



Competition and Telecommunications' **Network Sharing**

October 23, 2020

WORKSHOP THEME

NETWORK SHARING – NEW GENERATION OF NETWORKS - 5G Regulatory - State Aid - Antitrust

Network Sharing: Historical Experience of Virtual Network Operator with Supervising Authorities

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Abstract The article deals with network sharing between (mobile) operators and virtual operators. In particular, it focuses on the methods of regulation that are to ensure fair competition in the market, i.e., ex ante regulation by the Czech Telecommunications Office and ex-post regulation by the Office for the Protection of Competition.

The conclusions are based on experience with ADSL regulation since the beginning of the new millennium and with (in) success in ensuring fair competition in this market. The authors believe that the theoretical arrival of a fourth operator cannot be relied upon to ensure satisfactory competition in the market, but that sufficient regulation by national authorities and the European Commission can already ensure a truly competitive environment for virtual operators in the market and (price) benefits for end users.

Key words network sharing, operators, ADSL, competitors

This article follows the presentation on Competition and Telecommunications' Network Sharing workshop organized by the Faculty of Law, Charles University in Prague on 23 October 2020. The presentation was focused on the position of mobile network operators and their network sharing.

There has been a lot of discussion lately about the benefits and problems of network sharing between mobile network operators (MNO). Such a discussion has been connected with the upcoming 5G auction and possible 4th mobile operator in the Czech Republic and its future impact on the market. Nevertheless, in the following article we would like to draw your attention to other possibilities on how to increase competition on the market through sharing a network between a MNO and mobile *virtual* network operators (MVNO).

Better regulation in the field of MVNOs could bring many additional competitors to the current three MNOs in the Czech Republic: T-Mobile Czech Republic a.s. (**T-Mobile**), O2 Czech Republic a.s. (**O2**) and Vodafone Czech Republic a.s. (**Vodafone**), without too much effort or costs which could be connected with a future 4th MNO.

1. What is network sharing?

Network Sharing is simply a method of sharing some portions of the network architecture among multiple parties. As mentioned above, there can be sharing between MNOs. In the Czech Republic, there is currently an ongoing investigation by the European Commission (**Commission**) regarding a network sharing agreement between O2 CZ/CETIN and T-Mobile CZ.²

Undeniably, there may be some benefits of network sharing between MNOs, such as consumer benefits in terms of a faster rollout, cost savings, and coverage in rural areas. However, in the present case, the Commission has concerns that the network sharing agreement reduces competition, primarily, due to the fact that the Czech mobile communications market is highly concentrated in only three mobile network operators and O2/CETIN and T-Mobile are the two largest MNOs.³

Notwithstanding the result of the Commission's decision, the fact is, that the Czech market is highly concentrated, and shares of MNOs on the Czech mobile market are quite stable, which could mean that there is no effective competition taking place between MNOs.

2. What are MVNOs?

However, the competition on the mobile market does not have to be between only three or four MNOs. Another way to increase competition is to allow MVNOs on the market and to set fair regulation for the relationship between MNOs and MVNOs.

MVNOs are effectively defined by their lack of spectrum licenses. They necessarily need to have an agreement in place to access the network of at least one MNO in order to provide services. Such access can be based on a reference offer or a commercial agreement. The obligation of MNOs to publish a reference offer is regulated by Act No. 127/2005 Sb., on Electronic Communication (AEC), especially by Sec. 82(2) of AEC:

In accordance with Sec.51 AEC, the Office⁵ is entitled to impose on an undertaking with significant market power on the relevant market an obligation to publish a reference offer of access or interconnection with a description of relevant offers divided into parts according to market needs and related contractual conditions including prices. This entity may not require in the reference access or interconnection offer that undertakings requesting access or interconnection pay for resources and operational services that are

¹ The authors provide legal assistance to undertakings with respect to competition and telecommunication law matters. The information and views expressed in this article, regardless of whether only general observation of any kind of detailed assessment, are solely those of the authors. This article has not been mandated by any third party.

² On 7 August 2019 Commission sent Statement of Objections for their network sharing agreement. The Commission has informed parties of its preliminary view that their network sharing agreement restricts competition in breach of EU antitrust rules. A full text of press releases is available at: https://ec.europa.eu/commission/presscorner/detail/en/ IP_19_5110.

