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DANCING WITH HANDS AND FEET TIED

The handling of zero-rating in net neutrality regulation as demonstrated by the Telenor Hungary vs NMHH case

The present study examines the EU's net neutrality rules that entered into force in 2015, and specifically the provision that prohibits certain potentially welfare-enhancing zero-rating offers by mobile operators without any substantive examination. The authors describe the contents of the net neutrality rules and the developments in the information and communication technology (ICT) market that could have led to this regulatory move. An overview of zero-rated offers (services that offer content at zero marginal cost to consumers) is provided: their types, the business rationale for their use and the competition issues they may pose. Through the case of Telenor Hungary vs NMHH, the authors assess the economic effects of this business practice on welfare and competition, as well as the questionable economic rationale for prohibiting it. The study comes to the conclusion that the justifications of the European rules on zero-rating are highly dubious, and they are based on assumptions which are not proven empirically. The purported goal of "non-discrimination" pursued by net neutrality regulation places unjustified restrictions on achieving technological and economic efficiency and on the freedom of market players to do business, and its application may be detrimental to consumer welfare.

"Whenever competition is feasible it is, for all its imperfections, superior to regulation as a means of serving the public interest."

Alfred E. Kahn

INTRODUCTION

On 27 January 2017, the National Media and Infocommunications Authority of Hungary (NMHH) issued a statement¹ in which it reprimanded Telenor for providing "more favourable terms for the data traffic of the applications covered by the MyChat and MyMusic offers compared to the data traffic of all other internet con-

¹ NMHH was one of the first authorities in the European Union to apply the EU's net neutrality provisions to an operator's zero-rating offer. This decision was preceded in December 2016 by another zero-rating ban regarding a Hungarian mobile operator, Magyar Telekom (NMHH [2016a]). Though there are many similarities between the two cases, the present study discusses only the Telenor case.

tent and applications” (NMHH [2017a]). Telenor customers choosing these add-on subscription options could use the popular chat and music download applications listed in the terms and conditions without limitation, even after exhausting their subscription’s data allowance. In its decision, NMHH called upon the operator to cease this unlawful practice.

Although the case might not be entirely clear on first reading, even a layman reader may well wonder why it is bad if a mobile operator offers a scheme to consumers by which they can consume content they like under more favourable data usage terms, while other subscribers are not harmed in any way. What rules does the business practice called zero-rating violate that led the authority to find it illegal? As the telecom regulator is not involved in making the rules, only enforcing them, the real question is the justification of the *ex ante* regulation that limits the freedom of market player to make agreements of this type, and renders it impossible for certain content or applications to be available to mobile phone users under more favourable conditions based on the operator’s business decision.

The present article examines the above questions, and considers whether there is a higher goal or potential harm to be prevented with regard to competition and/or the long-term sustainability and development of the internet ecosystem, which would justify the *ex ante* limitation on zero-rating tariffs. If no such economic justification can be found, then it is highly likely that this type of regulation is harmful to and restricts the functioning of the market. If this is so, it would be much better to rely on the general toolset of competition regulation and consumer protection instead.

Our approach in examining these issues is best summarised by the comments made by the excellent economist Alfred E. Kahn, known as the father of economic regulation (who also worked as a regulator for a period) at a conference:

- ♦ “If I were asked to offer one single piece of advice to would-be regulators, on the basis of my own experience, it is that as they perform their every single regulatory action they ask themselves: “Why am I doing this? Is it really necessary?” (Kahn [1981] p. 66).

Naturally, whether some regulation is necessary may not be a simple choice of yes or no; there could be arguments both for and against it; the economics of regulation is concerned with examining such arguments and assessing effects on welfare. The goal of the present analysis is to provide an economic assessment of the specific legal regulations based on net neutrality rules as pertaining to the widespread and varied business practice in the mobile telephony market that is of zero-rating. Through this analysis, we would like to contribute to the understanding of regulation and regulatory decisions, and hopefully to improving them.

We would like to stress that the authors have no intention of providing a legal analysis of the regulations and the case – as we are not qualified to do so – but rather an *economic* assessment of the legal regulations in force. A piece of legislation and

the associated case law may well be legitimate in that it was adopted by vote and it is applied by the bodies responsible for enforcement, but it might at the same time be harmful from the point of view of economics. Our analysis is only concerned with the economic aspect. We will be examining the effects of the regulations on social, and more specifically, consumer welfare, investment in internet infrastructure and services, innovation – and the overall development of internet services and markets, that is, the internet ecosystem.

First, we provide an overview of the content of net neutrality regulation and how it came about. We devote a separate chapter to zero-rating as a special subset of net neutrality cases – the subset that the Hungarian case discussed in this article belongs to. We provide an overview of the types of zero-rating tariff plans and the arguments for and against their use. This is followed by an economic discussion on the effects of Telenor’s business practice on welfare and competition, and an examination of whether prohibiting this practice resolves valid economic concerns. Finally, we assess the regulation underpinning the decision under discussion with regard to the intended effects and the effects seen in practice.

THE CONTENT OF NET NEUTRALITY REGULATION

Relationships between parties in the internet market

In order to understand the operation and effects of network neutrality regulation, one needs to understand market players and their relationships – *Figure 1* provides some assistance.

Market players and their relationships are discussed starting from users (marked with U1, U2 and U3 at the bottom of *Figure 1*), i.e. in the *downstream* → *upstream*

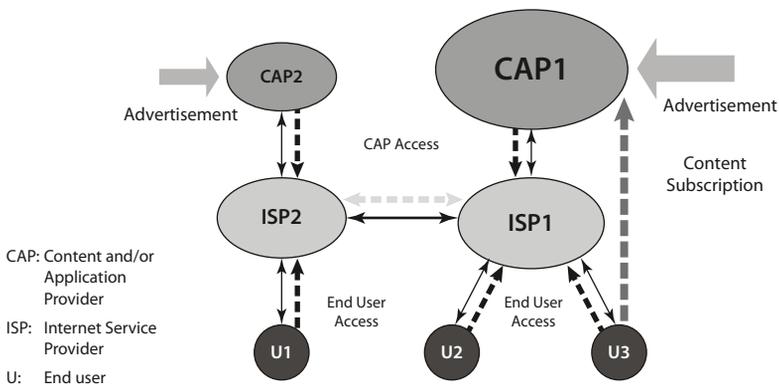


FIGURE 1 • Relationships between internet market players

directions. The thin continuous lines represent physical connections, while thick dashed lines represent flows of money.

End users (consumers), represented by U , are in direct contact with an Internet Service Provider (ISP) providing fixed line, mobile or other wireless internet access. Consumers pay the provider for access to an internet service, and the operator routes the traffic of content and applications providers (CAP, shown at the top of the graph) to consumers, and transmits traffic between consumers as well. The consumer pays the ISP for access to the internet service, for bandwidth (speed) and the delivered (up- and downloaded) traffic.

As there are numerous ISPs around the world and even within a country, the free flow of data among consumers and between consumers and content and applications providers (CAPs) requires ISPs to be interconnected. This allows all users to be part of the same global network. Thus, the ISP is a platform that connects users with each other and with CAPs. It is important to note that in most cases, the CAP that a consumer connects to through the physical access and traffic provided by the ISP she is subscribed to, is an entirely different ISP from that of the consumer. In fact, the data typically flows through multiple networks before it reaches the end user.

The overwhelming majority of internet traffic is between CAPs and consumers, which is generally (but not necessarily) asymmetric, as the content delivered to consumers is of much larger volume, and there is less traffic going the other way. In some applications, most notably *peer-to-peer* applications, there is direct traffic between consumers, without a CAP involved as a middleman.

Consumers pay CAPs directly for content in some cases, but in many cases, content and applications are provided “free” – that is, consumers don’t pay for them with money. They hand over personal data in exchange, however, and consume advertisements, paying with their time and attention.

CAPs need access to the ISP’s network in order to reach consumers – or, to look at it the other way, to become accessible to consumers. Therefore, they also pay the ISPs for access and for bandwidth.

The ISPs undertake to transmit internet traffic, but not to control it. The ISPs do not vouch for the quality of the particular content or application service.

First, the service quality perceived by the consumer is endogenous to their choice of internet access quality from the options provided by the ISPs. Lower-speed internet access allows for poorer-quality services from content and applications providers. Thus, content and applications providers cannot control the quality of their services to the consumers (without the participation of ISPs). Even ISPs can only do so on their own network.

Second, it is vital with regard to quality that the transmission of packet-based internet traffic is a *best effort* service, i.e. by default, network nodes forward data packets to the next node in the order of arrival and the speed and success also depend on the network traffic load. Different services and applications have varying tolerance for package loss, network delay, and fluctuation in the transmission of the packets (jitter).

Therefore, the quality perceived by consumers depends partly on the quality of their internet access, and partly on the stochastic quality characteristics of the data traffic they initiate, which may traverse various networks. In the transmission of the content and application service traffic over the internet, the “weakest link” in the access path determines the quality of the service.

ISPs have the ability to improve the quality of traffic by prioritising certain applications or content types, or even specific content. Naturally, this type of traffic control can also be done with a negative purpose and/or effect. Typical examples of negative practices include banning, limiting or throttling some specific service or traffic type. At the technical level, the net neutrality rules discussed below require the use of the *best effort* transmission model to handle traffic, with a few exceptions banning any positive or negative discrimination and any efficiency and/or welfare-enhancing interference in the flow or management of traffic.

