DESI Report 2018

Telecoms chapter

CROATIA

Market developments

1. Competitive environment

<table>
<thead>
<tr>
<th>Fixed broadband prices</th>
<th>HR-2016</th>
<th>HR-2017</th>
<th>EU-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed broadband price index [values between 0-100]</td>
<td>58</td>
<td>65</td>
<td>87</td>
</tr>
</tbody>
</table>

Source: Commission Services based on Fixed Broadband Prices in Europe (Empirica). Digital Economy and Society Index 2018.

On 9 June 2017, the National Competition Agency (AZTN) approved a prolongation of the Incumbent HT’s management rights over Optima Telekom till 10 July 2021. The incumbent who currently controls Optima Telecom under strict conditions shall commence with the transparent, objective and non-discriminatory sale procedure of its shares held in Optima in January 2020 via a competitive international call for tender. The sales procedure should be prepared by 1 July 2019 and the preference will be given to a potential buyer that is not yet present in the Croatian market.

Also, Optima Telekom acquired ownership over H1, an alternative fixed telecommunication operator, which does not exist as legal entity from 1 August 2017. According to HAKOM (Croatian National Regulatory Authority) at the end of Q2 2017, HT Group owned by Deutsche Telekom holds a fixed broadband market share of more than 71% of the retail broadband market when combining HT, Iskon, Optima, and H1 Telecom (Incumbent HT 47.6%, Iskon 10.4%, Optima Telekom 9.2%, and H1 Telecom 4%).

Consumers complain that all electronic communications services are too expensive, and the data shows that prices for fixed broadband are above the EU average. In the fixed broadband price index Croatia performs very low considering DESI 2018 connectivity. Broadband price index is 63 comparing to EU average of 87.

In recent years the number of users of bundled services is growing. After 2-play and 3-play bundles, some operators have started to offer 4-play bundles of services which, in addition to fixed network, internet and television services, also include mobile network services. It is

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1 In June 2014, Croatian incumbent HT took over management of alternative fixed network operator Optima Telekom following the completion of the pre-bankruptcy settlement procedure and the adoption and registration of the decisions by the General Assembly of Optima Telekom. National Competition Agency ruled that the duration of the concentration of HT and Optima Telekom shall be limited to a period of four years, starting from HT’s acquisition of control. Upon expiry of the third year of the concentration, HT shall initiate a sales procedure for all its shares in Optima Telecom, wherein it shall also have the right to sell Optima Telecom shares held by Zagrebačka banka. After the expiry of the four-year concentration period, the contract between the bank and HT will end, as will HT’s control over Optima Telecom, and HT must transfer its management rights to either Zagrebačka banka or a third party unaffiliated to HT (while authorising the bank to sell HT’s Optima Telekom shares).
expected that the growth trend in bundles will continue in the following years. TV/Content services play a significant role in bundles as 54% of bundle subscriptions contain TV services. Therefore, TV/content services seem to be one of the main drivers for subscribing to bundle offers, taking into account savings for the customer compared to standalone services.

In January 2017 AZTN approved the concentration between Vipnet & Metronet. Moreover, some operators instituted proceedings before the AZTN regarding the exclusive TV content rights for some premium TV channels by the incumbent. Furthermore, there are allegations of predatory pricing in case of premium pay TV channels by the incumbent. The Commission is looking into the matter.

a. Fixed Markets

<table>
<thead>
<tr>
<th>Fixed broadband market shares</th>
<th>HR-2016</th>
<th>HR-2017</th>
<th>EU-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incumbent market share in fixed broadband</td>
<td>49.0%</td>
<td>47.6%</td>
<td>40.3%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technology market shares</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSL</td>
</tr>
<tr>
<td>Cable</td>
</tr>
<tr>
<td>FTTH/B</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>

Source: Communications Committee. Data as of July 2016 and July 2017.

Fixed penetration in Croatia of 70% is below the EU average of 75% while fixed connectivity improved over the last year. There are demand stimulation measures in place within the Broadband Development Strategy of the Republic of Croatia for the period 2016 – 2020, and these measures are showing some results. Also, all alternative operators strongly support the National Programme for Backhaul Broadband Infrastructure (NPBBI) programme for deploying of backhaul infrastructure.