³ The network sharing cooperation between O2 CZ/CETIN and T-Mobile CZ started in 2011 and has been increasing in terms of its scope. Currently, it covers all mobile technologies (i.e., 2G, 3G, and 4G) and the entire territory of Czechia with the exception of Prague and Brno, thus amounting to around 85% of the population. A full text of the press releases is available at: https://ec.europa.eu/commission/presscorner/detail/en/ IP_19_5110.

⁴ Czech Telecommunication Office: Analysis of the wholesale mobile services market, Line 1960 and following.

⁵ The Office here means the Czech Telecommunication Office – noted by the authors.

not necessary for the requested service. This does not affect the obligation to publish a reference offer pursuant to Section $85(1)^6$.

Apart from the radio spectrum, MVNOs may use their own customer service; as well as billing support systems; marketing, and sales personnel; or any parts from the above. As you can see in the chart below, the range of control of activities by an MNO/MVNO varies from simply providing access to the radio spectrum to MVNOs only providing specialized sales channels.

Chart No. 1: Range of control by MNO/MVNO

Radio Spectrum	Network Service	Billing & Customer Care	Marketing & Sales
MNO	Full MVNO		
MNO		Medium MVNO	
MNO			Branded Reseller MVNO
MNO			

3. Position of MVNOs on the Czech market

After some resistance from MNOs, MVNOs started to appear on the Czech market in 2012. The appearance of MVNOs has been connected with Market Analysis No. 8, which was conducted by the Czech Telecommunications Office (CTO), where the CTO noted a significant change in the behaviour of MNOs in respect of MVNOs: "In the Office's view, this was mainly due to the real threat of corrective measures based on the results of the analysis of the relevant market No. 8 and the possible entry of a new network operator into the retail mobile services market following the then ongoing frequency auction."

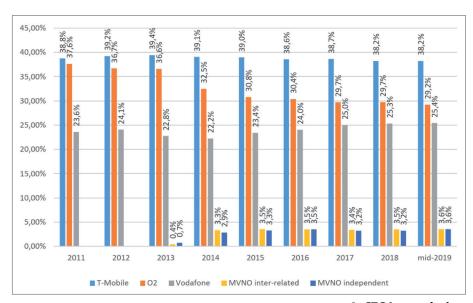


Chart 2: Development of market shares based on the total number of active SIM cards on the retail market (Source: Czech Telecommunication Office: 2019 Czech Telecommunication Office's Annual Report)

In the following year, the auction for 800 MHz, 1800 MHz, and 2600 MHz took place, and one of the conditions for the auction was that MNOs must undertake the obligation to publish a binding reference offer for MVNOs. The reference offer should have been published within 6 months of starting to use the allocated frequencies, while MNOs gradually fulfilled this commitment.⁹

As of today, the total number of MVNOs is 143, but only 30 MVNOs (21 %) manage more than 1,000 SIM cards. MVNOs started to gain some (small) market share in 2013; however, since that time, the market share has remained at the same level. Such long-term stability of market shares is usually an indication of insufficient competition in the market.

On the chart above, MVNOs are divided into inter-related (to MNOs) – i.e., MVNOs owned (at least partially) by MNOs (e.g., COOP Mobil s.r.o., O2 Family, s.r.o., and Tesco Mobile ČR s.r.o.), and truly independent MVNOs not connected with MNOs by any ownership. The truly independent MVNOs have a market share of about only 3.5 %. Whereas the biggest independent MVNO on the market is SAZKA a.s. with a market share of 1.3 %. ¹⁰

One of the reasons for the low market share of independent MVNOs may be that in 2013 MNOs introduced new unlimited tariffs, which ultimately led to a relatively significant drop in prices on the retail market, while the price policy did not reflect wholesale commercial contracts. Therefore, MNVOs were allowed to enter the market but without the strength to actively compete with MNOs.

Nor is there any competition between MNOs for an MVNO. Once the commercial contract is signed with one MNO, the other MNOs do not strive to conclude a commercial contract with the MVNO.

