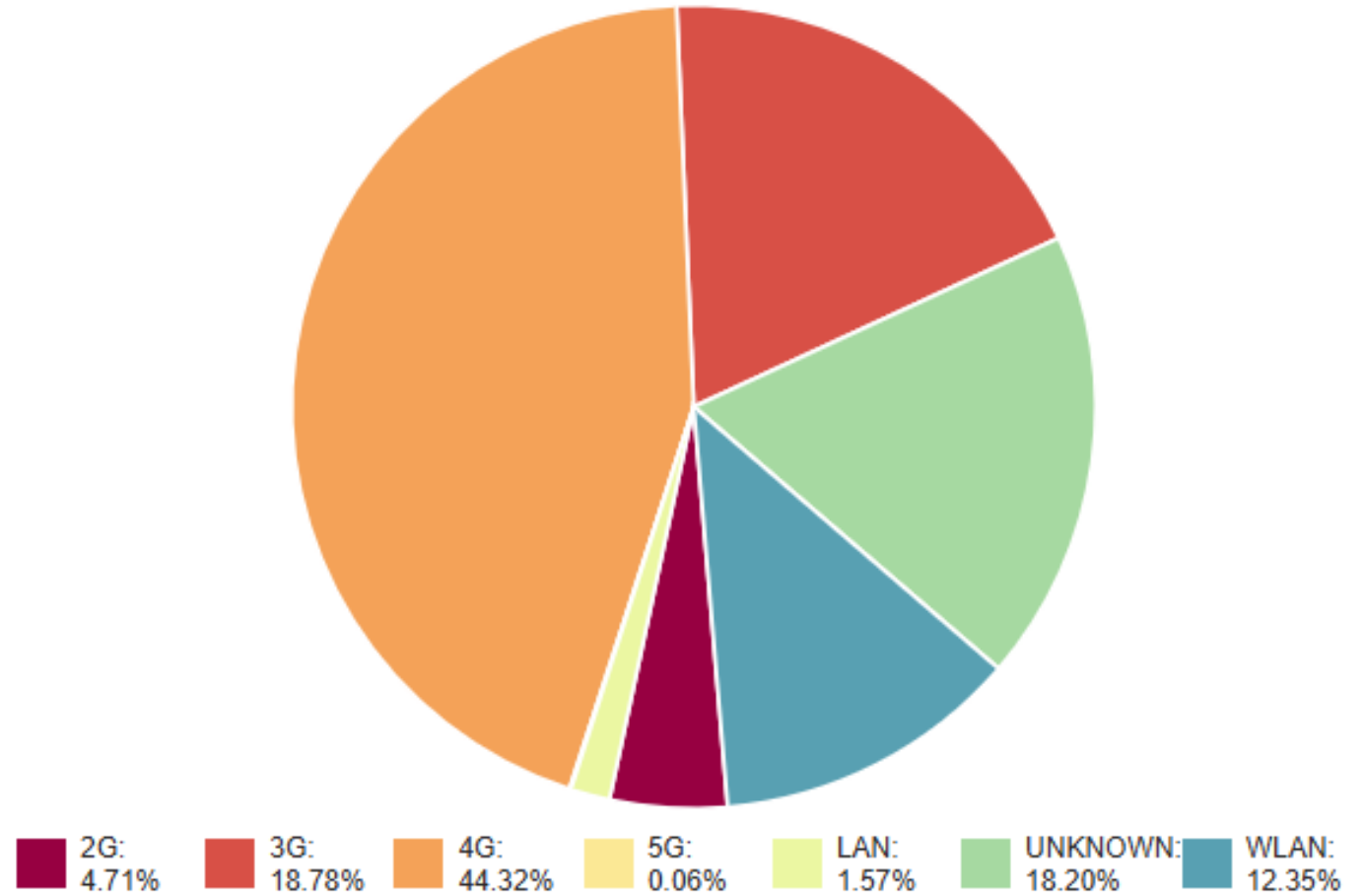 •etc.

by Technology

2G: 4.71% 3G: 18.78% 4G: 44.32% 5G: 0.06% LAN: 1.57% UNKNOWN: 18.20% WLAN: 12.35%

Figure 8. Percentage of measurements made by technology
Source: www.rak.ba, https://nettest.rak.ba/statistics

5. Network Readiness Index - BiH

- ❑ The NRI is a global benchmark related to assessment of a country's deploying and leveraging ICT for development and competitiveness.
- ❑ This index can help policymakers to measure the readiness and define strategies for its improvement.