The Net Neutrality Regulation

In making the decision mentioned in the introduction, NMHH followed the Net Neutrality Regulation of the European Parliament and the Council² adopted in 2015, when it examined and prohibited Telenor’s internet traffic management practice.

The EU regulation, which is directly effective in member states, gives end users a right to access, use and transmit internet services, content and applications without restrictions, on any terminal equipment of their choosing.³ The regulation imposes obligations on public electronic communications providers (ISPs), who provide internet access services and route traffic to consumers. However, quite unusually, end user rights in this regulation cover not only consumers in the traditional sense of the word, that is, the true end users at the bottom of the downstream service chain, but also, the content and applications providers at the very top of the service chain.⁴ As we will see, this intermingling of quite distinct players in the service chain in

² Regulation (EU) 2015/2120 of the European Parliament and of the Council (*EU* [2015]). Net neutrality is covered by Articles 1 to 6 of the regulation.

³ “End-users shall have the right to access and distribute information and content, use and provide applications and services, and use terminal equipment of their choice, irrespective of the end-user’s or operator’s location or the location, origin or destination of the information, content, application or service, via their internet access service.” (Article 3(1) of *EU* [2015].)

⁴ This is quite unusual even if it is clear that consumers can initiate content traffic, too. In the telecommunications market, players who provide a commercial service have been distinguished from true end users essentially from the very beginning. There is no reason to set aside this decisive distinction with regard to the public internet, and it is hardly reasonable for traditional consumer rights not to be limited to actual consumers. The relationship between the CAP and ISP players at the *upstream* levels of the service chain, who provide services to the end users, is completely different from the relationship between consumers and ISPs. The CAP-ISP relationship should be regulated separately from consumer-ISP relationships, if at all.

the definition is vitally important with regard to the potential detrimental effect of net neutrality rules on the functioning of the ISP market and on the relationships between market players.

The regulation allows ISPs to agree with users on the commercial terms and the technical characteristics of the service – such as price, speed and data caps – without infringing on the legally guaranteed end user rights.⁵

According to the regulation, ISPs can generally not interfere with internet traffic; they can only do so in cases where this is especially justified by legal or technical reasons. Irrespective of the receiver, sender, location or terminal equipment used, ISPs: 1. may not block internet traffic, 2. may not slow down internet traffic and 3. must forward internet traffic free of discrimination.⁶ Interference in internet traffic by ISPs, i.e. traffic management is only allowed if there is “reasonable” justification. To be deemed reasonable, the measures need to be transparent, non-discriminatory and proportionate, and they may not be based on commercial considerations but on objectively different technical quality of service requirements of specific categories of traffic. (Article 3(3) of *EU* [2015].)

Thus, it appears that the Regulation does not prohibit the somewhat different treatment of different traffic types based on considerations related to the operability and enjoyability of the service, if the network could not otherwise guarantee this at times of traffic congestion.

All traffic of the same type must be treated the same way, however. Additionally, traffic management is allowed only for specific reasons, namely: 1. compliance with EU or national legislation or measures implementing such legislation, 2. preservation of the integrity and security of the network, 3. preventing impending network congestion. Any traffic management measures taken for reasonable cause may only be sustained for the shortest possible time necessary for achieving the objectives.

The implementation of the regulation is left to the national regulatory authorities. Article 5 requires these authorities to monitor and, if necessary, ensure compliance with the net neutrality rules, and report on their activities in this regard each year.⁷

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⁵ “Agreements between providers of internet access services and end-users on commercial and technical conditions and the characteristics of internet access services such as price, data volumes or speed, and any commercial practices conducted by providers of internet access services, shall not limit the exercise of the rights of end-users laid down in paragraph 1.” (Article 3(2) of *EU* [2015].)

⁶ “Providers of internet access services shall treat all traffic equally, when providing internet access services, without discrimination, restriction or interference, and irrespective of the sender and receiver, the content accessed or distributed, the applications or services used or provided, or the terminal equipment used.” (Article 3(3) of *EU* [2015].)

⁷ We will not describe in detail the rest of the content of regulation 2015/2120, as this is not necessary for understanding and analysing the regulatory background of the zero-rating practice that is the subject of the present study.

BEREC guidelines on the implementation of the net neutrality regulation, and specifically the assessment of the compliance of zero-rating business practices

The EU [2015] regulation is a rather brief, general legal text, and does not give any practical guidance regarding the implementation of the rules it contains. Therefore, the issuing of implementation guidelines was seen to be necessary from the start. The regulation delegated the job to the *Body of European Regulators for Electronic Communications* (BEREC), the body that coordinates the work of European telecommunications regulators in order to harmonise regulatory practices. The BEREC Guidelines are not binding, but national regulators are expected to heed its recommendations to the greatest extent possible. Authorities primarily rely on this document and its recommendations in their enforcement work, and diverge from it only in strongly justified cases.

The Guidelines are about the implementation of the Regulation; thus, they endeavour to provide practical guidance on the issues that arise in practice, taking into account the current regulatory, economic and technical issues. The *BEREC* [2016] Guidelines show that this was far from an easy task.⁸ Regulation 2015/2120 is made up of six short articles,⁹ and the 45-page, 191-paragraph Guidelines attempts to interpret and comment on every element of the text. Here, we briefly discuss the parts that are relevant to zero-rating. The Guidelines – presumably because of the market significance of the matter – discuss the regulation’s provisions on zero-rating in great detail (*BEREC* [2016] paragraphs 40–56).

One of BEREC’s most important statements on zero-rating can be summed up as follows: if an internet subscription has a data cap (as mobile internet offers usually do) and the ISP makes unlimited zero-rated traffic available to the subscriber after the data cap has been reached while blocking or slowing all other traffic according to the general contract terms, then the ISP’s practice is contrary to the network neutrality regulations. Zero-rating itself is not prohibited, but as per the BEREC Guidelines, this form of it is essentially considered contrary to Section 3 (3) of the Regulation (*BEREC* [2016] paragraph 55). This is because the ISP treats traffic associated with different applications or services differently.

The BEREC Guidelines list as contrary to the regulation any practice where an ISP blocks, slows down, restricts, or degrades any internet traffic without appropriate justification, or where an ISP restricts the range of applications available to an end user (*BEREC* [2016] paragraph 55). It is easy to see that such practices run counter to the other provisions and objectives of the Regulation, as they cause direct harm to

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⁸ BEREC issued a new guideline in 2020 Guidelines on the Implementation of the Open Internet Regulation, but at the time of the NMHH decision and also of the writing of the Hungarian version of this article the 2016 Guidelines was in force and served as the valid reference. The interpretation of the Regulation has not changed so much.

⁹ Regulation 2015/2120 actually covers two separate issues, net neutrality and roaming in the EU; the six articles cited above are the ones referring to net neutrality.

the affected users without benefiting others; however, this is far from clear with regard to zero-rating practices. Though this is not stated explicitly in the Regulation or the Guidelines, a practice that affects the traffic associated with certain applications and services favourably without treating others negatively is still considered discriminatory. It follows from this logic that positive discrimination is forbidden, too.

BEREC's position is that there could be zero-rating or other potentially problematic business practices not listed above, for which only a more detailed examination could determine whether they are compatible with the Regulation's provisions. In such cases, the Guidelines require the authorities to carry out a comprehensive assessment (*BEREC* [2016] paragraph 56).

The Guidelines do not contain an exhaustive list of the elements such an assessment needs to consider, but they do suggest that the market position and market power of the ISP involved in the zero-rating practice and the CAP need to be examined in accordance with the principles of competition law. This is quite a clear requirement, and there are examples of this procedure being applied in practice, although rather in more in competition than in regulatory practice. In order to determine the relevance and significance of the effects and the potential harm, the size of the affected group of end users needs to be assessed as well.

Any potentially problematic business practice needs to be judged on its effects. The Guidelines recommend assessing how the practice under examination affects content diversity, how it affects the content consumption incentives of consumers, and to what extent it materially reduces end user rights. BEREC also recommends the examination of how the commercial practice affects the diversity of content offered by content and applications providers, incentives for market entry and the operation of the internet ecosystem as the "engine of innovation" in general. The problem is that these are quite vaguely defined benchmarks.

There is no doubt that the Guidelines provide the most detailed guidance available regarding the regulation of zero-rating, but even this lengthy document provides little direction on specific cases. BEREC's position can be summarised as follows:

- Zero-rating offers violate the Regulation if, in case of a service package with a data cap, the ISP treats zero-rated and other traffic differently after reaching the data cap.
- Zero-rating offers not covered by the above point do not necessarily infringe upon the Regulation, but they may be problematic.
- If the zero-rating only covers some specific services and applications, an infringement of the Regulation is much more likely. BEREC's position is that it is less concerning if the zero-rating practice differentiates a specific *type* of traffic and treats it differently from others, without differentiating within the same traffic type.
- A zero price can be an issue in and of itself, as the traffic covered by the zero-rating is not counted towards the data cap, and the cost difference between two different traffic types may distort consumer choices, thus making entry into the CAP market more difficult, hindering innovation and, in the end, undermining end user rights.

As the goal of the present analysis is assessing the rules on zero-rating, we will not go into any more detail on the BEREC Guidelines, even though some other elements of the Guidelines may have some bearing on the issue as well. We will, however come back to the issues raised by the Guidelines and the regulation in the Conclusion section.