<table>
<thead>
<tr>
<th>New entrants' DSL subscriptions by type of access (VDSL excluded)</th>
<th>HR-2016</th>
<th>HR-2017</th>
<th>EU-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own network</td>
<td>0%</td>
<td>0%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Full LLU</td>
<td>52.4%</td>
<td>48.7%</td>
<td>72.8%</td>
</tr>
<tr>
<td>Shared Access</td>
<td>0.0%</td>
<td>0.0%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Bitstream</td>
<td>47.4%</td>
<td>51.2%</td>
<td>14.7%</td>
</tr>
<tr>
<td>Resale</td>
<td>-</td>
<td>-</td>
<td>7.8%</td>
</tr>
</tbody>
</table>

Source: Communications Committee. Data as of July 2016 and July 2017.

The data indicate that users in Croatia are still far from substituting their fixed line with a mobile subscription. Households keep their fixed-line connection to access the Internet and consumers perceived mobile and fixed-line access rather as complements.

<table>
<thead>
<tr>
<th>Coverage</th>
<th>HR-2016</th>
<th>HR-2017</th>
<th>EU-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed broadband coverage (total)</td>
<td>97%</td>
<td>99%</td>
<td>97%</td>
</tr>
<tr>
<td>Fixed broadband coverage (rural)</td>
<td>89%</td>
<td>97%</td>
<td>92%</td>
</tr>
<tr>
<td>Fixed NGA coverage (total)</td>
<td>60%</td>
<td>67%</td>
<td>80%</td>
</tr>
<tr>
<td>Fixed NGA coverage (rural)</td>
<td>10%</td>
<td>16%</td>
<td>47%</td>
</tr>
<tr>
<td>Ultrafast coverage (total)</td>
<td>no data</td>
<td>34%</td>
<td>58%</td>
</tr>
<tr>
<td>4G coverage (average of operators)</td>
<td>67%</td>
<td>73%</td>
<td>91%</td>
</tr>
</tbody>
</table>

Source: Broadband Coverage Study (IHS and Point Topic). Data as of October 2016 and October 2017.

The highest demand in 2017 is for fixed broadband internet connections with speeds from 10 to 30 Mbit/s. The number of fixed broadband internet connections with speeds of 30 Mbps and above are increasing. Moreover, it is noticeable that investments in ultrafast broadband
infrastructure are much higher in 2017 compared to the last 5 years with more than 70 announcements of new fibre access networks where most were made by the biggest alternative operators and the incumbent.

b. Mobile market

<table>
<thead>
<tr>
<th>Mobile market</th>
<th>HR-2016</th>
<th>HR-2017</th>
<th>EU-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market share of market leader</td>
<td>47%</td>
<td>46%</td>
<td>35%</td>
</tr>
<tr>
<td>Market share of second largest operator</td>
<td>35%</td>
<td>35%</td>
<td>28%</td>
</tr>
<tr>
<td>Number of MNOs</td>
<td>3</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Number of MVNOs</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Market share of MVNO (SIM cards)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Communications Committee. Data as of October 2016 and October 2017.

In terms of coverage the mobile market is relatively well developed in urban areas but less in rural areas. Therefore the average 4G coverage of 73% of households keeps Croatia in the group of less good performers in the category. However, the given household coverage might be better than reported due to the fact that Croatia as holiday destination has many households that are included in the statistics but are in fact inhabited only a small portion of the year.

On the basis of available data, OTT services (Skype, Viber, Whatsapp, etc.), together with the increasing penetration of smartphone users, are one of the reasons for the decline of SMS traffic volumes in 2016, approximately 9% compared with the same period in 2015.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Least expensive offer for handset (1 GB + 300 calls basket)</td>
<td>€16</td>
<td>€32</td>
<td>€24</td>
</tr>
<tr>
<td>Least expensive offer for tablet and laptop (5 GB basket)</td>
<td>€29</td>
<td>€23</td>
<td>€17</td>
</tr>
</tbody>
</table>


MVNO access is not regulated and there are several registered MVNOs, but according to HAKOM none of them is actually providing mobile services.

