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OTT – Over the Top Services

The need for a regulated level playing field

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EXECUTIVE SUMMARY

The deregulation of the telecommunications market was the starting point that triggered a boost in the telecommunications industry. The opening of the markets fostered competition, led to technical innovations and converged digital networks. The rise of the Internet did not only influence the development of the telecommunications markets, but had an impact on all communications related markets, like media and postal services. Today, the Internet dominates the business models of all communications markets. E-mail is competing with regular (postal) mail, streaming services are competing with radio, music or TV platforms (“broadcasting”), and VoIP services are challenging classical voice services.

Over-the-top (OTT) refers to delivery of services or content over the Internet without the direct involvement of a vertically integrated telco in the control or distribution of the service or content. However, the data is conveyed over the aggregation and access networks of telecommunications operators, which serve as a bit pipe.

OTTs, telcos as well as policy makers have several strategic options how to deal with the dynamic changing multisided market developments. Especially telcos need to adopt their business models and come up with new strategies to be able to make competitive offers to end users. Cooperations with OTTs may be an option if regularly allowed.

In the end and irrespective of strategic options, telcos demand that OTTs contribute to the use of their infrastructure and be subject to similar regulations. Obviously, the current regulatory framework is in favor of OTTs and challenging the competitive situation of telcos. Therefore, telcos are calling for the establishment of a regulated level playing field.

Nevertheless, regulators’ objectives are not to ensure the sustainability of certain business cases. The policy objective of regulation is to enable a multitude of opportunities in a market by guaranteeing sustainable competition for the benefit of consumers. Thus, a new regulatory framework shall evolve a balanced regulated level playing field. This framework needs to reflect the changed market situation with multisided competition effects.

In this context, the framework for net neutrality regulations shall be carefully looked at. It must not prevent telcos from offering competitive commercial service offers while still protecting the consumers’ interests. It is being discussed whether an ex ante regulation of net neutrality is really required or general competition law suffices.

End users may not be fully aware of the drawbacks of free OTT services – as “there is no such thing as a free lunch”. Continuous and transparent user information concerning the risks and benefits of the Internet shall be provided in any case.

1 Background

1.1 Developments in Communications

The deregulation of the formerly monopolistic telecommunications market was the starting point that triggered a boost in the telecommunications industry. The opening of the markets fostered competition, led to technical innovations and converged digital networks. The rise of the Internet did not only influence the development of the telecommunications markets, but had an impact on all communication's related markets, like media and postal services.

Today, the Internet dominates the business models of all communications markets. E-mail is competing with regular (postal) mail, streaming services are competing with radio, music or TV platforms ("broadcasting"), and VoIP services are challenging classical voice services. Over-the-top (OTT) services have captured the latent demand from the people who prefer social media and applications and fancy services compared to traditional means of communication. The behavior of content and services consumption as well as their technical delivery is rapidly evolving. As these different business models and related consumer behaviors evolve, so do the technologies of delivering these services and content. These services are called "over-the-top" since they are not delivered by the network but by servers at the edge of the network.

The Internet is changing the markets. The offering of Over-the-Top (OTT) service delivery platforms is boosting this change. In this respect, it is important to note the relationship of the cost of distribution for OTT service platforms and the number of users. OTT service providers use the infrastructure of the Internet as delivery network without the need to invest in aggregation and access networks.¹

The rise of OTT services did not only bring benefits for consumers but also some challenges for traditional network operators as they sometimes compete with traditional services (e.g. voice or SMS) and thus negatively influence network operators' revenues. Additionally, OTT services are subject to less regulatory obligations. This imbalance raises the question of the establishment of a regulated level playing field for all market players.

¹ Google started investments in a fiber access network in Kansas City, USA. According to recent press releases it seems that Google withdraws from these investments, see: <http://arstechnica.com/business/2016/10/op-ed-salvaging-google-fibers-achievements/>

Thus, the Internet offers consumers the option to choose what (OTT-)service or content available over the Internet they would like to consume – and not only those services that are provided by the infrastructure (network) of a fixed or mobile network operator or internet service provider (in the sequel: “telco”). Yet, OTT is another example of dismantling the vertically integrated business model in the telecom sector.

The consumption of OTT services and content tends to happen in parallel to the increased use of mobile devices. In addition, the use of mobile devices like smartphones is changing the overall structure of the market.

This whitepaper focuses on the competition aspects of regulated electronic communication services (ECS) leaving other communication services (media) and developments in other markets (music, accommodation, trade, etc.) aside as long as they are not interfering with the ECS market.