THE INTRODUCTION OF NET NEUTRALITY RULES

Before discussing the zero-rating practice under examination and the Hungarian regulator's decision on it, we need to recall the objective of net neutrality and how and why the rules that limit the traffic management of ISPs were introduced. This background information is necessary for assessing whether the existing rules serve the intended objectives well and whether the methods they use are reasonably justified and proportional.

The issue of net neutrality has received much greater attention than the number and severity of the practical concerns it causes would justify.¹⁰ It has generated passionate interest over the last decade and a half, the details and twists and turns of which we cannot go into, for lack of space. The summary article by *Krämer et al.* [2013] provides a good overview of the economic issues and opinions that arose before the current regulation was introduced.

The telecommunications industry is traditionally regulated, but regulations regarding commercial business practices (such as pricing or the composition of subscription packages) are very rare nowadays. The European telecommunications regulation focuses mainly on operators with significant market power, and enforcement is preceded by thorough analysis on the definition of the relevant markets and an examination of market power. Operators that have been identified as having significant market power in the relevant market are subjected to justified and reasonable obligations based on the principle of minimum necessary intervention. Sectoral regulation has always approached developing markets carefully, and since the introduction of the new regulatory framework in 2002, it has refrained from intervening in the operation of retail markets. Obligations pertaining to all operators were only used very rarely, regarding fundamental technical issues (such as interconnection and ensuring interoperability).

The net neutrality rules applying to ISPs diverge fundamentally from the previous careful and considered approach of telecommunications regulation, in that it forbids retail practices related to retail pricing and service package design for market players that are not dominant – i.e. *do not have significant market power* on the relevant retail market. Without close familiarity with the antecedents of net neutrality regulation and the circumstances of its birth, it would be impossible to

¹⁰ The phrase *network neutrality* or *net neutrality* in reference to the internet was coined by law professor Tim Wu in 2003 (see *Wu* [2003]).

understand how or why the ISPs operating on a competitive market “deserve” such a strict regulatory approach.

Let us recall briefly how this regulation emerged. Telecom operators were somewhat apprehensive, but mostly happy when the internet came about, as the voice service market was reaching maturity and saturation, and the internet was a new telecommunication service that offered a chance to increase revenues. However, with the development of broadband, it quickly became clear that the internet brings not only opportunities, but also rather serious challenges to telecom operators. The source of the challenges was the dynamically growing content and applications market,¹¹ which had affected telecom operators offering internet services negatively in a number of ways:

- The increasing popularity and consumption of content requiring high-volume data traffic (especially video) caused congestion on networks, which required significant investments in increasing network capacity. ISPs became more and more frustrated as a flourishing OTT service market with a variety of innovative business models flourished on their networks,¹² without providing them with high enough direct revenue to balance the significantly increasing the investment and operational costs (CAPEX and OPEX) they had to bear.
- Serving a certain group of consumers –so-called *heavy users*, who generate traffic exceeding the average by several orders of magnitude – became more and more inconvenient for ISPs. The revenue from these customers was dwarfed by the costs associated with the investments aimed at increasing capacities and managing the traffic congestion.
- Moreover, certain OTT services proved to be especially “threatening”, as they were in direct competition with legacy services and thereby affected the core business of the telecom operators. Voice and message applications started to replace to a significant extent the operators’ highly profitable fixed-line voice and text (SMS) services. The projected shrinking of voice and SMS revenues, which provided a significant portion of the total revenue and the bulk of the profit¹³ was a serious threat to operators.

¹¹ Between 2008 and 2012, the capitalisation of European CAPs was expected to grow by close to EUR 140 billion, while that of the European telecom operators was expected to shrink by close to EUR 70 billion (see the report commissioned by the European Telecommunications Network Operators’ Association: BCG [2013]).

¹² Over-the-Top (OTT) service providers (like Facebook, Netflix, YouTube, etc.) are CAPs that reach consumers and provide services to them through the public internet network operated by numerous ISPs. The OTT service is not controlled or distributed in a commercial sense by the ISPs whose network is used.

¹³ This process is still ongoing. According to BCG’s study, the use of the voice and messaging applications of OTT service providers is growing steadily. In their projection for 2018, internet-based voice services were expected to cause European telecom operators a revenue loss of EUR 21 billion. The loss of telecom operators in the text message business was predicted to be EUR 10 billion on 8 European (German, French, British, Italian, Spanish, Dutch, Belgian, Portuguese) markets (Bock *et al.* [2015], BCG [2013]).

Thus, it is understandable that telecom operators, who became the ISPs, were fervently looking for answers to these challenges.

One option was to jump on the bandwagon, and try to carve out a significant share of the growing content and applications market. Numerous telecom operators entered what was completely new territory to them, setting up or buying content-producing and application developing divisions. However, this has not been particularly successful so far, in part due to the lack of the necessary skills, which are quite far removed from their engineering-based fundamental business skills and culture, and partly due to the lack of competitiveness with the highly innovative and successful global players in this market (Google, Facebook, Amazon, Netflix).

Telecom operators which also became ISPs started to work on protecting themselves against the threatening OTTs that jeopardised their revenues or increased their costs. Some ISPs blocked or slowed down some types of high-traffic content, applications or subscriber activity (such as peer-to-peer traffic). Some mobile operators made it more difficult to use internet-based voice and messaging applications. They felt – and they also voiced this opinion – that it was unfair that companies providing content over the internet (OTT service providers) that were independent of ISPs were generating ever greater amounts of traffic, but the burden of the supporting capacity expansion was borne by the telecom operators only. They even floated the idea of demanding some type of contribution from OTT service providers for providing data connections of suitable quality.

It should be noted that the ISPs made only sporadic attempt at hindering or obstructing OTT traffic, and the news reports and the harsh negative public reception of these developments prompted them to retreat in order to protect their reputation and avoid likely regulatory intervention. According to the survey in *BEREC* [2012], out of 115 European mobile operators, 28 applied some type of limitation on internet voice traffic (VoIP). This proportion is clearly not insignificant, but it should also be noted that close to three-fourth of mobile operators opted for some reason not to block applications that were clearly cannibalising their core business. This must certainly be due to the fact that the strong competition in the sector forces operators to think carefully before risking long-term consumer goodwill for short-term gains. Additionally, new entrants challenging the incumbents were more likely to support – or less likely to hinder – the use of such applications.

The post hoc assessment of the fairly mild response of the fixed and mobile ISPs shows it was neither successful nor even particularly dangerous; it did not lead to any significant distortions of competition or reduction of consumer welfare. The ISPs, despite their considerable financial resources and large existing consumer base, did not achieve significant success on any of the vertically related CAP markets.

Nevertheless, from the point of view of consumers, ISPs are gatekeepers to content access: they provide the internet connection necessary for accessing these services, which gives them the ability to behave in ways that are potentially detrimental

to both *downstream* end users or to the CAPs operating on the *upstream* market. However, no significant interference of this kind has taken place so far. The issues have been sporadic, such that consumer protection or the competition authority and the pressure of public anger have been able to take care them.

The campaign against ISPs already began in the early 2000s. Those concerned about the freedom of the internet – with the overt or covert support of large content and applications providers like Google, Facebook, Netflix or Amazon – cried wolf, stressing that if ISPs were not regulated, even fundamental values and safeguards of democracy like the freedom of speech might be in danger. ISPs were facing concerted efforts from (mostly legal) experts and public enthusiasts enjoying the overt or tacit support of CAPs, and CAPs themselves.

The concerns were based – in addition to sporadic foreclosing attempts by ISPs – mostly on the very real gatekeeper role of ISPs in the vertical chain of service relationships and potential anticompetitive practices (see below). The complex vertical structure of the industry, the competition between ISPs, the effects of consumer reaction and the examination of the motivations of ISPs to engage in such behaviours were not given sufficient weight in these debates. Early economic analyses¹⁴ showed that net neutrality rules banning the application of “termination rates” charged to CAPs and the associated quality differentiation of traffic (offering a “fast lane”) are clearly beneficial to content and applications providers, but their effects on social welfare are doubtful at best, and quite probably negative.

In the multi-threaded and multi-level net neutrality fight, the more sober, analytical economic *pro* and *contra* arguments that take into account the complexity of the industry were not taken into account as strongly as some oversimplified, but loudly voiced and ideologically based positions. The idea of internet freedom was introduced, and presented as if it were equivalent to freedom of speech; this made the issue so politically sensitive that decisionmakers started to lean towards regulation, eventually issuing the strictest regulation in the modern history of the telecommunications industry. This is based on the idea that every ISP is a wolf in sheep’s clothing, which needs to be tied up and then constantly monitored, because it threatens the freedom of the sacrosanct internet.

In Europe, the net neutrality side won the argument.¹⁵ In the United States, regulation was adopted, but after the Republicans came into power it was soon revoked.¹⁶

Where the advocates of net neutrality won, they won too big. By banning the quality differentiation of traffic, the regulation also prevents the application of two-sided pricing by the ISPs, connecting the consumers and CAPs, charging CAPs a contribution based on the traffic they generate in order to finance improving ISP

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¹⁴ A good overview of these is available in *Easley et al.* [2018].

¹⁵ See the EU’s 2015 Net Neutrality Regulation, discussed in more detail below (*EU* [2015]).

