

Europe's Digital Progress Report - 2017

Telecoms chapter

Croatia

1. Competitive environment

Coverage	HR-2015	HR-2016	EU-2016
Fixed broadband coverage (total)	97%	97%	98%
Fixed broadband coverage (rural)	89%	89%	93%
Fixed NGA coverage (total)	52%	60%	76%
Fixed NGA coverage (rural)	10%	10%	40%
4G coverage (average over all operators)	no data	67%	84%

Source: Broadband Coverage Study (IHS and Point Topic). Data as of October 2015 and October 2016.

Fixed broadband market

Fixed broadband network coverage remained unchanged in Croatia in 2016, at 97%, just below the EU average of 98%. Nor has Croatia made progress in terms of fixed broadband coverage in rural areas, which at 89% are below the EU average of 93%. The gap between urban and rural areas is significantly greater in terms of next generation access (NGA) network coverage (> 30Mbps). While Croatia made good progress overall, achieving total NGA coverage of 60%, this is still below the EU average of 76%. NGA coverage in rural areas is stagnating at 10%, significantly below the EU average of 40%. At 67%, Croatia's 4G coverage is also significantly below the EU average of 84%. Mobile operators do not use the 900 and 2100 MHz bands for long-term evolution (LTE). LTE technology is mandatory in the 800 MHz band and also used in 1800 MHz.

Fixed broadband market shares	HR-2015	HR-2016	EU-2016
Incumbent's market share in fixed broadband	51.4%	49.0%	40.7%
Technology market shares			
DSL	82.1%	80.3%	66.8%
Cable	12.4%	13.3%	19.1%
FTTH/B	2.1%	2.7%	10.7%
Other	3.4%	3.6%	3.4%

Source: Communications Committee. Data as of July 2015 and July 2016.

New entrants' DSL subscriptions by type of access (VDSL excluded)	HR-2015	HR-2016	EU-2016
Own network	0.1%	0%	0.7%
Full LLU	59.8%	52.4%	75.3%
Shared access	0.1%	0.0%	4.1%
Bitstream	40.1%	47.4%	13.4%
Resale	-	-	6.6%

Source: Communications Committee. Data as of July 2015 and July 2016.

Charges of Local Loop Unbundling (monthly average total cost in €)	HR-2015	HR-2016	EU-2016
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Full LLU	5.9	5.9	9.2
Shared Access	2.5	2.5	2.4

Source: Communications Committee. Data as of October 2015 and October 2016.

In the fixed broadband market, the number of households that subscribe to a fast connection (> 30Mbps) increased significantly, from 3% to 10%. Croatia has also made some progress in terms of the number of households that subscribe to the ultra-fast connection (> 100 Mbps). However, both indicators remain far below the EU average. Most offers are still xDSL¹-based. At 80.3%, this is above the EU average of 66.8%. At 2.7%, the proportion of FTTH/B² technology is far below the EU average of 10.7%. In the reporting period, the incumbent made three announcements in relation to the FTTH roll-out. The use of bitstream services has increased from 40.1% to 47.4%, significantly above the EU average and proportionate to the decline in the use of full local loop unbundling.

Although there has been a slight decline in the incumbent's share of fixed broadband compared to 2015, it continues to dominate the market, with 49% of the fixed broadband share, significantly above the EU average of 40.7%. It also owns 100% of Iskon (which holds 11.26%³ of the fixed broadband market share) and it has temporary management rights over Optima Telekom until at least 2018. Optima Telekom holds 10.3%⁴ of the fixed broadband market share.