The paper is organized as follows: after the introduction in section 1, the subsequent section 2 will deal with the question why there is a discussion about OTT regulation. Thereafter, section 3 discusses regulatory and policy issues on OTT services. Section 4 deals with the different strategies that concerned parties may pursue in order to meet the challenges of market changes. The last section encompasses key findings and our conclusions.

1.2 Definition of OTT Services

BEREC² defines an OTT service as “content, a service or an application that is provided to the end user over the open Internet”.³

Thus, over-the-top (OTT) refers to delivery of services or content over the Internet without the direct involvement of a vertically integrated telco in the control or distribution of the content. The user subscribes directly with or uses the content of the OTT service provider. The telco serves as Internet provider and just transports the data packets. The telco is not responsible for the content or services delivered by the OTT service provider. This model is in contrast to the classical historical approach of a line rental subscription for access to a telco’s telecommunications infrastructure including the provision of services from the same telco. In the sequel, infrastructure or network providers of a fixed or mobile network including internet service providers are called “telcos”.

² Body of European Regulators for Electronic Communications

³ BEREC, Report on OTT services, BoR (15) 142, October 2015

2 Why is there a Discussion about OTT

Especially telcos demand that OTTs shall compensate for the use of their infrastructure and that OTTs shall be subject to similar regulations as they are as the non-regulation of OTTs is creating competitive advantages for the latter. This led some (regulatory) authorities to discuss the various aspects of OTTs and regulation. The discussion centers around the following questions:

- Who covers the costs for the investments in (broadband) infrastructure?
- Who makes most money by using the (broadband) infrastructure?
- Who pays for the use of the (broadband) infrastructure?
- Is the current regulatory environment providing a level playing field for all participants in the value chain?
- Is the current situation of benefit for the consumer?

In the following, we will analyze these aspects.

2.1 Telcos may become Bit Pipe Providers

It seems to be obvious that the traditional fixed and mobile telcos fail to capitalize on the boom in applications "over the top" of their own fixed and mobile networks.⁴ We see that OTT services limit the traditional provider to being a bandwidth provider (bit pipe provider). OTT implies that all that is needed for the service provision is to have enough bandwidth from the OTT-server to the end users device (computer, laptop, tablet, smartphone). With this connection whatever you like can be provided on top of the network.

2.2 Net Neutrality and Quality of Service

Note that the above assumes the following two aspects to be adhered. The first aspect is that telcos have to apply the net neutrality principle⁵. Net neutrality means the safeguarding of equal and non-discriminatory treatment of traffic in the provision of internet access services. Thus, no blocking or hindering network management measures shall be applied by telcos to prevent or impair any service from being provided to users. Although the application of net neutrality might be of benefit for consumers, it may also have adverse effects (see chapter 4.2).

⁴ On strategies to overcome such drawbacks see chapter 4.

⁵ Regulation (EU) 2015/2120 of the European Parliament and of the Council, of 25 November 2015 laying down measures concerning open internet access and amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services and Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the Union

The second aspect is that a high quality of service⁶ (QoS) is provided – also across network borders. Especially the latter aspect is not easily achieved. Therefore, network management measurements should be applied in order to attain a high degree of QoS.

2.3 Affected Industries

Not only the communications industry is affected. The digitization is influencing all industries where the Internet is/can be a production factor. The Internet is affecting all those industries where it may substitute the mode of production, distribution or sales, like the music or movie industry, traditional retail trade, taxi/transport business, accommodation, and also the telecom industry. All of them have experienced the invasion of companies that act over the Internet and are entering the traditional turf of the incumbents. This power of creative destruction of the Internet is a double-edged sword. On the one hand, it severely endangers the business model of those traditional companies. On the other hand it offers a wide range of potential for added value. Policy makers see the potential for added value provided over the Internet as being by far bigger and more cost-efficient.⁷

2.4 OTT Classification

Some of the OTT-services are new to the market. Social networks for instance do not compete with traditional services from fixed or mobile telcos. BEREC calls these OTT II services. Other services do directly enter into competition with integrated services from fixed or mobile telcos (e.g. SMS versus WhatsApp or KiK; Voice versus Skype). This is where OTT are considered to be a competitor to fixed or mobile telcos because they represent alternatives, or substitutes to the services telcos normally provide as an integrated service together with network access. BEREC calls these OTT I services.

OTT I	OTT II
Competing OTT Services	Non-competing OTT Services
Competition with and substitution of integrated services from fixed or mobile telcos <ul style="list-style-type: none"> • SMS versus WhatsApp / KiK • Voice versus Skype 	New services to the market, no competition to existing services or complementary services <ul style="list-style-type: none"> • Facebook, Instagram

Table 1: OTT classification of BEREC

⁶ Especially regarding packet loss, delay, jitter, and bandwidth.