WiFi technology is widely used in addition to mobile networks for access to internet. It is used predominantly in urban areas, as well as in rural areas too due to weak connectivity. Furthermore, assignments of dedicated numbering ranges for M2M (Mobile to mobile) services have started. In this context, fees for M2M numbers are lower than standard mobile numbers.

Regulatory developments

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

a. Spectrum

In Croatia all three mobile operators provide LTE services in the 1.8 GHz band (2358 base stations installed) and two of them in the 800 MHz band (2258 base stations installed). 1.8 GHz spectrum is mostly use for base stations installed in urban areas and 800 MHz spectrum for rural areas. In this context, most operators complain about the high costs for spectrum which allegedly reduces their investment capacity.

Croatia has one license issued for digital television in 700 MHz band that is valid until 26 October 2021. The 700 MHz band shall be available according to the national Strategy of
transition of digital terrestrial television to DVB-T2 system and the assignment of the 700 MHz frequency band is currently being developed. The assignment is expected during or after 2020. Currently, the 700 MHz band is used by digital terrestrial television. The deployment of mobile networks in the 700 MHz spectrum largely depends on the implementation of mobile technologies in non-EU neighbouring countries (Bosnia and Herzegovina, Serbia, and Montenegro). The coordination process with neighbouring countries should be finished soon.

As a finalisation of the activities of the SEDDIF (South European Digital Dividend Implementation Forum), in December 2017 Croatia has signed the Framework Multilateral Agreement between the administrations of Albania, Croatia, Greece, Italy, Montenegro, San Marino and Slovenia on the re-planning principles for the frequency plan concerning future digital terrestrial television networks in the frequency band 470-694 MHz (so-called sub-700 MHz band). In this context, Albania and San Marino have not yet signed the agreement at the time of writing this report.

b. National and EU investment in broadband

Croatia is a weak performer in terms of fast and ultrafast broadband coverage based on DESI 2018 connectivity score (67% and 34% respectively). There is still a lack of commercial interest for the construction of fixed electronic communications infrastructure in rural areas, while the complexity of the procedures and documentation required for the development of the projects, suitable for co-financing from ESI funds, significantly slow down the implementation of the National broadband plan. In this segment, operators especially emphasize the unsolved property-rights relationships and the lack of a digital database of existing (already built) electronic communications infrastructure and other utility infrastructure suitable for broadband deployment.

Similarly, regarding take-up of fast or ultrafast broadband Croatia performs low in DESI 2018 connectivity score (14% and 1.4%). The main reasons for the low take-up of broadband in Croatia are the lack of new services that need high capacity and speed, which is visible on HAKOM’s interactive GIS portal.²

Generally, the number of end-users who use an FTTH connection is increasing, which is mainly the result of new investments in fibre networks and the fact that the incumbent started to utilize already built fibre networks.

The incumbent has continued with the upgrading of its copper networks by building street cabinets (around 200 new cabinets from the beginning of 2017). Besides building new street cabinets, the incumbent also started to use vectoring technology. Additionally, the incumbent started to deploy a FTTB/FTTDP network which by now has been only deployed by Iskon Internet which is 100% owned by the incumbent. Both operators have plans to use G.fast technology on FTTB networks in the near future.

The National Framework Programme for the Development of Broadband Infrastructure in Areas Lacking from the Sufficient Commercial Interest for Investment (hereinafter: ONP)

² http://mapiranje.hakom.hr/en-US/
represents the national (umbrella) broadband state aid scheme. In accordance with that HAKOM established a separate internal organisational unit to perform the tasks set out within the ONP programme. The investments in Access scheme rollout was approved by the European Commission and is ongoing.