For an illustration of this, please see chart 3 regarding price development according to an average minute price since 2006.

As you can see the price per minute decreased significantly. A similar chart is also available for the price development of mobile data services by average price per MB of data with a correspondingly decreasing function.

According to the CTO's analysis¹¹, there have not been any new developments in the MVNOs market lately due to their dependency on MNOs, which does not allow them to present any competitive offers to the endusers. MVNOs can, in a convoluted way, also compete with providing sufficient mobile internet access to its customers. If an MVNO has not concluded LTE services in commercial contracts with its MNO, it is difficult for them to renegotiate their contract insofar as the MNOs have no incentive to do so.¹²

4. CTO's regulation

It must be noted that the CTO has the ability to influence the reference offer of MNOs according to Sec. 82 (3) of AEC: "The Office is entitled to decide on a <u>change</u> in the reference offer of access or interconnection, if this offer does not lead to the consistent fulfilment of obligations under this Act."

⁶ The Sec. 85(1) of AEC states: "An undertaking with significant market power in the relevant market providing a public communications network, which has been ordered to make local loops available, is required to publish a reference offer for local loop unbundling."

⁷ Czech Telecommunication Office: Mobile virtual network operator. (2020 October 16). Retrieved 6 November 2020, from https://en.wikipedia.org/wiki/Mobile virtual network operator.

⁸ Czech Telecommunication Office: Measure of a general nature - Market analysis No. A/8/03.2016-2, Market No. 8 – Access and call origination on public mobile telephone networks, p. 3.

⁹ Czech Telecommunication Office: Measure of a general nature - Market analysis No. A/8/03.2016-2, Market No. 8 – Access and call origination on public mobile telephone networks, p. 4.

¹⁰ Czech Telecommunication Office: 2019 Czech Telecommunication Office's Annual Report.

¹¹ Czech Telecommunication Office: Analysis of the wholesale mobile services market, Line 1894 and following.

¹² Czech Telecommunication Office: Analysis of the wholesale mobile services market, Line 362 and following.

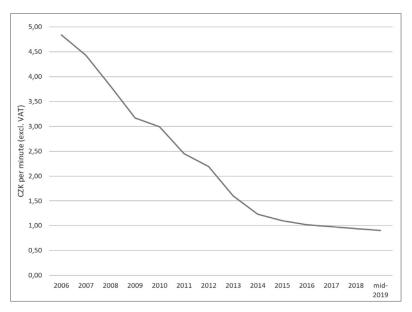


Chart 3: Average retail price per actual calling minute (Source: Czech Telecommunication Office: 2019 Czech Telecommunication Office's Annual Report)

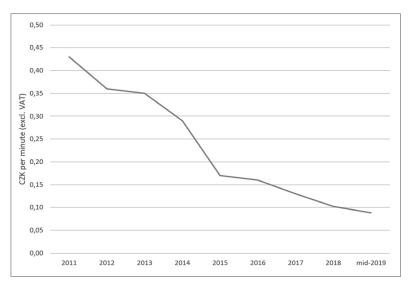


Chart 4: Average retail price for 1 MB of data (Source: Czech Telecommunication Office: 2019 Czech Telecommunication Office's Annual Report)

For example, in 2020, the CTO finally launched an investigation into O2 for compliance with the obligation to set the reference offer's prices of wholesale services provided on the LTE network in such a way as to enable equally effective competitors to operate profitably on the retail market. The result of this check was a reduction in prices per MB of data for mobile services by 35.7 %, and of data for services at a fixed location by $8.7 \, \%.^{13}$

At first glance, it looks like the CTO is on the side of MVNOs; however, the above-mentioned inspection arrives at a different perception since the CTO has admitted that no reference offer was ever signed by any MVNO. Therefore, the CTO is slowly regulating a reference offer which has no real use on the market.¹⁴ We can only

surmise as to why no reference offer has been signed, but based on public interviews with MVNOs¹⁵, they are claiming that the reference offer is unacceptable as there are excessive prices in order for them to survive on the retail market.