⁷ The provision of applications in the network is costly. The advantage of the Internet is that the Internet is providing layer 3 transport services only and that all OTT services are provided on the edge of the network at low cost.

2.5 Investments vs. Revenues

On the one hand, telcos are in favor of OTT services as they boost subscription as well as data consumption. Thus, telcos may profit from incremental higher revenues on data packages – unless competition drives prices down. On the other hand, telcos need to invest heavily in the infrastructure in order to cope with the ever growing bandwidth needs. Often, incremental costs for the roll-out of infrastructure are by far higher than the incremental revenues generated by the higher data consumption. Especially with fixed subscription unlimited Internet plans, OTT only adds up to bandwidth consumption without increasing revenues. The impact of OTT services on traditional services can be significant. Traditional SMS and voice traffic are declining in an overall growing market. Long-term negative implications on telcos cannot be ruled out. Thus, over all, telcos tend to try to limit the availability or the access to OTT services. That's where the net neutrality debate starts.

Especially in Europe, Africa and in most countries in Asia, (except maybe Japan and China), not only telcos but also governments are becoming increasingly concerned about the popularity of OTT services as most of these services are hosted overseas. Thus, local revenues and local value creation decrease, but local needs to invest in infrastructure increase. In the end, fixed and mobile telcos only participate – if at all – in the ever growing bandwidth needs and thus (incremental) data revenues. Nevertheless, the additional value added by web-based services like Google, Facebook, iTunes, Amazon, Alibaba, Clipfish, Hulu, Netflix, Facebook, WhatsApp, Skype, bypass the revenues of traditional fixed and mobile telcos. Actually, telcos argue that they are somehow being “piggybacked” by OTT service providers up in the value chain by making use of the telco financed infrastructure. As reaction, sometimes telcos try to offer similar services, e.g. IP-TV⁸. In the end, the shift of revenues implies tax losses by the local governments. All the additional revenues generated from OTT services are made abroad. The world-wide over-the-top (OTT) market is estimated € 700 billion in 2015, about one percent of world GDP with a CAGR of 17.2%.^{9 10}

⁸ Please see the following Whitepapers of SBR on IP-TV: IPTV – Ein Treiber für den Breitbandmarkt. Perspektiven zur Erweiterung von Geschäftsmodellen, August 2013; and: Der Fernsehmarkt im Umbruch; Das Internet revolutioniert das Fernsehen, October 2015

⁹ BCG, Reforming Europe's Telecoms Regulation to enable the Digital Single Market, 2014.

¹⁰ <http://www.marketsandmarkets.com/Market-Reports/over-the-top-ott-market-41276741.html>

2.6 Social Welfare

On the other hand, OTT services bring also a lot of opportunities to the market and may increase social welfare. The figures shown above demonstrate, that with the introduction of OTT services, the overall ICT sector experiences a significant market growth. Further, they help to optimize the transport of IP traffic. The use of OTT services may contribute to productivity gains and cost reductions. Additionally, they create new jobs – not necessarily locally, but on a worldwide basis. So, they may offer quite important macro-economic benefits to all countries (and not only to those, where the OTTs are based) with overall high opportunities in digital economy.

2.7 Imbalanced Regulation

Although OTTs may considerably contribute to the development of the sector, traditional telcos face quite some competition from OTT services. Whilst traditional telcos are operating in an environment with sector-specific rules and regulations, normally OTT services are operating outside of this field of strict regulation. Telcos may have to heavily invest in upfront payments to receive licenses or other scarce resources like frequencies and may be bound to roll-out- and coverage-obligations. Additionally, the national laws may impose on them a lot of specific regulations (interconnection and access obligations, any-to-any communication, number portability, legal interception, data retention, data protection law, contribution to the financing of the regulatory authority or the universal service fund, wholesale and retail price control, etc.). Additionally, the deployment of networks is burdened with extensive regulations from the construction side.

The difficulties of telcos in competing with OTT service providers may also stem from their traditional subscription based business models with a monthly rental fee and usage/transaction based fees. On the other side, the fact that OTT service providers do not have to take care of the transport infrastructure, they have established completely different business models without subscriptions. Most of them are based on the monetization of data/information or advertisements, but business models may also be based on donations or freemium (where basic features are free and premium content or convenience features are to be paid in addition). Over all, telcos are facing two challenges: the provision of (broadband) access services is undervalued by the user, thus revenues from access are under pressure. The second challenge is that telcos face regulation from NRAs on and competition from OTT services and applications which in turn once again diminish their revenues on services.

The diversified policies and regulations by governments of various regions across international and national borders are the biggest challenge faced by telcos when entering other markets. OTT service providers should also adhere to these local regulations. But OTT service providers see the world as their market place and often ignore the different local rules and regulations as they are from abroad/overseas. Thus, if local markets are too burdensome to enter, they are not served which brings politics under pressure.