The National Program for Backhaul Broadband Infrastructure covers State aid measures for the backhaul part of NGN networks in white and grey areas. Similar to the ONP, the NPBBI programme also represents an operative programme until 2020, aligned with the ESI funds financial perspective, aimed at reaching DAE targets within the same period. In this context, the NPBBI plan has experienced significant slowdown and in particular alternative operators are urging for faster implementation in order to challenge the monopoly of the incumbent in this area.

Moreover, both programmes support only broadband infrastructure with a speed of at least 30 Mbps to 100 Mbps with upgrade opportunities, excluding the possibility of upgrading existing copper infrastructure.

Over the past year, there has been a noticeable increased interest of citizens who demand through their municipality representatives the introduction of new NGA infrastructure and participation in the National Framework Programme. In addition, political awareness of the importance of these projects and NGA infrastructure in general is increasing.

c. Implementation of the Broadband Cost Reduction Directive

The national measures to transpose the Broadband Cost Reduction Directive were adopted but the single information point is not operational yet. The establishment of such a system is placed under the jurisdiction of the State Geodetic Administration.

The practical application of the Directive 2014/61/EU is manifested in the obligation of contractors to announce ongoing and planned civil works on the website of the State Geodetic Administration and related electronic service is available on the Internet. The provisions of the Directive are transposed and enforced by the Act on Measures to Reduce the Cost of Deploying High-speed Electronic Communications Networks, which came into force at the end of 2016, and by the Act on Amendments to the Electronic communications Act, which came into force in July 2017. The State Geodetic Administration has started with preparations for the establishment of an information system of the Croatian Cadastre of Infrastructure (HR-KI) and a single information point.

There are no formal obstacles concerning network sharing and it depends solely on the operators’ decision. HAKOM has no official information on network sharing between the

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3 In this context, from April 2018 the Croatian government has intensified the NPBBI programme for final adoption
5 https://e-obavijesti.dgu.hr/
6 The technical specifications are in a high degree of readiness as of April 2018 and ready for the upcoming announcement as part of the tender documentation.
operators. Furthermore, many operators who are planning deployment of network infrastructure complain about the excessive costs for the right of way charged by the local municipalities.

3. Regulatory function

The following remedies are applicable to copper and fibre networks: access, non-discrimination, transparency, price control, cost accounting and accounting separation

HAKOM did not change the regulatory approach to bundled offers in 2017. A margin squeeze test remains as a regulatory obligation on retail market and broadband markets 3a and 3b (2014). In this context, HAKOM improved the margin squeeze methodology in relation to promotional offers' treatment in a way that includes now a greater scope of additional products and services offered in bundles. The updated margin squeeze methodology has been applied since 1st of January 2017.

The regulatory decisions notified by HAKOM and assessed by the Commission included:

- Decision on amendments of market analysis for wholesale voice call termination on individual mobile networks HR_2017_2019 – concerned amendments of the access obligation imposed on the market for wholesale voice call termination on individual mobile networks. Particularly, HAKOM proposed to impose the obligation to provide IP interconnection on request on all three SMP operators (Hrvatski Telekom, Vipnet and Tele2) from 1 January 2018, at the latest. The Commission commented on the need to notify a measure falling within the scope of Article 7(3) of Directive 2002/21/EC taking note that in February 2017 HAKOM made technical amendments (February 2017 amendments) to the decision on the conditions for IP interconnection from May 2015, notified to the Commission under case HR/2015/1729. The Commission pointed out that the February 2017 amendments were not notified to the Commission.

- Decision on amendments on the market for wholesale local access provided at a fixed location HR_2017_1995 - concerned a number of amendments of HT's LLU Reference Offer related to: i) the introduction of FTTB/FTTDP to HT's fixed network, ii) the introduction of a fee for the usage of diesel generators in the central office and iii) changes concerning the upgrade of the cooper network. The Commissions commented on the vectoring implementation and appropriateness of the substitute virtual access product. The Commission further asked HAKOM to request HT to publish a roadmap which lays out in detail in which areas, at which street cabinets or local exchanges and within which timeframe HT intends to deploy vectoring and to allow for an expression of interest of alternative operators in a VULA product for each new deployment phase.