¹⁶ The 2015 net neutrality order (*FCC* [2010], *FCC* [2015]) was repealed in late 2017 (*FCC* [2017]).

networks. The ISP service is a classic example of a two-sided market, and such limitations are very likely to reduce consumer welfare.¹⁷

The Net Neutrality Regulation affects all ISPs negatively, but particularly the mobile operators. After the adoption of the Net Neutrality Regulation, ISPs only had one remaining business option to discriminate between contents or services on the mobile broadband market, where data caps are prevalent because of network capacity constraints. This option, which consumers happen to like, is zero-rating: offering certain content without limits, and, in a sense, free of charge.¹⁸

AN ANALYSIS OF ZERO-RATING

The concept and types of zero-rating

A zero-rated service by an ISP is one where the ISP does not count the traffic of specific contents or applications towards the subscriber's general data cap. Zero-rating is only relevant to subscription services where there are various levels of packages with different data caps or allowances; basically, mobile broadband services. The data cap limits consumers' use of various contents and applications, except for contents covered by the zero-rating: the consumer can use these without limitation, and the marginal cost is zero. Despite the apparent simplicity of the concept, there are numerous forms and types of zero-rating, which can be classified and assessed based on the following criteria.

- ♦ *What content types does it cover?* Zero-rating can either cover the services of one or a few specific CAPs, or it can cover a specified *type of content or application*, such as Telenor's MyMusic package, which covers practically all music streaming applications. In the first case, examining whether the service in question is offered by the ISP (or its subsidiary) itself or an independent third party can be an important differentiating feature in assessing the potential competition-restricting effects of the zero-rating, as in the former case the ISP may have an incentive to promote its own services and foreclose competitors'.

- ♦ *How does the zero-rating relate to offers with a general data cap?* The ISP often offers the zero-rated content automatically, as a free supplementary service to every consumer who subscribes to the particular data package in question. In other cases, like in Telenor Hungary's case, consumers can opt into the supplementary zero-rating service for a separate fee. There are also cases where a mobile operator makes some content available for free to every subscriber, even those who do not have any

¹⁷ On the economics of platforms operating as two-sided markets, see for instance *Rochet–Tirole* [2006] and *Evans–Schmalensee* [2014].

¹⁸ While zero-rating is not necessarily confined to the mobile market it is where it is most widely used.

broadband data subscription (Facebook Zero, used in developing countries was one example, see Eisenach [2015]; Telenor also had an offer of this type in Hungary at one point, also with Facebook).

- ♦ *Who pays for zero-rating?* It is possible – although the consultancy firm DotEcon did not find any examples of this in their study on zero-rating practices¹⁹ – that a CAP could pay an ISP to make its content or service available to consumers without any charge. In many cases, including the Telenor Hungary case, the option for unlimited use of a content or application can carry its own separate price tag, paid by the consumer. In this case, using the phrase *zero-rating* is a little misleading, as it is not actually free to the consumer. Still, these terms do match the definition, as the content or application can be used at zero marginal cost, and it does not count towards the overall data cap. In such cases, the consumer essentially purchases a supplementary unlimited data allowance that they can only use for the content specified by the ISP. In many cases, neither the CAP, nor the consumer pay the ISP directly. Some analysts have suggested that the ISP cannot provide this service for free; it must cover the costs in some manner. According to this approach, the price of unlimited use is built into the price of the general data allowance, which would be cheaper if the offer did not include zero rated items. This is not necessarily the case, and indeed as we said above it was not true for the zero-rating offers of Telenor Hungary. However, in the following, we present an economic rationale for why ISPs may reasonably provide content to consumers for free in the form of a zero-rating offer.

- ♦ *Can the zero-rated content or application be used after the data cap is reached or not?* This might seem like a small difference, but as we have seen, it is a crucial distinction in European net neutrality regulation. According to a literal interpretation of Article 3 (3) of Commission regulation EU [2015] (backed up by the BEREC Guidelines, and now the judgement of the Court of Justice of the EU in the Telenor vs NMHH case), the ISP cannot block some traffic while allowing other traffic to reach the consumer. This is indeed the case with zero-rating offers that can be used after the data cap is reached: all traffic is blocked, except the content and applications included in the zero-rating tariff.

Concerns raised regarding zero-rating offers

A significant portion of the concerns raised regarding zero-rating are based on the concern that these offers *distort consumer choice*, diverting the consumption toward the content available at zero marginal cost. Consumers consume zero-rated and non-zero-rated content at a different rate than they would by default if there were no zero-rating tariff or all content were available without limitations.

¹⁹ See DotEcon [2017], although the authors admit that they were not able to obtain in-depth information about CAP-ISP transactions.

According to the approach hostile to zero-rating,²⁰ which consumer protection groups backed enthusiastically,²¹ ISPs can use this tool to influence what content consumers consume, affect the functioning of vertically connected markets, especially the content market, and even *pick content market winners*. According to the proponents of this interpretation this may compromise consumers' freedom of choice, and it could distort competition on the content market.

According to this reasoning, large CAPs have sufficient financial resources to make their services cheaper to access through ISPs than their competitors' (e.g. by providing financial compensation for zero-rating them). Smaller content and applications providers that cannot buy into zero-rating are at a disadvantage they cannot make up for, and end up foreclosed from the market, or unable to enter in the first place. Thus, the argument goes, the use of zero-rating can function as a *barrier to entry and an obstacle to innovation in the upstream CAP markets*.

An ISP's motivation to *distort competition in the upstream CAP market* is greater if the ISP itself is present on that market. According to net neutrality advocates, the danger can be especially grave if the ISP has market power on the internet market. This is when the issue of *exclusionary conduct based on the leverage of market power*, well known in regulatory theory and practice, *arises*. Using its dominant position on the access market,²² the ISP provides an offer to consumers that players on the vertically connected CAP market cannot compete with, and eventually they are foreclosed. The tool the ISP uses to foreclose upstream competitors is supposed to be the zero-rating service favouring the ISP's own CAP service, which is presumed to confer a benefit on the ISP's own content that alternative CAPs cannot compete with.

Behaviour aimed at foreclosure is theoretically possible in the other direction as well. This requires the vertically integrated ISP to have a dominant position in the upstream CAP market, which can be leveraged in the downstream internet access market, pushing ISP competitors out and *distorting competition in the ISP market*. The tool would be zero-rating in this case, too. However, in order to effectively foreclose competitors, the ISP's vertical CAP services have to be so attractive – or indispensable – to consumers that the offer of unlimited use motivates them to actually switch from the ISPs that cannot provide such offers to the ISP that does.

This theory of harm concerning the effects of zero-rating is conceivable as a model, but considering the characteristics of the ISP and CAP markets in real life, it is impossible – or virtually impossible – for it to actually happen.

²⁰ A good example of this would be the essay by Barbara van Shewick, one of the prominent advocates of net neutrality (Schewick [2016]).

²¹ 50 lobbying organisations wrote letters to the FCC in March 2016. <https://cdn.arstechnica.net/wp-content/uploads/2016/03/FinalZeroRatingSign-OnLetter.pdf>.

²² According to the European approach to competition regulation, a dominant position in the relevant market is a necessary precondition for distorting competition. The concept of significant market power as used in regulation is similar to the concept of a dominant position in competition policy.

• First of all, it should be noted that these theories of harm only make sense if the zero-rating covers one or a small set of content services. The harm cannot be shown to exist through any reasonable argumentation²³ if the zero-rating covers all contents or applications of a certain type, as Telenor Hungary's MyMusic does.

• The ability of ISPs offering zero-rating to influence content consumption is in reality significantly lower than what is presumed by arguments raising this theory of harm. It could be significant if consumers only (or primarily) accessed this type of content through the access provided by the ISPs, i.e. mobile broadband connections with a data cap. This is clearly not the case for most consumers: the majority may also have an unlimited fixed internet subscription at home, and mobile users could use a Wi-Fi connection for a significant portion of the time, in which case the non-zero-rating content of their preference is again available with virtually no limits and at zero marginal cost. It is quite unlikely for a zero-rated offer to have the ability to significantly distort the overall content consumption of consumers (if the multiple ways to access the internet are considered)).

• The ability to distort the choice between CAP services also presumes that the services are close substitutes, and the choice between them is greatly affected by the implicit data usage price associated with their consumption. However, content services of a similar type are often not very close substitutes. Consumers usually interested in specific content (e.g. a given film, news portal, game or application) will not replace that content with other content just because one is available in a zero-rating tariff while the other is not.²⁴

• Demand for internet access is derived; i.e. it is not sought for itself. For the consumer, the value of an internet connection – and thus, the demand for it – is determined by the amount of interesting content and applications available through it. It is fundamentally in the ISP's interest for consumers to be able to access the content they are interested in; ISPs are not at all motivated to prioritise through zero-rating content that consumers are not interested in (with the exception of their own content). This would be counterproductive in the ISP market; the company would be risking losing customers, especially if its competitors provide other, more attractive zero-rating content to consumers. Therefore, it is quite unlikely that the market position of otherwise successful CAPs would

²³ The argumentation would be that consumer choice is distorted because they listen to more music than they would without zero-rating, and this causes harm to providers of other types of applications. However, it is not at all clear that the use of other types of applications would be reduced. In fact, an important characteristic of economic decisions is that the reduction of the relative price of a product – provided that it is not an inferior good – increases its demand due to the income effect. But the effect on the demand for other goods depends on the substitution effect; it is possible that the demand for them also increases.