2.8 Regulated Level Playing Field

Telcos regard this light handed regulation of OTTs as a burden for their own development (and for their current business), especially as the current policies and regulations have been developed in a situation of limited competition (in a regional and numerical manner). The asymmetry of regulation which is a useful tool with the telecom market to create a level playing field between SMP operators and new entrants tends to be a disadvantage between the telco industry as a whole and the OTT players.

Market analysis is a prerequisite in market regulation. For being able to do this, national regulatory authorities need to have the power to gather market data from telcos as well as from OTT service providers. A BEREC data collection showed that NRAs do not have a clear picture of the volume of OTT voice traffic as they lack legal competence to gather the necessary information on OTT-I/II providers. This affects the assessment of the impact of OTT services on traditional and regulated services and the determination of significant market power.

2.9 Tabular Comparison

We conclude that the market entry of OTTs has changed whole industries and affected all parts of the value chain of service provisioning. Especially regarding the different regulatory treatment, not all of the aspects of the different treatment have been dealt with in detail in the text above. In order to complete the picture, the table below shows in brief bullet points the most important deviating aspects of the current regulatory treatment that telcos and OTT service provider are subjected. The table is therefore adding some additional aspects that have not been elaborated in the text above.

Telcos	OTT
<ul style="list-style-type: none"> • National market within regulated jurisdiction 	<ul style="list-style-type: none"> • The world is the market
<ul style="list-style-type: none"> • Subject to national obligations: <ul style="list-style-type: none"> ◦ Licensing ◦ Tax regime 	<ul style="list-style-type: none"> • No / limited regulation <ul style="list-style-type: none"> ◦ Operation in tax havens ◦ No/limited licenses (no fees)
<ul style="list-style-type: none"> • Sector specific regulation <ul style="list-style-type: none"> ◦ Interconnection and access obligations ◦ Any-to-any communication ◦ Consumer protection ◦ Number portability ◦ Data protection / Privacy ◦ QoS ◦ USO ◦ Wholesale and retail price control ◦ Funding of national regulatory authority 	<ul style="list-style-type: none"> • General competition law (if application is possible due to absence of local presence) <ul style="list-style-type: none"> ◦ No interconnection & access obligation ◦ No any-to-any communication obligation ◦ No portability obligation ◦ Data protection on a voluntary basis ◦ No QoS requirements <ul style="list-style-type: none"> ▪ Telcos are blamed for poor QoS (see e.g. Netflix download index) ◦ No price control with disruptive models <ul style="list-style-type: none"> ▪ Free ▪ Monetization of data/information ▪ Freemium ▪ Ad based ▪ Donation ◦ No participation on funding of regulatory authorities or universal service funds
<ul style="list-style-type: none"> • Public safety and security services <ul style="list-style-type: none"> ◦ Disaster recovery ◦ Legal interception ◦ Data retention ◦ CLI provision 	<ul style="list-style-type: none"> • No obligations <ul style="list-style-type: none"> ◦ Cyber security threats ◦ Apps with special encryption ◦ Virtual numbers
<ul style="list-style-type: none"> • Traditional business models with customer fees to support the costs of the network 	<ul style="list-style-type: none"> • Services offered without any relationship to the underlying cost of the network
<ul style="list-style-type: none"> • Net neutrality obligation <ul style="list-style-type: none"> ◦ Best effort data transport without discrimination, independent of source or nature of data 	<ul style="list-style-type: none"> • No obligations service delivery <ul style="list-style-type: none"> ◦ Freedom of choice concerning customers
<ul style="list-style-type: none"> • Subject to investment obligations <ul style="list-style-type: none"> ◦ Coverage obligations ◦ Investing in networks ◦ Frequencies 	<ul style="list-style-type: none"> • No obligations <ul style="list-style-type: none"> ◦ No investments in networks that reach end users

Table 2: Comparison of regulatory treatment of OTT and telcos

The table above clearly shows that there are substantial (regulatory) imbalances in the legal and regulatory treatment of telcos versus OTT service providers. The differences apply to all aspects, beginning with differences in market entry until service provisioning. The table also shows that telcos carry the major burden, especially on the investment side.

3 Policy and Regulatory Issues

3.1 The Current Regulatory Framework

The previous chapter has demonstrated that there is a different treatment of services and service providers for the provision of competing, complementary, or independent services. This is of course based on the current regulatory framework. The regulatory framework of the European Union is currently under review. Therefore, it is worthwhile to take a look at the policy and regulatory issues related to the different treatment.