- Decision on WBA RO amendments on the market for wholesale central access provided at a fixed location for mass – market products HR_2017_1996 – concerned

7 Fibre to the building/ fibre to the distribution point.
amendments of HT’s WBA Reference offer related to the introduction of the FTTB/FTTDP infrastructure defining the monthly fee for: FTTB WBA service (for access at OLT, Ethernet and IP layer), the virtual channels for IPTV service, VOIP service and customer monitoring equipment on the FTTB infrastructure. All prices are based on the BU-LRIC+ cost model. Regarding the proposed prices for WBA on FTTB, HAKOM explained that they were set through the same model previously used for setting WBA on FTTH but taking into account different types of FTTB solutions.

- Decision on access to the fixed telephone network in Croatia – remedies-HR_2017_2035- concerned HAKOM’s proposal to impose an additional monthly fee (additional fee) to be charged for the bundle of WLR and BSA services for access speeds equal or higher than 30 Mbit/s. The price for the standalone WLR and the price for the bundled WLR for speeds below 30 Mbit/s remained unchanged. The Commission in its comment called HAKOM to ensure a consistent regulatory approach across the regulated markets.

The mandate of the 5 member HAKOM council will end on 22 February 2018 and at the end of 2017 the Croatian government has launched a call for new HAKOM council members in order to be appointed by the parliament for the 5 year term.8

4. Consumer matters

Consumers complain about provisions which allow agents to sell contracts over the phone. Often misleading promises seem to be given over the phone but users apparently receive a notification by post with all needed information and can use their right to withdraw from contract in 14 days after receiving such notification.

HAKOM has received 1 218 complaints and 703 complaints have been resolved as disputes between end-users and their operators until October 2017. The terms of contracts were a main source of consumer complaints in 2017.

In April 2017 HAKOM launched HAKOMetar Plus, a mobile application for users in order to measure the download and upload data rate as well as the ping and signal strength of their internet connection (mobile and WLAN network). It also provides some network services tests. Also, HAKOM uses these results for cross-checking that the published information (coverage maps and available speeds in mobile networks) are consistent with monitoring results.

a. Roaming

HAKOM did not face any non-compliance with the new roaming rules and did not observe increases of domestic prices, neither before nor after 15 June 2017. The main issue in this

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8 On 18 March 2018 the Croatian government has decided to propose Mr. Tonko Obuljen to serve as president of HAKOM council for the next 5 year mandate. The decision still needs to be approved by the parliament.
context was not related to Roam Like at Home\(^9\) (RLAH) but rather to the nature of the international calls (charging).

Regarding sanctions the Croatian Electronic Communications Act defines the possibility to impose fines from HRK 100 000 to 1 000 000 for the undertaking in case of non-compliance with the rules and terms provided for in the Roaming Regulation, and fines from HRK 20 000 to 100 000 for the responsible person in the undertaking.

HAKOM has the power to initiate misdemeanour proceedings before the competent court and to propose the fine. The NRA may impose the fine directly, but it would be automatically suspended in case of the appeal. The final imposition of the penalty is therefore the sole authority of the court.

Following the introduction of RLAH in June 2017, Croatian subscribers consumed 3.9 times more voice and 10.6 times more data roaming services when travelling in the EU in summer 2017 compared to summer 2016.\(^{10}\)

\(\textbf{b. Net neutrality}\)

In order to evaluate traffic management practices applied by ISPs, at the end of 2016, HAKOM started a project in cooperation with the Faculty of Electrical Engineering and Computing, University of Zagreb, in order to produce a detailed questionnaire for existing implemented traffic management practices of ISP’s in Croatia.\(^{11}\) The questionnaire has been finalized and it is in line with the recently adopted BEREC net neutrality regulatory assessment methodology. Depending on the project results, HAKOM will decide whether any amendments to secondary legislation are necessary.