In 2016, the merger between the fixed network operator H1 and Optima Telekom was announced and notified to the National Communications Authority (NCA). At its request, the national regulatory authority, HAKOM⁵, provided an opinion regarding the impact the process may have on competition in relevant markets. HAKOM expressed its concerns about Optima Telekom's still being under the incumbent's Hrvatski Telekom's (HT) control. The incumbent is the operator with significant market power in all relevant markets. If Optima Telekom were no longer under HT's control, HAKOM believes that the consolidation process might have some positive effects on competitiveness. Proceedings are ongoing before the NCA. The largest alternative operator, VIPnet, announced the acquisition of Metronet, an alternative operator with its own fibre infrastructure, focused on business customers.⁶

Mobile market

Mobile market	HR-2015	HR-2016	EU-2016
Market share of market leader	47%	47%	34%
Market share of second largest operator	35%	35%	28%
Number of MNOs	3	3	-
Number of MVNOs	-	-	-
Market share of MVNO (SIM cards)	-	-	-

Source: Communications Committee. Data as of October 2015 and October 2016

¹ Digital Subscriber Line.

² Fibre-to-the-home/building, business or basement.

³ Source: HAKOM as of 1st of October.

⁴ Source: HAKOM as of 1st of October.

⁵ Hrvatska agencija za mrežne djelatnosti

⁶ The NCA approved the acquisition on 26 January 2017.

The take-up of mobile broadband services, often sold in bundles, has increased. According to the national regulatory authority the number of fixed bundled subscriptions has been increasing significantly. The TV/content services are one of the main incentives for subscribing to bundled offers, most of which include a TV service. There are proceedings under way before the NCA with regard to exclusive TV content rights owned by the incumbent. Operators have started offering quadruple play services, including mobile network services.

Mobile broadband prices	HR-2015	HR-2016	EU-2016
Least expensive offer for handset (1 GB + 300 calls basket)	15	16	30
Least expensive offer for tablet and laptop (5 GB basket)	31	29	18

Source: Mobile Broadband Price Study (Van Dijk). Prices expressed in EUR/PPP, VAT included. Data as of February 2015 and February 2016.

While mobile broadband prices for handsets are significantly lower than the EU average (by almost 50%), the offers for mobile broadband on tablets and laptops are significantly above the EU average. However, the standalone fixed broadband subscription costs 2.9% of the average gross income, compared to the EU average of 1.2%. This means that Croatia has the most expensive standalone fixed broadband subscription in the EU. The lowest fixed broadband price (12-30 Mbps or above) is €30.07, compared to the EU average of €21.33.⁷

2. Supporting measures for deployment and investment in high-speed networks

a. Spectrum

Harmonised band	MHz spectrum assigned ⁸	% of the harmonised band assigned
700 MHz	0	0%
800MHz	60	100.0%
900MHz	70	100.0%
1500MHz	0	0%
1800MHz	150	100.0%
2000MHz paired	90	75.0%
2600MHz	0	0%
3400-3600MHz	70.0	35.0%
3600-3800MHz	0	0%

In Croatia 40% of the spectrum harmonised at EU level for wireless broadband has been assigned. This is significantly below the EU average of 68%. The main reason for this is the lack of demand from operators. At the time of the assignment of the 800 MHz band for

⁷ Source: Fixed broadband prices in Europe in 2016 (Empirica). Prices expressed in EUR/PPP, VAT included. Data as of autumn 2016.

⁸ Including guard bands.

mobile communications services HAKOM decided not to auction the spectrum in the 2.6 GHz and 3.6 GHz frequency bands. It did this so that mobile communications operators could further invest in network development and coverage, in particular because they currently do not use some of the assigned spectrum. No auctions took place in 2016. All current wireless broadband licences expire in 2024, when there will be a new round of assignments. The 700 MHz strategy is being developed and the use of the sub-700 MHz band for digital broadcasting is being considered. Across the 470-790 MHz bands licences are issued for digital terrestrial television, with the latest licences expiring in 2021. This affects the plans for deploying the 700 MHz band. The deployment of this band for wireless broadband will also depend on the plans of and the possible interferences from neighbouring non-EU countries.

b. EU and national investments in broadband

In July 2016, Croatia adopted the Strategy for Broadband Development in the Republic of Croatia for 2016-2020. The main objectives to be achieved by 2020 are to provide NGA coverage enabling internet access at over 30 Mbps for all inhabitants and to have at least 50% of households using internet access services at 100 Mbps or more. Croatia faces a number of challenges related to connectivity, especially with regard to the NGA coverage, as it is significantly below the EU average.