In Europe, electronic communications services (ECS) are regulated. Article 1 of the Framework Directive¹¹ defines the scope of ECS as being “... a service normally provided for remuneration which consists wholly or mainly in the conveyance of signals ...” with the exclusion of services providing, or exercising editorial control over, content.

The ongoing regulatory discussion centers on the definition of ECS as the boundaries between ECSs and the OTT services provided become more and more blurred. Thus, the questions that are raised are two-sided:

- The first question deals with the aspect of remuneration. What is a remuneration for a service? Does this include indirect remunerations (e.g. gathered free data from end users that is sold afterwards)?
- The second questions deals with the aspect of whether the service consists wholly or mainly in the conveyance of signals.

The definition for ECS leaves some room for interpretation. It was elaborated at a time where OTT services were not even at the early stage of development. The definition had mainly traditional established telco services in its focus and aimed to differentiate them from media services. From a regulatory point of view it is clear, that the first focal point in the discussion is the analysis of the current regulatory framework and whether OTT services fall under the current regulatory system or not. And the next question is: does the overall regulatory system – including the definition of ECS – need to be adapted in order to better serve the market?

According to regulatory practice a market analysis is the starting point to answer the question, to what extent the current definition of communications services covers OTT ser-

¹¹ Directive 2002/21/EC of 7 March 2002 on a common regulatory framework for electronic communications networks and services.

vices. In case new services come up, the analysis needs to look at, whether they belong to an existing market (thus substitute existing products) or whether they belong to new markets. New markets are normally treated light handedly and left out of regulatory intervention. In this way, regulators try to support innovation. The key policy issue is how to regulate competing new services (e.g. VoIP services like Skype, Viber) compared to those services which are being replaced (voice telephony). Thus, policy acknowledges that changes are inevitable.

The European Court of Justice (ECJ) interprets the terms of the definition of ECS in a very broad sense.¹² Although BEREC assumes some room for interpreting the above questions in a narrower or broader sense, the ECJ clearly tends to interpret the wording of the directive in its broadest sense. Any compensation, being money or an other means of compensation (e.g. data or information) is regarded to be a compensation. If the service is provided at least partly by the conveyance of signals, it is also deemed as being an electronic communications service. Thus, the ECJ already today includes the utmost variety of OTT services in the definition of electronic communications services. By doing so, the ECJ follows the clear policy intention of the framework. The aim of regulation should be to encourage innovation and constructive competition – for the sake of consumers. Regulation is not for the sake of specific business models or certain telcos. Thus, the regulatory framework obliges the regulatory authorities already today to take a broad picture of services and markets.

Nevertheless, the transposition of the Framework Directive into national law has introduced some differences. Some national laws award more and some less competences to regulatory authorities as included in the framework. For instance some countries have implemented the framework in a way that gives the regulatory authority the power to gather all necessary information from all relevant stakeholders necessary for their task. However, a majority of NRAs have no legal competence to request information from OTT I/II providers. This is a clear sign that the Framework Directive has been implemented in most member states too strictly and that most regulatory authorities are treating OTTs too light handed – if at all.

Clearly, the proliferation of OTT services is to be welcomed as it adds utility for the users. Some new OTT services or applications did previously not even exist. So they do not compete with telcos business models (e.g. location based services). But quite a lot of OTT services may threaten the economics of investing in fast broadband networks and (e.g.

¹² See e.g.: ECJ, 11 September 2014, C-291/13, or: ECJ, 30 April 2014, C-475/12, UPC v. Nemzeti Média.

internet television). There is no need to defend traditional business models if they are technically and economically outdated. But there should be a regulated level playing field for those players in a market that influence each other (multisided markets¹³).

Thus, a simple one-sided view of the market is not appropriate any more. The Internet is changing the overall picture and manifold matters need to be looked at when discussing the impact of OTTs. Not only the cost and quality of communications have to be looked at, but also other aspects like licensing, cost of market entry (including rights of way and frequencies), inequality of access, security and privacy (including the right to be forgotten), quality-of-service requirements, access and interconnection, taxation and consumer protection (including data protection and transparency of use of data).

A critical regulatory aspect is enforcement. As most OTT providers are situated abroad, the enforcement of rules and regulations is difficult. This is especially true with regard to consumer protection, data protection, security issues etc. Thus, some rules e.g. regarding a local presence must be established or international agreements reached that make laws and rulings enforceable. For the sake of consumers, a higher degree of transparency is necessary – that is not yet guaranteed at all.