Another example of a lack of real regulatory power by the CTO is demonstrated by Decision No. ČTÚ-1 872/2020-606/III.vyř. dated 11. March 2020 regarding the dispute between Český bezdrát (as the MVNO) and T-Mobile (as the MNO) concerning the price amendment of a commercial contract between them. Český bezdrát wanted the CTO to issue a pricing regulation in the form of an obligation for T-Mobile Czech Republic and to conclude such an amendment with them. However, the CTO refused to decide on the petition due to the lack of regulatory power as well as due to the fact that not all means of mutual communication were exhausted.

From the above examples, it is clear that virtual operators (despite their significant number) cannot really compete with MNOs on the retail market, and therefore, they cannot favourably influence the price level to end-users, especially for mobile tariffs with a high volume of data. ¹⁶

One can conclude that the competition on the market is ineffective and the (collective) dominance by MNOs may in fact exist, which can be abused in many forms, e.g., margin squeeze, predatory pricing, etc. The *ex ante* regulation issued by the CTO by itself is not enough to prevent the MNOs from engaging in such abusive conduct. For a comparison, we can look at the historical experience of other virtual operators with regulations issued by the CTO and other national authorities.

5. ADSL historical experience

A climate of ineffective competition has been pervasive in the telecommunications market in the Czech Republic for a quite long time now. The big players tend to act independently on their competitors and even on the regulatory bodies. For example, there is historical experience with regulation (or a lack thereof) by the CTO and the Czech Competition Office (CCO) on the ADSL market.

In the 1990's, the most common form of access to the internet was through a dial-up connection.¹⁷

Historically, there has been only one provider of fixed-line services, i.e., Český Telecom (the state-owned telecommunications company). Later, the company was renamed O2. Český Telecom was a vertically integrated undertaking, providing wholesale access to its competitors on the retail market.

¹³ Czech Telecommunication Office: Monthly Monitoring Report No. 07/2020.

¹⁴ Slížek, D. (2020 August 14). ČTÚ kontroloval referenční LTE nabídku O2, operátor musel snížit ceny za data. Retrieved November 06, 2020, from https://www.lupa.cz/aktuality/ctu-kontroloval-referencni-lte-nabidku-o2-operator-musel-snizit-ceny-za-data.

¹⁵ Slížek, D. (2020 August 17). Petr Benýšek (Český bezdrát): Velcí operátoři s námi vůbec nejednají. Říkají, že virtuálů mají dost. Retrieved November 07, 2020, from https://www.lupa.cz/clanky/petr-benysek-cesky-bezdrat-velci-operatori-s-nami-vubec-nejednaji-rikaji-ze-maji-virtualu-dost.

¹⁶ Czech Telecommunication Office: Analysis of the wholesale mobile services market, Line 758 and following

¹⁷ Dial-up Internet access is a form of Internet access that uses the facilities of the public switched telephone network (PSTN) to establish a connection to an Internet service provider (ISP) by dialling a telephone number on a conventional telephone line. Dial-up connections use modems to decode audio signals into data to send to a router or computer, and to encode signals from the latter two devices to send to another modem. Source: https://en.wikipedia.org/wiki/Dial-up_Internet_access.

Even though Český Telecom as the incumbent was the monopoly owner for providing fixed-line services, there have been several competitors on the downstream market who have also provided dial-up internet access to their customers. As such, they had a similar position to the incumbent as do MVNOs to MNOs today; in other words, we can quite simply call them virtual network operators.

In 2002 and 2003, ADSL technology started to appear on the market. In order to provide such services, it was necessary to have access to the Local Loop¹⁸, which was held by the incumbent.

The competitors repeatedly called to make the Local Loop available so that they would be able to provide their services to customers. In this respect, the incumbent was obliged to provide access to the Local Loop based on an amendment to Act No. 151/2000 sb., on Telecommunications. Nevertheless, when the incumbent finally started to provide access, the incumbent was requesting prices which were not regulated.

In terms of the Guidance on the Commission's enforcement priorities in applying Article 102, the very first article states that the dominant position is *ipso facto* not a problem; however, the dominant undertaking has a special responsibility to maintain undistorted competition.¹⁹

During the next several years, many of the virtual network operators ceased their business activities. As a consequence, the incumbent thus managed to acquire and maintain a very large market share on the retail market for internet services, which it still utilizes and enjoys to this day with no real competition.