²⁴ Naturally, there are services which are close substitutes, e.g. in the area of data storage services, and there may be consumers who do not have a strong preference for any specific content, to whom the above does not apply. The issue of substitution is essentially an empirical one.

deteriorate as a result of the use of zero-rating, while the market position of less successful ones improves.

- The vertically integrated ISP does indeed have an incentive to prioritise its own services on related upstream markets. There is nothing unusual about this; all companies with vertically related products have a rational incentive to do so. The market is distorted if 1) the ISP has a dominant position on the access market, 2) it can significantly influence the related CAP markets and 3) this influence is so effective that it leads to competitors' foreclosure. In the present situation, it is quite doubtful whether there is a provider on the ISP market with significant market power. Despite concentration (there are generally 3 or 4 players in a country with a network of their own, and perhaps a few virtual operators), mobile markets are characterised by quite intense competition. The ability to distort competition probably cannot be proven even with regard to the largest mobile operator, and it is out of the question for the smaller players. The second condition, the existence of a leverage effect on the related market, is extremely unlikely because of the lack of a dominant position and the availability of the above-mentioned alternative options (unlimited access at home or through Wi-Fi access). In many cases, foreclosing competitors on the CAP market would not be possible even if the first two conditions were fulfilled. In a significant part of the CAP market, large global players are increasingly dominant, and they would not be significantly affected by such moves, even if there were serious attempts to foreclose them out on a national market. In the case of global CAPs, being foreclosed on a national market is not a realistic possibility.²⁵

- Exclusion by leveraging market power in the reverse direction, i.e. leveraging market power existing in the CAP market in order to foreclose competitors from the ISP market is clearly not possible: as discussed above, telecom operators have not been able to achieve any significant success in the content market, let alone obtain a dominant position.

Therefore, it can be concluded that the theories of harm regarding zero-rating are only valid in principle at best. The characteristics of real markets are fundamentally different from the assumptions many of these models are based on. Thus, the validity of the theory of harm is highly dubious, and the likelihood of any real harm is low. We do not wish to say that any harmful effects or distortion of competition are entirely inconceivable, but we firmly believe that the likelihood and magnitude of any such effects is far too small to justify or necessitate the strict *ex ante* regulation and close surveillance laid down in the EU regulation.

²⁵ Foreclosing global market players from a market is typically only achieved through state regulation, such as in China, Russia and other countries that apply censorship.

Benefits of zero-rating for operators and consumers

Despite the concerns voiced by consumer protectors,²⁶ zero-rated tariffs have proven successful on the mobile internet market.²⁷ Here, we discuss the reasonable motivations of mobile operators for offering these popular schemes.

Stimulating demand • Even though the mobile broadband market is becoming more and more saturated, there are consumer segments where penetration is still low. In these segments and in the early stage of the product lifecycle, zero-rating offers that are available without a data subscription allow mobile operators to introduce consumers to mobile internet services, serving as a sort of product sample. Mobile operators do this in the hope of attracting new subscribers. Naturally, the zero-rated content needs to be attractive to the targeted consumers, or familiar in its means of access (e.g. Facebook).

Product differentiation • Mobile broadband access appears to be a relatively homogeneous product if the networks are robust. Differences in coverage or speed played an important role in the early stage of competition for consumers. With the wide roll-out of fourth-generation networks based on LTE technology, these differences are disappearing; consumers experience quite similar geographical coverage and bandwidth (internet speed) from every operator. However, operators need to differentiate themselves from their competitors, so they started looking for new possibilities to do so. Zero-rating in mobile internet offers is such an option. The goal of the operator is to make its offer more attractive than that of its competitors, thus gaining new subscribers or keeping the existing ones.

From another perspective, zero-rating can also be seen as a price discount on data subscriptions. The revenue coming from the consumer (the subscription fee) does not change, but the implied price of data (e.g. the average price paid for 1 GB of traffic) is lowered, as the consumer can use more data for the same price. This is a widespread practice in the telecommunications sector: instead of reducing prices, which reduces the average revenue per user (ARPU), the operator provides extra volume, which reduces the average price of traffic, but not the ARPU.

A tool for price differentiation • Operators offer mobile broadband in packages with differing levels of data allowances. The larger the data allowance, the higher the monthly fee, but the implied price (e.g. the price of 1 GB of data) is lower in

²⁶ See for instance: Zero-rating has now become the neuralgic point in the net neutrality debate on both sides of the Atlantic. World Wide Web Foundation, <https://webfoundation.org/2015/02/guest-blog-the-real-threat-to-the-open-internet-is-zero-rated-content>

²⁷ The *DotEcon* [2017] study commissioned by the European Commission examined and attempted to categorise the varied practices applied in EU member states. According to its conclusions, competition issues may arise only sporadically.

bigger packages. Data caps are put in place partly because each operator's network capacity is limited, and thus it is not able to provide unlimited data traffic to every subscriber without risking network congestion and deteriorating service quality. However, limited network capacity is only one – and not necessarily the most important – reason why the data caps are applied. Mobile operators would have a fundamental business interest in price discrimination even if their network capacities were not particularly limited.²⁸

Subscription plans with data caps offered by mobile operators are a form of price discrimination. Second-degree price discrimination means that the access price and data unit price paid by consumers varies according to the consumer's choice of plan. Price discrimination is possible because consumers' preferences with regard to data usage are heterogeneous; that is, they evaluate offers with different data caps differently. User preferences are also heterogeneous with regard to the content they wish to access.²⁹ Consumers also have varied assessments regarding unlimited access to their most favoured or critical contents and applications. The focus is not on quantity of use in this case, but rather on having uninterrupted access to these critical applications, which may be a source of significant added value.³⁰ Zero-rating – especially of the type that can be purchased to cover some content or content types – is a supplementary offer providing unlimited use, and it essentially introduces an additional type of price discrimination based on this heterogeneity of preferences.

Price discrimination is an important and efficient tool for ISPs – and in general for all kinds of service providers in the telecommunication and ICT sector. It is evident from the economics literature that,³¹ especially in industries with high fixed costs, uniform pricing may not ensure a return on costs; i.e. the industry would be unsustainable if it were to use uniform pricing. Thus, in some cases, price discrimination is indispensable and vital for the functioning of the industry. It is easy to see that price discrimination provides greater social and consumer welfare than uniform pricing. With uniform pricing, the price of a uniform offer with a high data cap (or an unlimited one) would be so high that many consumers with a low willingness to pay would be priced out of the market. Output (in terms of subscriber number) would fall, causing greater deadweight loss and lower consumer welfare. Operators' revenue would be lower, and consumer surplus would probably be lower too, as the increase in consumer surplus for consumers with the highest willingness to

²⁸ Price discrimination also happens on the fixed broadband market, but there bandwidth is used as a differentiator instead of data caps.

²⁹ The two are not completely independent of each other: for example, consumers interested in video content naturally appreciate larger data packages more.

³⁰ One might think of a consumer who feels "lost" without a navigation app, and is therefore worried that they might not be able to use it if the data cap is reached.

³¹ For an exhaustive discussion of price discrimination, see for example *Varian* [1989], *McAfee* [2008], and *Armstrong* [2008].

pay would not counterbalance the reduction in the consumer surplus of consumers with lower willingness to pay who would be priced out of the market.

Price discrimination generally increases the economic surplus; when it comes to the second-degree price discrimination (menu pricing) used in this case, it is virtually impossible for it to adversely affect social welfare compared to uniform pricing (see for example *Varian* [1996]). Essentially, welfare would be reduced if discrimination caused output to fall; however, in this case, output is greater than it would be with uniform pricing, so consumer surplus is likely to be higher than it would be with uniform pricing.

Because of the significantly increased amount of consumer data available (*big data*), there have been more and more studies of the consequences and potential dangers of companies' increased ability to use more accurate personalised first-degree price discrimination based on this detailed consumer data. *OECD* [2016] provides a good summary of the associated economic and regulatory thinking and the issues of consumer exploitation in this context. The main conclusion of that paper is that price discrimination should be considered beneficial by default, as it often has positive effects on the economy as a whole, on consumers and on competition.³²

The positive effects of price discrimination are closely tied to increased output. It is important to recognise that there are at least two types of output in the ISP market: one is the number of subscriptions, the other is data traffic. Zero-rating offers increase both types of output. The impact on traffic (total amount of data used) is surely significant, and this is always clearly visible irrespective of how developed the market is. As the market becomes saturated, the impact on the number of subscribers can become smaller and smaller. However, if we consider zero-rating offers enabling the unlimited use of the relevant content or application (type) that can be purchased as a separate add-on option (which is the kind that is used in the Hungarian cases) as a separate product or a supplementary product, then, even if the total subscriber number does not change, they can be considered to increase the number of revenue-generating subscriptions. With this approach in mind, the benefits of this type of zero-rating are clear:

- The operator recognises the heterogeneity of consumer preferences, and, based on this information it introduces a new (supplementary) product, such as unlimited music downloads;

³² The paper also identifies cases where the concern of consumer exploitation may be raised; however, this requires fulfilling conditions (falling output, market sharing) that do not arise in our case. The OECD's approach is rather cautious; however, there are more radical economic opinions according to which no regulatory intervention is ever justified with regard to price discrimination. See Carlton [2016] at a conference organised by the OECD: "Attempts to attack price discrimination that does not harm one's rivals – non exclusionary price discrimination – is a big mistake, with rare exceptions."