As such, with OTT services flooding the market, consistent regulatory treatment of competing services is necessary but difficult to achieve. Especially with OTT II services, such consistent treatment is not easy to achieve as OTT II services merely fall out of the sector specific regulation and are treated by the normal competition law and complementary legislation such as the data protection laws. Some players have the capacity to influence or even form the structure of the market and exclude other players (e.g. as is currently the case with Facebook or Google where some parties argue that they have significant market power¹⁴). In a steadily changing and dynamic environment the regulatory frameworks must be flexible enough to cope with changes in the market and competing or new services as such services may trigger a complex competitive dynamic in other markets. Also, regulators – be it sector specific NRAs or competition authorities – may have to consider new forms of significant market power and newly defined markets. In this context, the definition and regulation of cross-national markets in Europe will be a challenge.

¹³ Most markets are one-sided with customers interested in buying a good or service. Multi-sided markets involve more than two players with different interests. Multi-sided markets may also be interdependent.

¹⁴ Although on a different market than the defined communications markets. They are rather dominant on advertising and related markets.

Such flexible approach must also be followed in the light of the net neutrality debate. It is a clear disadvantage of Europe when each and every country follows a different approach. This holds true for net neutrality debate and its related downstream issues like zero rating or bundling of services where some countries have implemented strict regulations leading to a two sided world:

TELCOs	OTTs
<ul style="list-style-type: none"> • Best effort data transport without discrimination, independent of source or nature of data • Limitations in pricing options 	<ul style="list-style-type: none"> • No obligations (control over content and freedom of choice concerning customers) • No pricing restrictions

Table 3: Different regulatory treatment of Telcos and OTTs

Such imbalances between market players must be looked at and reviewed once again. Especially as the net neutrality principle constitutes an ex-ante intervention in the freedom of how to make business with your own property. The imposition of net neutrality on telcos might bring higher social benefits than non-regulation and thus a regulatory intervention might be justified. But it also has its disadvantages and negative effects on consumers. Thus, the principle of proportionality must be adhered when imposing such rule. Additionally, sector specific regulation shall only be applied in case general competition law is not sufficient. Any network neutrality rules (including zero-rating debates) must be brought in line with the general competition law. It is not evident, that there is the need for any sector specific regulation as the aspect on premiums pops up in any trade as well.

Further, a common approach across Europe shall be established to guarantee a unified application of the same rules to make the single European market work.

Summarizing this section, we can conclude that the current regulatory framework does not guarantee a regulated level playing field for all stakeholders but is favoring the emerging OTTs at the expense of the competitive strength of telcos. Further, the regulatory framework does support transparent consumer rights in the necessary extent.

3.2 The Proposal for a New European Electronic Communications Code

In September 2016 the European Commission published a proposal for a new framework, called European Electronic Communications Code (EECC). This Code proposes to combine existing Directives into one document. Although it will take some discussion and revi-

sion until the proposal finally enters into force we would like to highlight the developments with regard to OTT. The most important change lies within the definition of ECS.

The definition of ECS is amended and reads:

„Electronic communications service means a service normally provided for remuneration via electronic communications networks, which encompasses internet access service as defined in Article 2(2) of Regulation EU 2015/2120; and/or interpersonal communications service; and/or services consisting wholly or mainly in the conveyance of signals such as transmission services used for the provision of machine-to-machine services and for broadcasting, but excludes services providing, or exercising editorial control over, content transmitted using electronic communications networks and services;

Regarding remuneration recital (17) emphasizes:

„The concept of remuneration should therefore encompass situations where the provider of a service requests and the end-user actively provides personal data, such as name or email address, or other data directly or indirectly to the provider. It should also encompass situations where the provider collects information without the end-user actively supplying it, such as personal data, including the IP address, or other automatically generated information, such as information collected and transmitted by a cookie.“

With these clarifications the new code clearly provides a big step towards a level playing field between telcos and OTT providers as it includes most OTT services as ECS. It remains to be seen, how the discussions on the proposal evolve and what will finally be implemented.

4 Strategies to Deal with the New Environment

This chapter describes some possible strategies the different stakeholders (policy makers and regulatory authorities, telcos and OTTs) may pursue in order to address the challenges of the market developments.

4.1 A Call for a Balanced Regulated Level Playing Field

The current situation is quite imbalanced for traditional telcos as the previous chapters have depicted. Therefore, telcos need to argue for a different regulation. It might be less regulation for telcos or more regulation for OTTs – or a certain kind of mixture. Ideally, it shall be a regulation supporting a win-win situation for all participants.

Thus, the argument that regulation shall create a level playing field is central. It is obvious that the regulatory treatment of OTT services is today extremely light handed and that OTT profit from the uneven regulatory treatment as they piggyback on the infrastructure of partly heavily regulated operators. This current imbalanced regulatory treatment results in a distortion of competition as regulated services carry the costs of regulation while OTT services do not. The idea to create a level playing field is that all services that have the same functionality and/or compete with each other should be treated alike. Thus, all these services shall be subject to the same regulatory treatment. Such a new regulated level playing field may not create a win-win situation for all participants, but would diminish current uneven treatment by creating an environment for sustainable competition to evolve.