The exact range of fines for all net neutrality breaches is HRK 100 000 to 1 000 000 for a legal person and HRK 20 000 to 100 000 for a responsible person within the legal person. All breaches are contained in the same provision i.e. Article 119, Paragraph 1 and Subparagraph 70 of the Electronic Communications Act (OG 73/08, 90/11, 133/12, 80/13, 71/14, 72/17). The law does not provide for daily/weekly penalties. HAKOM has a power to initiate misdemeanour proceedings before the competent court and to propose the fine. The NRA may impose the fine directly, but it would be automatically suspended in case of the appeal. The final imposition of the penalty is therefore a sole authority of the court.


\(^{10}\) Figures compare Q3/2017 with Q3/2016 retail roaming volumes according to the BEREC International Roaming Benchmark Report, April 2017-September 2017, published on 14 March 2018

\(^{11}\) covering the following issues: QoS mechanism used in the network; number of traffic classes and implemented rules of prioritization; aggregation factors used; peak traffic values on average in busy hour; rules for upgrading operators network elements; security issues.
HAKOM initiated an informal investigation of Vipnet’s zero rated VIP NOW streaming offer and concluded that this offer was not in line with Regulation (EU) 2015/2120 because the service can freely be accessed after the exhaustion of the user's data cap, while all other internet traffic is charged. After received a warning VIP adjusted its offer to comply with HAKOM’s interpretation of the Regulation. Moreover, HAKOM also initiated a review on the tariff option “StreamOn” of HrvatskiTelekom which is a zero-rating offer. The bandwidth for video streams is throttled to a maximum of 2 Mbit/s (max. resolution of 480p) representing unequal treatment of data traffic and as such is currently assessed under Art. 3(3) of Regulation (EU) 2015/2120.

c. 112

The competent national authority dealing with 112, the National Protection and Rescue Directorate, has actively promoted 112 at national level as the European emergency number, conducted awareness-raising measures addressing travellers from EU countries (tourist information brochures, signs on main traffic routes, activities on social media etc.)

There is no new legislation in place laying down caller location accuracy and reliability criteria for the European emergency number 112. The Ministry of the Sea, Transport and Infrastructure is in charge of regulating this subject. Handset-based caller location is not yet deployed. The Croatian PSAP plans to provide such service in the following years. The Commission services are looking into the matter.

d. Universal service

There have been no changes concerning the scope, designation or financing of universal service since January 2017. Public payphones, directories and/or directory enquiry services are in the scope of the universal service obligation. Broadband access is included in the current scope. A universal service operator is obliged to provide data communications on each reasonable request at a minimum speed of 1 Mbit/s, with the price approved by HAKOM. There are no changes in the designation of universal service providers.

5. Conclusion

Croatia stays among the low performers in connectivity while it improved its overall score. Regarding fixed broadband coverage of households Croatia performs above the EU average which is the category where the highest improvement over the last year was achieved. However, fast and ultrafast broadband coverage remain very low. Broadband services are available throughout the country but the take up of fast and of ultra-fast broadband is very low. Different aspects can be seen as factors which contribute to the low take-up, including low internet use, and relatively high prices for (fast) broadband.

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The incumbent HT Group still controls more than 71% of the fixed market in Croatia. The Croatian Competition Protection Agency has granted an extension of the incumbent’s control of Optima Telekom by 2021 and such decision will not improve the competitiveness of the sector.

National investment in broadband is improving but more focused regulation could be beneficial to increase the investments of alternative operators. Moreover, regulation could focus on the alleviation of market imbalances to improve Croatia's position, having the lowest score in the Broadband price index. This may provide at least part of the explanation for low take-up rates across all technologies and speeds.

Croatia could focus more on its low connectivity in order to be able to achieve the Digital Agenda Europe goals and in particular to reach fast broadband coverage of the entire population by broadband speeds of at least 30 Mbps. It would be beneficial to speed up the rollout of the approved EU-funded access scheme and in particular the NPBBI backhaul rollout which seems to be particularly delayed and would be most valuable for alternative operators. In general, Croatia could be more vigilant to ensure competitiveness of the market. This would benefit the consumers and would stimulate investments in the fast internet infrastructure and take-up of related retail products. If no action is taken Croatia is risking falling even more behind in the area of digital society.