The Strategy is accompanied by the National Framework Programme for the Development of Broadband Infrastructure in Areas Lacking Sufficient Commercial Interest for Investment (the Programme). In July 2016, Croatian Government appointed HAKOM the Competent Authority for this Programme. The Programme sets out the procedures for State aid and the public deployment of information and communications technology infrastructures in access networks with a download speed of at least 40 Mbit/s and an upload speed of at least 5 Mbit/s in areas that do not have such broadband infrastructure, or are underserved (white NGA areas where speeds of less than 30 Mbit/s are available, with no NGA network or none planned to be deployed in the next three years). Besides general State aid rules, the Programme also includes guidelines for local municipalities on implementing individual projects within the Programme. They include the choice of the investment model⁹ that best meets local needs and ties in with the parameters of the project in question. In January 2016, the European Commission found that the notified State aid measure was compatible with the internal market pursuant to Article 107(3)(c) TFEU. The overall estimated (maximum) budget of the measure is €252 million, €117.2 million of which will be funded by the European Regional Development Fund and the remaining €134.8 million of which by a loan from the European Investment Bank. It is expected that private funds will amount to €120 million during the implementation of the project. The annual budget is €31.5 million for 2016-2023. The complementary programme for high-speed broadband development is the next-generation network backhaul scheme the European Commission is assessing.

The Competitiveness and Cohesion Operational Programme (2014-2020) stipulates that the European Regional Development Fund allocate €203 million to broadband roll-out.

⁹ Model A: private design, build, operate with public grants; Model B: public design, build, operate; Model C: public-private partnership.

c. State of transposition of the Broadband Cost Reduction Directive

Following the expiry of the deadline for transposing the Broadband Cost Reduction Directive on 1 January 2016, the Commission has opened infringement proceedings against Croatia for its failure to notify transposition measures. The Act on Measures to Reduce the Cost of Deploying High-speed Electronic Communications Networks, as well as the Act on the Amendments to the Act on State Survey and Real Estate Cadastre were adopted on 15 December 2016 with entry into force on 31 December 2016. The remaining national measures, in particular amendments to the Electronic Communications Act transposing Articles 8 and 9 of the Broadband Cost Reduction Directive, are being finalised.

3. Regulatory function

In 2016, HAKOM notified to the Commission the decision, concerning market 3a, on the proposed maximum price for access to unbundled local loop based on the copper pair, the decision on updating the calculation of the weighted average cost of capital for fixed and mobile regulated wholesale services for which operators with significant market power have a price control obligation (concerning markets 1, 2, 3a, 3b and 4 and ex-market 2 of the 2007 Recommendation¹⁰), the decision, concerning market 2, on the price of wholesale voice call termination on individual mobile networks, based on HAKOM's updated pure bottom-up long-run incremental cost (BU-LRIC) model for a hypothetical efficient operator (concerning market 2). HAKOM also notified the decision on prices for wholesale voice call termination on public telephone networks at fixed location (market 2) and on call origination on HT's public telephone network at fixed location (ex-market 2 of the 2007 Recommendation¹¹). HAKOM also notified the decisions on prices for wholesale line rental, based on retail-minus methodology (market 1 of the 2007 Recommendation¹²). It notified the decisions on monthly fees for wireless local loop services based on the updated BU-LRAIC+ cost model and wireless broadband alliance (WBA) pricing based on the updated BU-LRAIC+ cost model. Specifically, these are monthly fees for ADSL/VDSL¹³ and FTTH WBA services and monthly fees for virtual channels for IPTV service, VoIP service and customer monitoring equipment (both concerning market 3b). HAKOM also notified the decision on amendments to HT's RUO (market 3a) and WBA reference offer (market 3b). Finally, it notified the update of the margin squeeze test methodology (concerning markets 3a and 3b and ex-market 1 of 2007 Recommendation¹⁴).