The CTO has tried to regulate the wholesale prices of the incumbent, but the question remains as to whether it did so in time and to a sufficient extent. For example, it started to regulate a maximum price for some parts of the access to the Local Loop on 25 April 2005.²⁰ The maximum pricing regulation for parts of prices charged to virtual network operators has thereafter been amended on several occasions.

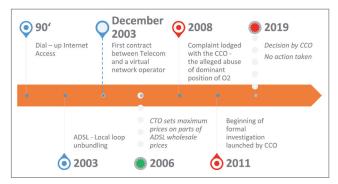


Chart 5: Timeline of ADSL regulation

- 18 The local loop (also referred to as the local tail, subscriber line, or in the aggregate as the last mile) is the physical link or circuit that connects from the demarcation point of the customer premises to the edge of the common carrier or telecommunications service provider's network. Source: https://en.wikipedia.org/wiki/Local_loop.
- 19 Communication from the Commission Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings (2009/C 45/02), paragraph 1: "Article 82 of the Treaty establishing the European Community ('Article 82') prohibits abuses of a dominant position. In accordance with the case-law, it is not in itself illegal for an undertaking to be in a dominant position and such a dominant undertaking is entitled to compete on the merits. However, the undertaking concerned has a special responsibility not to allow its conduct to impair genuine undistorted competition on the common market. Article 82 is the legal basis for a crucial component of competition policy and its effective enforcement helps markets to work better for the benefit of businesses and consumers. This is particularly important in the context of the wider objective of achieving an integrated internal market."
- 20 The Czech Telecommunication Office: Pricing regulation No. 03/ PROP/2005.

The CTO has been obliged to provide market analyses with periodic reviews. For example, they have issued a Measure of a general nature in 2006 wherein they ascertained, in respect of the incumbent's pricing policy, the following: "The analysis has shown that disproportionately high prices are applied in the relevant market to the detriment of end-users in cases where the pricing regulation is not applied." In the reasoning of such an analysis, the CTO stated, that although there has already been a pricing regulation which has led to some decrease, the prices still remain significantly above the level charged in other Member-States of the European Union. ²²

We must note that an *ex ante* regulation of maximum prices itself cannot in and of itself either prevent or deter a margin squeeze from occurring. The Court of Justice in the *Deutsche Telecom* case²³ ruled that by virtue of the fact that an *ex ante* regulation of maximum prices has occurred is without prejudice to affording the dominant undertaking to adjust its retail prices on a fair level, inasmuch as the dominant undertaking is still free to set prices which are lower than the regulated maximum level.

However, in the above-mentioned case the incumbent standardly applied the price in the maximum possible amount set by the pricing regulation. 24

6. Investigation launched by the Czech Competition Office

The potential abuse of a dominant position by the incumbent was also investigated by the Czech Competition Office (CCO), who has the authority to issue an *ex post* regulation against abusive dominant behaviour.

The inquiry was initiated by the CCO in 2008; due to a lengthy and protracted procedural battle, the CCO was obliged to open a formal investigation in 2011. Nevertheless, it took another 8 years before the CCO was able to issue any final decision. Finally, in 2019 the CCO concluded that due to a lack of the incumbent's relevant