Strongest indicators	Rank	Weakest indicators	Rank
3.2.4 E-commerce legislation	1	1.3.3 Robot density	53
2.2.1 Firms with website	11	2.1.2 ICT skills in the education system	99
3.3.5 Rural gap in use of digital payments	28	3.1.3 Online access to financial account	101
2.1.4 Adult literacy rate	29	1.2.3 Mobile apps development	105
3.2.2 ICT regulatory environment	34	2.3.3 Government promotion of emerging technologies	105
4.1.4 ICT services exports	40	3.2.3 Regulation of emerging technologies	106
3.3.4 Gender gap in Internet use	45	4.1.3 Prevalence of gig economy	106
3.2.5 Privacy protection by law content	49	1.1.5 International Internet bandwidth	110
4.2.4 Healthy life expectancy at birth	49	4.3.5 SDG 11: Sustainable Cities and Communities	120
3.1.1 Secure Internet servers	53	1.3.2 Investment in emerging technologies	124
1.2.1 GitHub commits	57		

Table 2. Highlight of Strengths and Opportunities for Bosnia and Herzegovina
(Source: Dutta, Soumitra and Lanvin, Bruno. Network Readiness Index 2024. Portulans Institute, 2024. https://networkreadinessindex.org/)

5. Network Readiness Index - BiH

❑ International Internet bandwidth refers to the capacity of a country's international Internet connections, which determines the amount of data that can be transmitted between the country and the rest of the world over the Internet.

Network Readiness Index 2024 Ranking (Out of 133)	Total ranking	International Internet bandwidth
Serbia	47	45
Croatia	59	66
Montenegro	65	94
Bosnia and Herzegovina	90	110

Table 4. A comparison of Bosnia and Herzegovina with the neighboring countries for some of indicators (Adapted, Source: 2024, Dutta, Soumitra and Lanvin, Bruno. Network Readiness Index 2024. Portulans Institute, 2024. https://networkreadinessindex.org/)

5. Network Readiness Index - BiH

ISO3	Country	Score	Rank	Technology	People	Governance	Impact
BIH	Bosnia and Herzegovina	43.20	90	29.70	38.48	55.36	49.26

Pillar: Technology Score: 29.70 Rank: 102	SCORE	RANK
Access	55.98	90
1. Mobile tariffs	60.84	77
2. Handset prices	52.70	82
3. FTTH/building Internet subscriptions	15.63	99
4. Population covered by at least a 3G mobile network	88.89	60
5. International Internet bandwidth	61.85	110
6. Internet access in schools	n/a	n/a

Table 3. NRI Technology Pillar (Source: 2024, Dutta, Soumitra and Lanvin, Bruno. Network Readiness Index 2024. Portulans Institute, 2024. https://networkreadinessindex.org/*)*

6. Better Regulation - G5 Benchmark

❑ In 2020, the ITU launched a new approach to assess regulation needed to support the advancement of digital transformation, labelled fifth-generation (G5) collaborative digital regulation.

G5 Benchmark (ITU)	2021	2023
Croatia	72.69	72.69
Serbia	65.74	69.75
Montenegro	60.34	67.13
Bosnia and Herzegovina	39.35	41.67

❑ Leading (scores between 79 and 100)

❑ Advanced (scores between 60 and 79)

❑ Transitional (scores between 30 and 60)

❑ Limited (for scores under 30).

Table 5. G5, adapted, Source: Benchmark of fifth-generation collaborative digital regulation 2023:Global and regional trends, ITU Publications 2024, https://gen5.digital/publications

6. Better Regulation- G5 and RIA

❑ Collaborative regulation, or the fifth-generation regulation (G5), is the highest level of a regulatory framework. The G5 regulation is human - centred, with the significant cooperation of regulatory agencies and numerous stakeholders in developing a harmonized approach across sectors that rely on ICT.

❑ By promoting the concept of "better regulation", the European Commission is promoting the use of the Regulatory Impact Assessment (RIA) method.

❑ Regulatory Impact Assessment (RIA) provides important information to policy makers on whether and how to regulate in achieving public goals

  ❑ A practical sets of standardized templates for strengthening RIA systems in the Western Balkans public administration developed by the Regional School of Public Administration (RESPA) can be helpful for the smooth EU acquis transposition into Bosnia and Herzegovina.

6. Better Regulation - Our goals are SDGs

❑ The SDG Index measures a country's baseline status for the implementation of the Sustainable Development Goals (SDGs). The result is interpreted as the percentage of achievement of 17 sustainable development goals. A score of 100 indicates that all sustainable development goals have been achieved.

❑ The SDG Index Score for Bosnia and Herzegovina is 74.00/100.

Bosnia and Herzegovina slightly declined compared to the previous year and was ranked 50th out of 167 countries, with an SDG index of 74.00 points.