The idea to regulate alike services in the same manner comes from the policy principle of proportionality. Proportionality weighs the necessity of a regulatory action against suffering that the regulatory intervention might cause. Thus, this principle follows the idea that the benefits and cost of regulation including the competition effects shall be proportionate to the social benefits encountered by regulation. By doing this, regulation shall look at the consumer's perspective and ask the question which situation creates the highest sustainable social benefits. As such, regulation shall be for the benefit of the consumer.

4.2 Inclusion of OTT in Telcos Strategy

The competition between traditional and OTT services has the potential to degrade the telco's networks to dumb bit pipes. The inclusion of OTT services in the portfolio of telcos could make dumb pipes smart again. In the battle to be the prime telco, bringing in over-the-top services may be the best strategy. This may also include the purchase of OTT-

providers by telcos.¹⁵ Models of inclusion or cooperation may include not only traffic related revenue models that may be a benefit for both. Also models where telcos provide traffic management services for better service provisioning are one option where both parties may benefit from a cooperation. Here, the net neutrality principle clearly is a disadvantage for telcos.

Thus, the strategy of inclusion offers telcos possibility of monetization of the data flow. Telcos have to develop a wholesale approach and to think from the customer's perspective. As network investments are crucial for telcos to survive in the fierce competitive environment, it is necessary for them to make money out of the increased bandwidth they offer. Bundling of the subscription with OTT services gives telcos the opportunity to upgrade their customers to higher bandwidth packages. A cooperation between telcos and OTT service providers would improve customer experience and thus increase loyalty which in turn reduces churn – both, regarding the customers of the OTT service provider as well as for the telco. We note that net neutrality may act against consumers' interests as well.

Thus, telcos have strong incentives to seek partnerships with OTT service providers that may enable them to increase revenue and add value to their services offered. Such partnerships require a different company structure compared to that vertically integrated one of today. Such step would transform telcos into multiplatform ICT providers. This will enable telcos to exploit downstream opportunities in upcoming digital ecosystems.

Thus, rather than perceiving OTTs as a threat, telcos need to learn from the strengths of OTTs and adapt their strategy to gratify an increasingly demanding consumer base. Forward-thinking telcos shall convince (neutral) OTT providers to deliver compelling value to their consumers and to drive up data adoption, ARPU, and value of the subscription. Such added value can often be seen in an enhanced service portfolio with local content.

Cooperations with OTT-providers will put telcos in a position where they can differentiate themselves from competitors by different ways of including OTT services in their offers, e.g. by being a sales and distribution arm for OTTs ("If you can't beat them, join (or buy) them!"). In doing so, they are also in the position to serve a multitude of target groups which enlarges their customer base.

¹⁵ See for example the recently announced purchase of Time Warner by AT&T. The announced deal of 65 bn USD is one of the biggest mergers in the communications industry and follows the path of integrating OTT's content and services with the infrastructure of telcos.

The ICT world is rapidly changing. In such a world, innovation is key to success. Telcos alone cannot cope with the innovative development alone. With B2B partnering, such innovations increase the telcos agility, reduce time to market by bringing the services quicker to the consumer and it is easily diversifying the portfolio. Constantly offering novelty to consumers can be a unique selling proposition (USP) compared to competitors. Wholesale partnerships with innovative profit sharing models can be an option for telcos to leverage the innovative approaches of OTTs.

A collaborative ecosystem between OTTs and telcos¹⁶ would create investments to optimize the user experience by sharing revenues along the value change. Such system would allow both parties to bank upon their respective strengths. Such cooperations will have multisided market effects that influence competition. Regulatory authorities therefore need to look at all sides of multiple markets and not only stick with a regulation of a one-sided single market.

4.3 Exclusion

Some telcos tend to exclude OTT providers from the market. The mere reason for the own development of such services is that revenues are not cannibalized by OTT service offerings. In some African countries and some countries of the Middle East, telcos succeeded in excluding competing OTT services from being offered. Some countries opened up a special license for some OTT services. Further, some telcos have been blocking OTT services on smartphones. This trend was then counteracted by the new rules on net neutrality imposed by national regulatory authorities.

Sometimes, telcos tend to become themselves providers of those services offered by OTTs.¹⁷ Thus, it is possible to provide competitive own services in competition to services from OTTs. As the provision of such services is costly and time consuming, it is assumed that telcos following such a strategy would always lag behind the technological development.

On the one hand, service development is time consuming and expensive. On the other hand, by delivering trend-setting, cutting edge services to subscribers, telcos can compete with OTTs and this can be a key differentiator with value-added offered.