- 21 The Czech Telecommunication Office: Measure of a general nature Market Analysis No. A/11/03.2006-2 Wholesale full access to the local loop or shared access to the local loop or section of the local loop of the network for the purpose of providing electronic communications services, Article 4.
- The Czech Telecommunication Office: Measure of a general nature -Market Analysis No. A/11/03.2006-2 Wholesale full access to the local loop or shared access to the local loop or section of the local loop of the network for the purpose of providing electronic communications services, p. 25: "The main objective of the regulation under the previous regulatory framework was to limit the ability of ČESKÝ TELECOM, a.s. act independently of their competitors and customers, in particular, when setting prices and other conditions. This was achieved both through price decisions and by the fact that the Office entered into contractual relations in accordance with the law (access reference offers, access agreements) and by its decision set certain conditions for the provision of services. $\underline{\text{The pricing regulation was applied due to}}$ the fact that ČESKÝ TELECOM, a.s., demand disproportionately high prices for access, which would not allow the development of a competitive environment. The result of the pricing regulation was a reduction in prices (see Charts No. 3 and No. 4), which were originally provided by ČESKÝ TELECOM, a.s. set in the access reference offer. Nevertheless, the prices still significantly exceed the prices charged in other EU countries."
- 23 Judgement of 14 October 2010, Deutsche Telekom AG, C-280/08 P, ECLI:EU:C:2010:603, paragraph 92: "The same applies to the appellant's claim that the purpose of RegTP's regulation is to open the relevant markets up to competition. It is common ground that said regulation did not in any way deny the appellant the possibility of adjusting its retail prices for end-user access services or, therefore, of engaging in autonomous conduct that is subject to Article 82 EC, since the competition rules laid down by the EC Treaty supplement in that regard, by an ex post review, the legislative framework adopted by the Union legislature for ex ante regulation of the telecommunications markets."
- 24 The Czech Telecommunication Office: Measure of a general nature -Market Analysis No. A/4/05.2010-6 Wholesale (physical) access to network infrastructure (including shared or full unbundled access to the local loop) at a fixed location, p. 46.

data they were not able to decide whether the incumbent had in fact abused its dominant position. Due to the legal principle of in dubio pro reo (English: in doubt for the accused), the CCO determined that the abuse of a dominant position was not able to be proven, and therefore no action was necessary in connection therewith.

The publicly available wording of Decision No. ÚOHS-S109/2011/ DP-02225/2019/830/JVj dated 23 January 2019 (**Decision**) does not provide any answers or explanations about the methodology used by the CCO in terms of assessing a margin squeeze. The decision has been excessively anonymized due to the trade secrets exemption. However, it is clear that the CCO at one point (Art. 242 of the Decision) comes to the conclusion that the incumbent has in fact squeezed the margin. But then later, the CCO does a complete reversal and arrives at the conclusion that without the incumbent's data the margin squeeze test cannot be duly performed.

Nevertheless, the European case law²⁵ has come to different conclusions in similar cases. If the data of the dominant undertaking is not readily available, then the competitors' data is used (so-called Reasonably Efficient Competitor Test) in lieu thereof. From the publicly available version, it is unclear as to why the CCO did not follow the guidance of the European case law and thus failed to employ the Reasonably Efficient Competitor Test.

7. Similar cases in other Member-States

If we look outside the borders of the Czech Republic, the Commission has been quite successful in proving margin squeezes committed by incumbents in other Member-States. In fact, such a decision has recently been issued in Slovakia²⁶. Notably, the factual grounds presented are rather similar to the above-mentioned alleged abuse of dominant position by the incumbent in the Czech Republic. Similarly, the Slovakian incumbent was also charging excessive prices for wholesale connections to its competitors on the downstream market.

In general, the General Court upheld the Commission's decision about the abuse of dominant position by Slovak Telecom in the form of a margin squeeze.²⁷ However, the ruling is currently under appeal at the Court of Justice.

Other notable cases of margin squeeze in the telecommunication market include, e.g., in Germany: Deutsche Telekom AG (Commission Case No. COMP/C-1/37.451, 37.578, 37.579 upheld by the Court of Justice C-280/08 P); in Sweden: TeliaSonera Sverige AB (Court of Justice C-52/09 Konkurrensverket v TeliaSonera Sverige AB); and in Spain:

25 Judgement of 17 February 2011, Konkurrensverket v TeliaSonera Sverige AB, C-52/09, ECLI:EU:C:2011:83, paragraph 46: "It must therefore be concluded that, when assessing whether a pricing practice which causes a margin

squeeze is abusive, account should as a general rule be taken primarily of the

- prices and costs of the undertaking concerned on the retail services market. Only where it is not possible, in particular circumstances, to refer to those prices and costs should those of its competitors on the same market be examined."
- 26 Judgement of 13 December 2018, Slovak Telekom, Case T-851/14, ECLI:EU:T:2018:929.
- There has been only minor disagreement for time period of 4 months, where the Commission should have proven better the anticompetitive effects.