(Source: First Release, Number 1,Year II, 10.09.2024. Published by the Agency for Statistics of the Bosnia and Herzegovina,
https://bhas.gov.ba/data/Publikacije/Saopstenja/2024/SDG_01_2024_Y1_1_BS.pdf)

In the context of the UN' 17 SDGs, **the internet serves as a catalyst for innovation, inclusion and sustainability**. By bridging gaps and enabling global connectivity, the internet plays a transformative role in accelerating efforts to achieve the SDGs by 2030.

6. Better Regulation- Digital World Without Divides

❑ At the Summit of the Future held in September 2024, world leaders adopted a Pact for the Future, including the Global Digital Compact and the Declaration on Future Generations (A/RES/79/1) as annexes, covering a broad range of issues in setting a global course for the world.
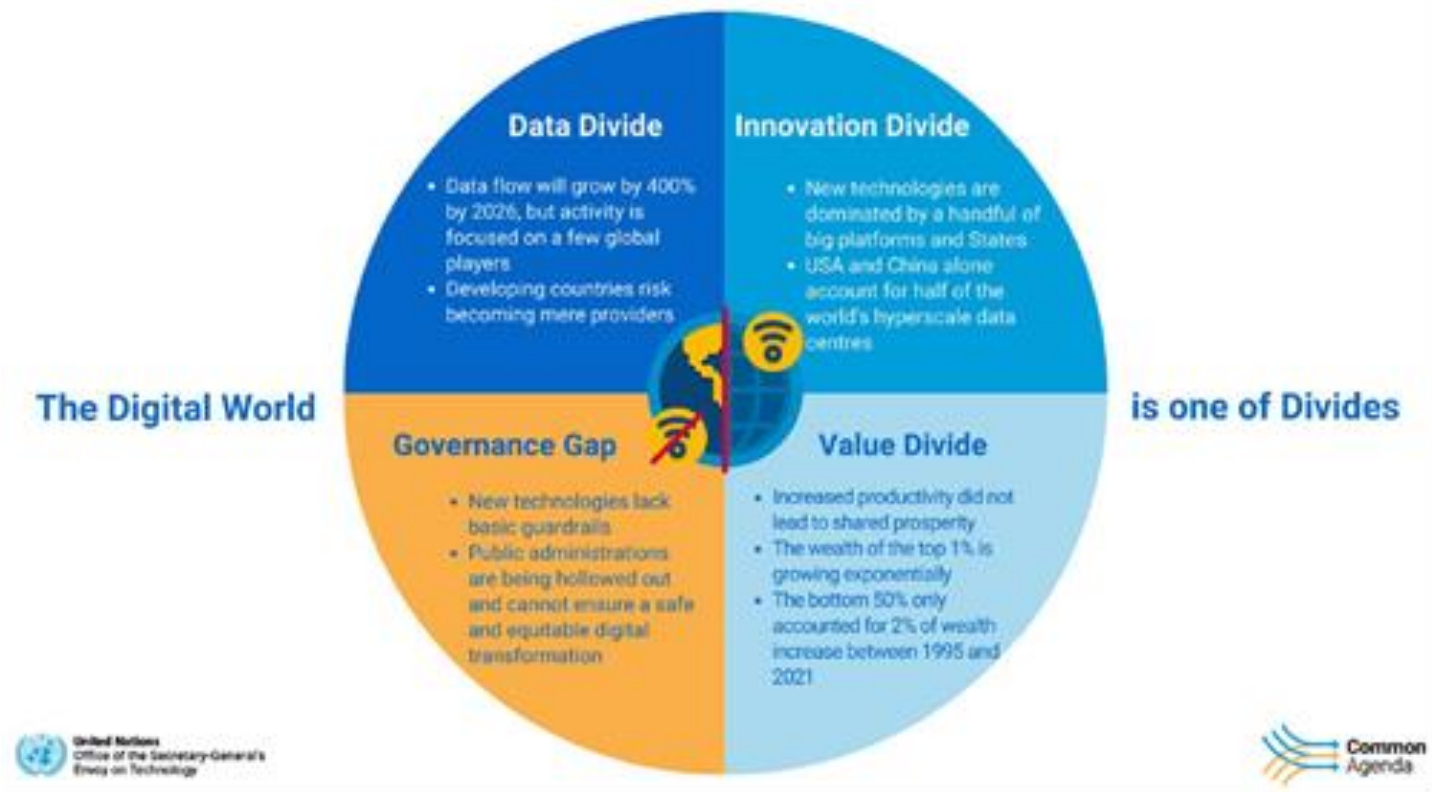

Figure 9. The Digital World is one of Divides, Source:UN Global Digital Compact Policy Brief, Infographics, May 2023, https://www.un.org/techenvoy/global-digital-compact

Thank you for your attention

www.rak.ba