¹⁶ Some creative examples are: Airtel Nigeria and MTN Cameroon offer a data bundle including WhatsApp; or Vodafone UK bundles an LTE tariff with free "Sky Go".

¹⁷ China Telecom offers its proprietary messaging app "YiChat".

4.4 Strategies for OTTs

4.4.1 Opt for no Regulation

We now turn to the point of view of OTT providers like Google and Netflix. The best approach for OTTs is to pursue the current strategy and opt for no regulation at all as OTT represent new services. As new services they enhance competition and add value to consumers. Under such circumstances, it would be unproportionate to impose any regulations on the services. Under these circumstances, OTT will not have to share revenues, invest in networks or deal with specific regulatory obligations. They are best off this way – and still can blame telcos for bad user experience in case of unsatisfactory service provisioning.

4.4.2 Cooperation

An alternate strategy is cooperation. OTTs may want to have a better control over network quality and thus provide better user experience. By cooperating with telcos, OTTs may have the ability to facilitate the provision of their services by cooperating with a telco that actively manages the service by network management tools and guarantees QoS. However, the potential for these kinds of arrangements is currently limited because of net neutrality regulation. Such arrangements contradict to a certain degree with the net neutrality principle that does not allow the positive discrimination of specific services.

4.4.3 Separated Networks

OTTs may overcome the above described problem with the implementation of content delivery networks (CDN). CDNs are dedicated networks that guarantee the distribution of services with high (guaranteed) QoS. So, OTT bypass the Internet – and the net neutrality principle – with the use of such CDNs to increase QoS. Telcos' networks are then connected directly to such CDNs and guarantee the QoS in their own network too. This is a somewhat paradox situation that a regulatory principle leads to distinct (CDN) networks to enhance user experience although it could be reached by network management means by telcos for certain OTT services, too.

5 Conclusions

The possibilities of the Internet for new products and services have dramatically influenced the way communications services are offered today, also known as “end-to-end principle”.¹⁸ OTT services are dynamically changing the market by offering new and advanced services that did not exist before or that have different features than existing ones – or that simply offer the same functionalities but over a different platform.

A major enabler of OTT growth has been the lack of regulation respectively the lack of applicability of telco regulation on OTTs. Thus, the limited possibilities to apply regulation by national regulatory authorities played a decisive role in making OTT services popular and large. This is not a bad thing in itself, it is just not balanced. Nowadays, OTT services are heavily competing with traditional telco-services. This is constantly reducing the revenues of telcos in a time telcos are required to invest heavily in broadband infrastructure, exactly that broadband infrastructure that OTTs are utilizing for service provisioning free of charge. Thus, the Internet is transforming telcos to infrastructure providers (bit pipes). By this, OTTs are not contributing to the infrastructure investments telcos are making. Further, telcos are heavily regulated by sector specific regulations. These costs are again reducing the ability of telcos to invest in infrastructure and compete with OTTs.

Thus, telcos argue that the current ecosystem (i.e. the (partly competing) services are offered by the different stakeholders) is not ensuring sustainable competition for all parties. Thus, telcos request a (regulated) level playing field.

On the other hand, regulators' objectives are not to ensure the sustainability of certain business cases. The policy objective of regulation is to enable a multitude of opportunities in a market by guaranteeing sustainable competition for the benefit of consumers. It is clear that regulation shall take into account the risks incurred by each party of the value chain. Further, all aspects of competition need to be taken into account. Not only market entry but also security aspects and data protection need to be carefully looked at.

Thus, regulation shall evolve a new balanced regulated level playing field with for some players more and for others less regulatory obligations. The balanced regulations need to reflect the changed market situation with multisided competition effects. A simple one sid-

¹⁸ The end-to-end principle is one of the underlying system principles of the Internet, which states that network features should be implemented as close to the end points of the network -- the applications -- as possible. The principle, also called the end-to-end argument, suggests that functions placed at low levels of a system may be redundant or of little value when compared with the cost of providing them at that low level. (Saltzer, Reed, Clark, M.I.T.)"

ed market analysis will potentially not be enough taking into consideration the dynamics of the communications markets.

In this context, the framework for net neutrality regulations shall be carefully looked at. It must not prevent telcos from offering competitive commercial service offers (e.g. product bundles – including network management tools, zero rating) while still protecting the consumers' interests. Here, regulation will need to strike a more sensible balance.

There is no doubt, that regulatory authorities shall have the best means to oversight market developments and intervene whenever it is necessary in order to prevent distortions in competition.

End users may not fully be aware of the drawbacks of free OTT services – as “there ain't no such thing as a free lunch”. Continuous and transparent user information concerning the risks and benefits of the Internet shall be pursued in any case.

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