Judgement of 13 December 2018, Slovak Telekom, Case T-851/14, ECLI:EU:T:2018:929, paragraph 267: "Therefore, in the light of settled case-law according to which any doubt in the mind of the Court must operate to the advantage of the undertaking to which the decision finding an infringement was addressed (judgments of 8 July 2004, JFE Engineering and Others v Commission, T-67/00, T-68/00, T-71/00 and T-78/00, EU:T:2004:221, paragraph 177, and of 12 July 2011, Hitachi and Others v Commission, T-112/07, EU:T:2011:342, paragraph 58), it must be concluded that the Commission has not provided proof that the practice leading to a margin squeeze by the applicant had begun before 1 January 2006. Since the contested decision is, consequently, vitiated by an error of assessment on that point, it is not necessary to examine whether that approach also infringed Article 23 of Regulation No 1/2003, as the applicant claims."

Wanadoo España v Telefónica (Commission Case No. COMP/38.784 upheld by the Court of Justice C-295/12 P).

Therefore, both the Commission and the Court of Justice were able to define and execute the necessary steps for conducting a margin squeeze test, which, if followed by other national authorities, would subsequently contribute to better competition between network operators and virtual network operators.

8. Lesson learned from the ADSL market

Even with the imminent 5G auction, there is no assurance in terms of better competition without strong regulatory incentives. From the ADSL case, we can learn that it is necessary to regulate the market within the appropriate time limits as well as, if not more importantly, with the appropriate weight and intensity.

The CTO had the indication that the incumbent had been charging excessive prices to its competitors and did attempt to regulate it; however, in general, the ex ante regulation is not sufficient to fully prevent or deter any abuse of dominant position from occurring. The final resolution as to whether the incumbent had in fact abused its dominant position took 15 years from the introduction of ADSL technology, with no clear-cut decision in the end. Nor was the CCO able to even decide whether the incumbent had in fact abused the dominant position.

As you can see the lack of ex ante and ex post regulation on the ADSL market have come to such a point that only the incumbent in fact remains, which is the integrated undertaking. As such, the losers in a such situation are the end-users who have not had real choice for the providers of the services due to the lack of competition in the market.

We remain hopeful that the supervisory authorities have learned from the late ADSL regulations and will, in the future, provide a sufficient regulatory framework for the effective competition of any virtual network operators. In order to do so, robust ex ante regulations must be issued by the CTO as well as firm ex post regulations by the CCO and, of course, last but not least, by the Commission itself, who had the fortitude to investigate the incumbents on the telecommunication

Nevertheless, it would be foolish to assume that the 4th MNO would bring about ideal competition to the market and would somehow not co-exist within the current system. However, by bringing many smaller MVNOs onto the market, who could actually compete with MNOs, could truly be the beginning of healthy competition on the telecommunication market.

ČTĚTE A OBJEDNÁVEJTE **NOVĚ PŘIPRAVUJEME** SEMINÁŘE NA AKTUÁLNÍ **TÉMATA** ROČENKU SOUTĚŽNÍHO PRÁVA

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ISBN 978-80-904818-1-7 (hardcopy) ISBN 978-80-904818-2-4 (online; pdf)

Competition and telecommunications 'network sharing: international online workshop -- 1. vydání -- Praha: Kairos Praha, 2021, 50 p.

Published by the Kairos Association

The publisher thanks the law firm ROWAN LEGAL for significant material support for the workshop project.

Photo - cover: Archive of Charles University

KATALOGIZACE V KNIZE - NÁRODNÍ KNIHOVNA ČR

Competition and Telecommunications' Network Sharing (workshop) (2020 : online)

Competition and Telecommunications' Network Sharing: international online workshop: Prague - Czech Republic, October 23, 2020. -- [Praha]: Kairos Association, [2021]. -- 46 stran Název z obálky. -- Obsahuje bibliografické odkazy

ISBN 978-80-904818-1-7 (brožováno)

- * 621.39 * 654.07 * 339.137 * 346.546 * (4) * (062.534)
- telekomunikační sítě
- telekomunikační politika
- hospodářská soutěž
- právo hospodářské soutěže -- země Evropské unie
- sdílení telekomunikačních sítí
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Publication Frequency 4 times a year.

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Print: GRAFOTECHNA PLUS, s. r. o.