- The consumer compares the expected utility (determined based on their preference for the available content and the extra value provided by unlimited use) to the price charged by the operator, and, if it is above the price, buys the supplementary subscription, resulting in higher revenues for the operator;
- The increased number of subscriptions brings greater producer surplus (profit) to the operator, possibly a significant amount, as the marginal cost of the supplementary product is low;
- For some consumers, the utility of the purchased supplementary product exceeds the price paid, generating consumer surplus as well.

Therefore, the launching of a zero-rating tariff with unlimited use of some attractive contents or applications increases both producer and consumer surplus, thus increasing social welfare.

The above clearly illustrates that operators may have several natural reasons, compatible with competition, for using zero-rating, even if the costs are not covered by CAP providers. These motivations provide a much more obvious explanation for the introduction and spread of zero-rating tariffs than the anticompetitive motives assumed in some theoretical models, but never proven to exist in practice. Therefore, for operators, zero-rating primarily serves as a tool for demand stimulation, product differentiation and price discrimination, which are all integral parts of competitive behaviour and beneficial for consumers as well. Thus, it stands to reason that prohibiting zero-rating in the absence of proof of any anticompetitive objective or effect restricts competition, and most probably diminishes social and consumer welfare.

The positive effects of zero-rating on consumer welfare and content and applications service providers • Consumers who choose a zero-rating tariff receive an extra service at a favourable price, which they can use at zero marginal data cost. Some portion of their base data allowance is “freed up”, and thus they can use other applications and content services more without incurring extra costs. For them, the zero-rating is worth the price, as indicated by the decision to purchase it. The increase in welfare is clear. It should also be noted that the zero-rated CAP services are generally popular and sought after, so these offers can be potentially attractive to a large number of consumers.

For consumers who are not interested in zero-rating plans, the end result is basically neutral, but they can indirectly profit from the more intensive ISP competition made possible by differentiation. If positive network externalities apply to the ISP service – i.e. if the increase in the number of users makes the network more valuable to its subscribers – then even the customers of the network in question who do not opt in to a zero-rated plan can benefit from it.

The provider of the zero-rating content or application, whether it makes its revenue from content fees, from advertising or a combination of both, clearly benefits from increased demand. Increased consumption/use makes the service more viable and profitable.

CAPs whose services are not covered by the zero-rating do not suffer either: when zero-rating is an addition to the chosen data package, compared to the baseline, consumers can use their services more too, because their contents do not need to compete for the data allowance with the contents that are available without limitations. It is the positive side-effect of zero-rating that it increases the data allowance available for consuming other content. Thus, zero-rating in its direct effects cannot be exclusionary, in fact, just the opposite, it increases the market for other services too, by the amount of data allowance that it frees up.

It is possible that the content made available with zero-rating could become more attractive compared to other similar content that is not covered by zero-rating, and this could have some negative impact on their providers. This cannot be ruled out as a hypothetical scenario, but it is difficult to estimate its scale, and compare it to the tangible benefits to consumers and operators that zero-rating brings. Moreover, the markets of information goods operate differently than those of traditional goods. The role of differentiation is different, and it is not at all unlikely, even in a competitive environment, for a product to become the market itself, and for its provider to become essentially a monopolist (see for example *Shapiro–Varian* [1999] and *Jones–Mendelson* [2011]). In this competitive environment, a zero-rating offer from a specific mobile operator in a specific country can only exert a noticeable influence on the market under very special circumstances.

AN ECONOMIC ASSESSMENT OF TELENOR HUNGARY'S ZERO-RATING CASE

Telenor's zero-rating offers

In its investigation the Hungarian regulatory authority found that two schemes offered by the second largest mobile operator in the Hungarian market, Telenor, violated the provisions of the Net Neutrality Regulation.

The operator offered the MyChat and MyTalk&Chat “fee reduction” options with its MyStart and MyStart Expressz plans, which were designed for customers with low usage. Both supplementary options contain 1 GB of data, and MyTalk&-Chat also includes 100 minutes of calls. The first supplementary internet service cost HUF 1849, and the fee for data traffic for the second option is the same. Thus, the two can be said to be the exact same offer, with an extra 100 minutes of calls paid at a flat rate added to the second for what can be interpreted as a separate fee.

In terms of data traffic, both tariff packages provide unlimited access to the continuously expanding set of chat applications included in the terms and conditions.³³

³³ Initially: Facebook, Facebook Messenger, WhatsApp, Instagram and Twitter, with Viber being added later.

Telenor does not count the data usage of the chat services covered by the offer towards the customer's data usage. Additionally, customers can continue to use these chat services without limits even when the data allowance is exhausted and all other traffic is slowed down or blocked as per the basic terms and conditions of the tariff package.

Telenor offers a similar zero-rating scheme to consumers who like music. The MyMusic supplementary service,³⁴ available with a data package or renewable data ticket, includes the following options: MyMusic Start offers 500 MB data allowance for specified music services³⁵ at a price of HUF 269, MyMusic Nonstop offers unlimited use of the same music services for HUF 920, and MyMusic Deezer includes the same and a Deezer subscription for HUF 2226.³⁶

MyMusic Nonstop and Deezer work as classic zero-rating plans: the traffic is not counted towards the music data cap and the music services included in them remain available when the original data cap has been reached.

These Telenor offers provide a customised service to consumers who are intensive users of chat or online music services. This offer targets and meets the specific demands of these groups, allowing them to satisfy their data usage preferences without worry and without limitations. Moreover, because the use of these services is not counted towards the consumer's data allowance, it does not displace other services – in fact, more of the allowance is left over for them.

Based on its investigations, NMHH found that Telenor's service violates the Net Neutrality Regulation – specifically, the provisions of Article 3(3) of *EU* [2015] – as it discriminates between different types of traffic without due justification based on reasonable traffic-management considerations as per regulation 2015/2120, or meeting the criteria for other traffic management exceptions. In its decision of the second instance issued in March 2017, the authority prohibited the illegal conduct – that is, offering the services under the existing terms.³⁷ Telenor appealed the decision in court.

The assessment of the case from the competition point of view

After reviewing the welfare effects of zero-rating above, it is reasonable to ask whether or not banning Telenor's zero-rating offers is justified from a competition point of view. We are not discussing whether the authority's decision is legally well-grounded and justified; determining that is up to the courts. The question here is whether

³⁴ As a special offer, the MyMusic service was included in Telenor's Blue tariff option.

³⁵ Only for using the music services listed on www.telenor.hu/mymusic.

³⁶ The fee includes a subscription for the advertisement-free Deezer Premium+ service, but no other subscriptions. According to the operator's communication, the portion of the total fee that covers data traffic is HUF 836.22.

³⁷ Decisions of the first instance: *NMHH* [2017*b*], [2017*c*], decisions of the second instance: *NMHH* [2017*e*], [2017*f*].

decisions of this sort serve the interests of consumers, the public good, and the development of online markets, or, more broadly, the internet ecosystem.

When assessing this Hungarian case, it is important to keep in mind that the authority has to apply the law; its job is to enforce the provisions of the current net neutrality regulation. The Hungarian Communication law requires the authority to protect the interests of Hungarian consumers, increasing the choice of services available, promoting competition and generally improving the functioning of the Hungarian market.³⁸ However, promoting higher objectives and enforcing existing legislation are sometimes at odds. The authority's decision was in line with the letter of the Regulation. In this, the authority could rely on the *BEREC* [2016] guidelines, which clearly state that zero-rating offers where zero-rated content continues to be available without restrictions once the general data cap is reached are in violation of Article 3(3) of the *EU* [2015] regulation. The authority's decision can therefore be legal on this basis. Nevertheless, the question remains: does it serve the interests of consumers, or the public good in any way? From an economic point of view, i.e. based on its effect on welfare, the results are clear: the decision is harmful to society. This is because the ban does not allow the positive welfare effects discussed above to be realised, and it does not prevent any potential harm in return. It is easy to see that there is no harm to speak of with regard to Telenor's zero-rating offers, and none of the theories of harm described in section *Concerns raised regarding zero-rating offers* above apply, even in theory, for the following reasons:

- Telenor's offers do not relate to specific applications but certain types of applications, and thus consumers are free to choose among virtually all chat and music download apps. Thus, there is no question of consumer choices being influenced. The *BEREC* Guidelines also accept that the chance of negative effects is lower in such cases. We feel that firmer wording is justified here: there are no negative effects in such cases.
- Telenor is not present in the *CAP* markets in any way that would support any claim that its intention was to promote its own service.
- The theory of harm based on vertical foreclosure, apart from the arguments in the previous point, is also not valid because Telenor does not have a dominant position on the *ISP* (nor the mobile broadband) market.

Therefore, no economic assessment of the merits of the case could have come to the conclusion that Telenor's zero-rating plans qualified as anticompetitive business practices.

However, based on the *BEREC* [2016] Guidelines, the authority cited Article 3(3) of the *EU* [2015] and condemned the zero-rating practice under examination on the grounds that there is no reasonable justification for the discrimination.

³⁸ See Act C of 2003 on Electronic Communications, especially Section 2.