¹⁰ Commission Recommendation of 17 December 2007 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, OJ L 344, 28.12.2007, p. 65.

¹¹ Commission Recommendation of 17 December 2007 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, OJ L 344, 28.12.2007, p. 65.

¹² Commission Recommendation of 17 December 2007 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, OJ L 344, 28.12.2007, p. 65.

¹³ asymmetric digital subscriber line/virtual digital subscriber line

¹⁴ Commission Recommendation of 17 December 2007 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, OJ L 344, 28.12.2007, p. 65.

Ex-markets 1 and 2¹⁵ of the 2007 Recommendation¹⁶ are still regulated.

Although ex-market 14¹⁷ of the 2003 Recommendation¹⁸ is formally deregulated it is the Commission's understanding that the "non-competitive" trunk segments of leased lines as defined in case HR/2015/1749 are still regulated within market 4.

HAKOM's fixed access network model for the pricing of local loop unbundling is an overlay BU-LRIC+ copper/fibre model in which two parallel access networks are modelled taking into account the necessary adjustments to the fibre access network. An additional risk premium of 3.33% for civil engineering assets that will have to be newly constructed to host the NGA network is included, and lower operating costs are applied to the fibre network compared to the copper network due to lower maintenance and fault repair costs. Existing HT infrastructure is revaluated to reflect the current cost and assets life-time is adjusted to EU best practice. BSA¹⁹ FTTH access prices include volume discounts that reflect the decrease in the investment risk related to the network usage in certain areas. Volume discounts are applied if alternative operators acquire 1%, 2% or at most 3% of access lines out of the total number of accessible users in certain areas.

For fixed and mobile termination rates, HAKOM has applied a pure BU-LRIC cost-accounting model, in accordance with the 2009 Termination Rates Recommendation, with cost models updated in 2016.

4. Consumer issues

In 2016, HAKOM received a total of 1561 consumer complaints, slightly more than in 2015 (1391). The main source of complaints is still incorrect billing, with 768 complaints about this accounting for 47.47% of the overall number of complaints, a slight decline (in 2015 it represented 50.97% of all complaints). The other major source of complaints is contract termination (42.28%), followed by the quality of service (6.59%), number portability (1.21%), false advertising (0.64%) and roaming (0.57%).

Number portability

Number portability		2015	2016
Fixed	Number of transactions ^[1]	85,482	107,595
	Transactions as a % of total numbers ^[1]	-	-
	Maximum wholesale price ^[2]	-	-

¹⁵ Access to the public telephone network at a fixed location for residential and non-residential customers and call origination on the public telephone network at a fixed location.

¹⁶ Commission Recommendation of 17 December 2007 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, OJ L 344, 28.12.2007, p. 65.

¹⁷ Wholesale trunk segments of leased lines.

¹⁸ Commission Recommendation of 11 February 2003 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services.

¹⁹ Basic serving arrangement

	Maximum time under regulation (number of working days) ^[2]	3	3
Mobile	Number of transactions ^[1]	110,909	123,649
	Transactions as a % of total numbers ^[1]	-	-
	Maximum wholesale price ^[2]	-	-
	Maximum time under regulation (number of working days) ^[2]	3	3

[1] Source: Communications Committee. Data as of January to September 2015 and January to September 2016.

[2] Source: Communications Committee. Data as of October 2015 and October 2016.