The case in court

Telenor's appeal against the decision by NMHH was lodged at the Budapest-Capital Regional Court. The court asked the Court of Justice of the EU (CJEU) to decide whether zero-rating business practices of the type used by Telenor were compatible with Article 3(2) and/or Article 3(3) of the Net Neutrality Regulation.

According to the September 2020 judgment by the CJEU [2020], the business practice in question includes measures that block or slow down traffic associated with certain applications and services. As the measures applied do not respond to the objectively different technical quality of service requirements of specific categories of traffic, but rather business considerations, they come under the scope of Article 3(3) of the Net Neutrality Regulation. The CJEU also found that the relevant practice is not covered by any exemptions either, as there is no evidence that the measures fall within one of the three exceptions listed in Article 3(3) of the Regulation (legal obligation, preserving the integrity and security of the network, and preventing network congestion).

Based on its interpretation of the questions, the CJEU came to the conclusion that the zero-rating practice that allows end users to use certain specified applications and services without restriction while the service provider applies measures to block or slow down traffic to other applications and services available are incompatible with Article 3(2) of Regulation 2015/2120, as this practice limits the exercise of end users' rights, and it is incompatible with Article 3(3) of the Regulation, in that the measures blocking or slowing down traffic are based on commercial considerations.

In sum, the CJEU determined that any form of zero-rating in which the traffic of applications and services not covered by the zero-rating arrangement is restricted after the data cap has been reached while the traffic of those that are covered by the zero-rating arrangement is not, is incompatible with the European Net Neutrality Regulation, irrespective of whether or not it has a positive impact on welfare.

AN ASSESSMENT OF THE EU'S NET NEUTRALITY RULES IN LIGHT OF
THE TELENOR HUNGARY CASE

*A brief assessment of the Net Neutrality Regulation
and the BEREC Guidelines*

The EU's net neutrality rules adopted in 2015 clearly indicate that the arguments of the side concerned about the internet – which were voiced more loudly, but were not necessarily better grounded – won out (EU [2015]). It appears that, instead of rational analysis and consideration and a deeper understanding of the technical and economical characteristics of internet access services and the relationships between

the players in the complex internet ecosystem, decisionmakers were focusing on other considerations.³⁹

Clearly, drawing a parallel between unrestricted and indiscriminate physical access to internet content as an inalienable consumer right and freedom of speech had an adverse effect on regulation. It was even more problematic that this consumer right was extended to cover content providers as well. Net neutrality regulation is basically a one-sided regulation of ISPs, and it protects content and applications providers as much as it protects consumers – if not more. The issue is not that the regulation asserts the right of consumers to contents, applications and devices when it comes to the ISP-end user relationship; the issue is that it interferes in a one-sided manner in the relationship between two actors in the internet service value chain, ISPs and content and applications providers, clearly on the side of the latter.

Regulation 2015/2120 on net neutrality (*EU* [2015]) was written without giving adequately examining the technical, economic and business considerations that are vital to telecommunications networks and services. The rules are too general and brief considering the complexity of the issues at hand; thus, the categorically phrased principles and the needs arising from technical and business considerations inevitably clash. Due to the misunderstood and flawed handling of the issue of discrimination, the regulation itself contained the problems and inconsistencies that surfaced with regard to the zero-rating cases.⁴⁰

Before the regulation was adopted, Andrea Renda wrote about the errors that can be made with regard to regulating net neutrality, and unfortunately, his concerns were vindicated: regulation was introduced in areas that regulators could easily handle (ISPs) instead of thinking about whether regulation is truly justified in some part of this vertical chain (*Renda* [2013] p. 4).

The *BEREC* [2016] guidelines tried to make the contents of the Net Neutrality Regulation easier to apply, taking into consideration the provisions of the articles, the contents of the recitals and general regulatory practice. At the same time, this took *BEREC* to uncharted territory, as in many instances – unlike in the case of traditional competitive assessments – there were no international standards based on cases and/or a consensus of professionals to rely on when choosing the evaluation criteria (as described in the section *The content of net neutrality regulation*). Thus, in the course of their application, too much scope is left for arbitrary and dubious interpretations.

³⁹ As Andrea Renda writes: “reality suggests that no politician feels comfortable when standing against the ‘neutrality’ totem” (*Renda* [2015] p. 2).

⁴⁰ Narrow-minded regulation causes another issue that is not discussed in the present paper: the regulation does not allow ISPs, which operate as two-way platforms connecting end users and content services, to apply optimal pricing. This would require them to be able to collect fees from end users on one side and CAPs on the other side in a manner that is optimal for the entire platform either statically or dynamically. We do not discuss this topic in detail here.

In light of the aims of the Regulation, enforcing net neutrality rules intelligently is a task that requires new methods and a new approach. There are numerous considerations (such as promoting innovation and the development of the internet ecosystem) that were not included in the mandate of national regulatory authorities at all, and that lack any established practice.

The guidelines attached to EU legislation on competition and sectoral regulation generally summarise previous experience and build on practices that have proven successful. However, the Net Neutrality Guidelines do not rely on any tried and tested practice or experience and analysis from real cases that occurred in the market. The Guidelines were drawn up before there were any legal cases in which the principles and rules in question were tested. There had been no zero-rating cases before the introduction of net neutrality rules, and complaints were only raised informally, as confirmed by the study conducted by the DotEcon consultancy for the European Commission (see *DotEcon* [2017] p. v.).

Zero-rating and non-discriminatory traffic management

When assessing the issue of zero-rating, Article 3(3) of the *EU* [2015] Regulation deserves close attention. This paragraph contains a general ban on discrimination in the context of traffic management. What does this distinction mean when it comes to zero-rating? Unlimited zero-rating traffic and regular traffic are handled equally by the ISP up to the point when the data cap is reached. After this, non-covered traffic is slowed down or blocked, and traffic covered by zero-rating is allowed to go through without limitation. The blocking or slowing always lasts until the start of the next billing period. In some specific cases, the blocking or slowing may not happen in practice. It may happen on the last day of the billing period, or it may happen earlier. In any case, consumers have a choice: they can buy more data, or they can wait until the start of the next billing period. The blocking or slowing is predicated on the consumer's decision; it can be seen as voluntarily undertaken with regard to content not covered by the zero-rating. The absurdity of the logic encoded in the Regulation is illustrated by the fact that the business practice whereby the traffic covered by the zero-rating is also blocked or slowed down would meet the letter of the regulation.

However, we believe that the literal application of Article 3(3) of Regulation *EU* [2015] to zero-rating is against the spirit of the regulation and the objectives laid down in the recitals. The recitals make it clear that the goal of the regulation is to protect the freedom of choice of consumers and prevent anticompetitive and otherwise harmful practices. It is easy to see that blindly applying the above-mentioned paragraph to zero-rating does not serve these objectives; in fact, it has the opposite effect.

Let us take as an example an offer that meets the Regulation's other requirements, and thus passes BEREC's proposed assessment filter. (We do not need to concern ourselves with truly problematic practices, as those are banned even without Article 3(3)).

The application of the paragraph in question can only be sensible if we first decide, at least in principle, whether there could be situations in which the zero-rating offer, which otherwise has no negative effects before the general cap is reached, causes negative effects. It is quite unlikely for the ISP's zero-rating offer, which does not otherwise cause issues on the ISP or the CAP market, to become anticompetitive just because the zero-rating traffic continues freely after the data cap is reached. With sufficient attention, consumers can use the two offers with the same end result, by not using other content when getting close to the data cap except for the contents and applications covered by the zero-rating offer. If they do reach the data cap, they can purchase a small extra data package and keep using the zero-rated content without limitations up to the start of the next billing period. Naturally, this is an inconvenience and/or an extra cost for the consumer, and it erodes one of the main draws of the zero-rating offer, which is carefree, uninhibited use of the content or service in question, with the assurance of not losing access to it.

Presumably, the ban on blocking applications was originally put in place in order to prevent selective blocking (as in the case of online voice calls and text messages), where ISPs intended to protect their own traditional services through blocking others. Banning blocking ensures that consumers can access all services. By applying the ban to zero-rating without considering the nuances of the situation does not result in consumers accessing more content that they want, but rather in consumers accessing nothing: after the data cap is reached, the ISP has to block or slow down the zero-rated traffic as well. Therefore, it is clear that applying Article 3(3) of regulation *EU* [2015] to zero-rating has clear adverse effects on consumers and it reduces the freedom of choice; and as a consequence, it is contrary to the regulation's objectives. Article 3(3) is a tool in the hands of the authorities that allows them to ban without examination all zero-rated offers that apply after the data cap has been reached.

Thus, according to the current net neutrality rules, there is no way to offer unlimited access to something – only to nothing or to everything. It is difficult to conceive whose interests this measure serves, when it limits the freedom of choice of consumers, reduces the efficiency of the functioning of the market and weakens competition. The Regulation's ban on traffic discrimination based on commercial considerations does not even benefit CAPs in reality, as it limits consumer freedom in the name of equality and may result in lower consumption overall.⁴¹

⁴¹ Although the “Trabant syndrome” as described by *Renda* [2013] as a danger of net neutrality legislation is not specifically related to zero-rating, it still fits the situation very well: “The underlying idea is that, if bits are not discriminated on the Internet, end users will have the possibility to access all services and content they wish, through any device, anywhere, any time. In my opinion, under current conditions this assumption is heroic at best. To the contrary, a fully standardised, neutral, unmanaged Internet would serve users’ interests just as the grey “Trabant” served consumer preferences in Eastern Germany under the Communist regime. Since no one should be discriminated against, let’s give a bad, affordable car to everybody, with no possibility of upgrade.” (p. 4)

Based on the above, it is easy to see that the paternalistic approach of net neutrality rules only hinders voluntary agreements between consumers and ISPs seeking efficient market solutions – that is to say, it hinders the functioning of the market – by senselessly banning traffic discrimination, all for some nebulous idea of public good that is not supported by strong economic evidence. These rules seem to protect the interests of certain, unidentified and possibly imaginary CAPs at best, but this supposed positive effect has never been proven in practice.

Zero-rating and the issue of discrimination

The provision in net neutrality regulation whereby operators cannot block contents or degrade the quality of any content makes it practically impossible for internet service providers – whether or not they are integrated – to use negative discrimination with the aim of market foreclosure. Positive discrimination may affect consumer decisions, but – as described in section *Concerns raised regarding zero-rating offers* above – there is no consistent theory or empirical evidence that would prove foreclosure in a real-life situation. The relevant elements of the Net Neutrality Regulation, the associated BEREC Guidelines and explanation are all based only on assumptions without a solid basis either in theory or in practice. In principle in some special situations the incentive to foreclose cannot be excluded, but this is certainly the exception rather than the rule, and a thorough examination of the merits of a specific case could easily identify it.

As there is no direct harm, those concerned about net neutrality cite only indirect harm, but that indirect harm is difficult to identify as well. One of the arguments is deterring future entry into the CAP market and the associated negative impact on innovation in contents and applications. Again, we have to note that there is no empirical evidence or realistic theoretical model on such effects. Even if there were, it is far from clear why the overall balance of benefits and harms would be negative.

The word ‘discrimination’ has negative, or at the very least, ambiguous connotations in everyday language and also in sociology and politics. However, it is decidedly damaging to allow ill feelings related to the word to affect the fundamentally neutral economic interpretation of the concept of discrimination. In the engineering sense (in traffic management, for instance), discrimination is a neutral concept. It means prioritising technical efficiency and quality of service, as opposed to applying indiscriminate traffic management, which results in much poorer overall quality and level of service. In net neutrality regulation, the legal concept of discrimination is too restrictive. Discrimination in the economic or technical sense is necessary for managing network efficiency and also for the proper functioning of the market (*Howell–Layton* [2016]). At best, net neutrality regulation is ineffective, and at worst, it leads to negative effects on welfare (see e.g. *Eisenach* [2015]).

Based on the above, we believe the theory of harm underpinning the regulation of zero-rating is highly questionable. We should note that this does not mean that a given practice could not be harmful; however, as shown above, this is very unlikely. Clearly, this means that decisions should be based on the assessment of the merits of each potentially problematic case.

The regulation in force and the BEREC Guidelines chose a general ban on some types of zero-rating instead of an examination of the merits of each case. Why this regulatory decision was made is probably better explained by political economy models that examine the influence wielded by interest groups than any assessment of the chance of potential competitive concerns arising or the economic impact of business behaviours seen in practice.

This brings us back to one of the questions posed in the introduction: Is *ex ante* regulation necessary in the first place? This question is also worth examining from the standpoint of regulation theory.

Do we need ex ante regulation?

The need for *ex ante* regulation arises when there is a clearly identified, frequently occurring, serious market problem that cannot be effectively handled by *ex post* regulation. In market situations when there are doubts about whether there is a market problem at all, and/or the cases are highly heterogeneous, there is serious risk of non-discretionary, inflexible regulation causing harm by limiting the functioning of the market and stifling innovation. In such situations, it is much more efficient to intervene based on an *ex post* examination when necessary. Testing various business practices and experimenting with them helps innovation and strengthens competition, which is fundamentally beneficial to consumers. Hindering them, on the other hand, reduces welfare.

Ex ante regulation is justified if:

- We have empirical evidence regarding the behaviour in question from previously examined cases showing that it is highly likely to be harmful;
- The harm caused by the behaviour is significant;
- The *ex post* handling of cases and resolving of problems would be too costly compared to *ex ante* regulation, or the harm would be irreparable;
- There is little risk of non-harmful behaviours being treated as harmful (*Geradin-Sidak* [2005].)

A review of these criteria and the examples makes it clear that none of the criteria are fulfilled in the case of zero-rating. The use of zero-rating tariffs may be common, but evidently, the number of instances raising competition concerns would be far lower. Additionally, *ex post* intervention also has an impact on the future. This is because market players can be expected to avoid practices that have been declared harmful, to avoid potential legal issues.

It is evident that the lobbying of various interest groups played a greater role in the emergence of net neutrality regulation than actual problematic cases, significant harm or the impossibility of handling them *ex post*.

CONCLUSION

Zero-rating is a scheme whereby services preferred by the consumers who choose the zero-rating offer enjoy positive discrimination, such that the traffic associated with their use is not counted towards the data cap. A distinction should be made between negative and positive discrimination. The former includes measures like blocking or slowing down some traffic, and the latter includes allowing continued access (or full-speed access) to zero-rated content after the data cap is reached. The regulatory approach that considers zero-rating to be negative discrimination confuses the possible indirect effect of the consumer's decision and action with a presumed clear negative effect of the ISP's deliberate action. The rules were not made based on evidence seen in practice, but based on assumptions; there were no previous cases serving as precedent and converging on some type of consistent practice to follow. The EU's net neutrality regulation adopted in 2015 was a result of political hype and was not based on solid theoretical or empirical underpinnings.

It should be noted that the issue with the net neutrality rules is not that they declare that consumers have the right to access content and applications and to choose their terminal equipment. Rather, the issue is that they ban commercial practices by which consumers can decide explicitly and voluntarily to consent to the ISP discriminating between different types of traffic temporarily, partially and in a manner that can be rescinded at any time. As we showed above, this is how zero-rating works. Consumers who choose a zero-rating plan clearly declare their preference by choosing access to content that they like and find valuable. The ban on traffic discrimination for commercial reasons contained in Article 3(3) of the *EU* [2015] regulation is clearly a paternalistic intervention in the market, which causes direct damage, as demonstrated by the fact that the law intends to protect consumers from their own voluntary decision – a decision that, according to our analysis, has demonstrably positive effects.

The net neutrality rules exaggerate the likelihood of consumer choices distorting competition and negatively impacting entry into the content and applications market, innovation and the entire internet ecosystem. Under realistic market conditions, there is no serious empirical or theoretical economic evidence to support the validity of these theories of harm. The rationale cited by the Regulation is contrary to the logic of competition, which is based on competing players wishing to differentiate themselves from others. These differences drive competition. Limiting differences limits competition itself, which leads to reduced welfare. ISPs set zero-rating tariffs in order to differentiate themselves in the competition through content preferred by consumers.

As we showed, zero-rating can very rarely be done with the intention to foreclose. The chance of actually achieving foreclosure is minimal even if the intention is there, as competition in the ISP market – which is especially strong in the case of mobile broadband services – severely limits the possibility for a foreclosure effect. Despite the harm presumed by the Regulation, competition on the *downstream* ISP market essentially makes market foreclosure on the *upstream* content market impossible.

The real winners of net neutrality regulation are not consumers but CAPs, and especially large global ones. Google, Netflix, Facebook and other similar global players managed to avoid a situation where ISPs can charge them a fee for forwarding the significant network traffic generated by them. At the same time, they can make their services available to consumers in better quality than their competitors through private solutions, such as developing and operating content delivery networks,⁴² and interconnecting their network of servers with ISPs' local networks, while ISPs are not allowed to engage in behaviours or provide services that lead to the same result. Moreover, ISPs are not the only gatekeepers in the broader internet ecosystem. As *Easley et al.* [2017] point out, this important role can be played by search engines, browsers or operating systems (and even popular social networks). All this can have a powerful impact on consumer choices. Meanwhile, global CAPs continue to be unregulated; but the concerns around the freedom of consumer choice or the vertical leverage of market power that feed net neutrality regulations apply at least as much, if not more, to them than they do to ISPs.

Overall, our conclusion is that requiring traffic non-discrimination without any regard to the context of application is essentially the forcing of a false and abstract vision of the legal and social concept of equality onto physical and commercial reality, without considering the technical and economic characteristics of the operation of networks. One might say that net neutrality regulation, or, more specifically, the excessive and unreasonable elements of net neutrality regulation discussed here, represent the least well-founded, most derailed regulatory approach in the last quarter-century of EU telecommunications regulation.

We can only hope that the negative effects will not be too great, and that the regulation itself will not remain in force very long, and this regulatory episode will seem irrelevant a decade from now. We hope that analysts of the future will attach no importance to it, apart from perhaps shuddering when noting that once upon a time, there existed regulation by which service providers who did not have significant market power were banned from using a service package and pricing scheme that was largely beneficial to consumers.

⁴² Content delivery networks (CDNs) are private data networks made up of data servers, used by content providers to store their contents in multiple geographic locations closer to users, thus shortening the path of the content to the user, significantly improving service quality. Among others, Google, Microsoft, Amazon and Netflix all have their own CDNs; Akamai even offers CDN capacity for rent as a service (see *Stocker et al.* [2017]).

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