Bundles

The use of more complex products, such as double and triple play and bundles including mobile services, continues to increase significantly. It is therefore all the more important that consumers perceive contracts to be clear and transparent. Consumers can easily compare bundle offers (76%, above the EU average). However, it is less easy to monitor consumption for mobile (63%, EU average 69%) than for fixed (64%, EU average 71%). Customers are less satisfied with regard to contract information (19% unsatisfied, EU average 16%).²⁰

Transparency

HAKOM's geographic information systems portal users can check the availability of broadband speeds at their location free of charge. HAKOM also publishes reports on the quality of public communications services and broadband access services for mobile and fixed networks. These reports contain information on the supply time for fixed network access, the fault report rate for each fixed access line, the fault repair time for fixed access lines, the response time for operator services, the response time for directory enquiry services, complaints related to incorrect billing, the supply time for internet access, number portability problems, the unsuccessful call ratio, the data transmission speed achieved (95% of the highest downloading transmission speed, 5% of the highest downloading transmission speed, medium value and standard deviation for downloading, 95% of the highest uploading transmission speed, 5% of the highest uploading transmission speed, medium value and standard deviation for uploading), the unsuccessful data transmission ratio (% of unsuccessfully transmitted data) and delay (one-time transmission time, medium delay value, standard deviation).

Net neutrality

Article 6 of the Telecoms Single Market Regulation (Regulation (EU) 2015/2120) stipulates that 'Member States shall lay down the rules on penalties applicable to infringements of Articles 3, 4 and 5'. The deadline to notify the Commission of these rules was 30 April 2016. Croatia did not do so. According to the Croatian authorities, it is planned to adopt the

²⁰ Source: Special Eurobarometer 438. October 2015.

necessary rules through the amendments to the Electronic Communications Act²¹. The Commission is looking into the matter.

Roaming

The average retail Eurotariff price for outgoing roaming calls is €0.162 per minute. This is above the EU average. At €0.132 per minute, alternative tariffs are below the EU average, Incoming calls cost €0.047 per minute. This is also above the EU average. The price of €0.161 per MB is below the EU average.²² In a case of infringements the Roaming Regulation (EU) No 531/2012²³, in line with the Article 119 of the Electronic Communications Act HAKOM can initiate misdemeanour proceedings and propose to Misdemeanour Court to impose fines in the amount between €13,000 and €135,000 on an undertaking and €2,6 and €135 on a responsible person in the undertaking.²⁴

112 and access for disabled end-users to emergency services

According to the last COCOM 112 Implementation Report, calls to the emergency number 112 are answered within 5.28 seconds. In 2016 the Commission investigated the implementation of the single European emergency call number 112 in Croatia, in particular with regard to transposing and implementing the Universal Service Directive. The Directive makes it mandatory to ensure that 112 access of disabled users is equivalent to that of other users. The Croatian authorities have informed the Commission that operators of fixed electronic communications networks and services give disabled users 112 access through fax transmissions. From June onwards it will be possible for disabled users of mobile electronic communications networks and services to access 112 by text message.

Conclusion

Connectivity is one of the key areas Croatia should do more to improve in. In the context of coverage, it should take more measures to stimulate investment in NGA networks by addressing the white areas, so as to lessen the urban/rural digital divide. It should also speed up the transposition of the Cost Reduction Directive, to facilitate the roll-out of broadband, and take measures to ensure better 4G coverage. It could be necessary to implement measures further stimulating price competition in order to address the issue of the affordability of electronic communications services.

²¹ A draft law amending the Electronic Communications Act which was subject to public consultation between 24 February and 10 March 2017 proposes that in case of infringements of Articles 3,4 and 5 of Regulation (EU) 2015/2120 in line with the Article 119 of the Electronic Communications Act HAKOM can initiate misdemeanour proceedings and propose to Misdemeanour Court to impose fines in the amount between €13,000 and €135,000 on an undertaking and €2,6 and €135 on a responsible person in the undertaking.

²² International Roaming BEREC Benchmark Data Report October 2015 — March 2016, BoR (16) 160.

²³ Regulation (EU) No 531/2012 of the European Parliament and of the Council of 13 June 2012 on roaming on public mobile communications networks within the Union, OJ L 172 of 30.6.2012.

²⁴ A draft law amending the Electronic Communications Act which was subject to public consultation between 24 February and 10 March 2017 proposes to allow for the imposition of the same level of administrative fines in case of breaches of the Roaming Regulation as amended by Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015.