

**BEREC report on the impact of premium
content on ECS markets
and the effect of devices on the open use
of the Internet**

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Executive summary

The general purpose of this report is to study how the electronic communications sector is influenced by other sectors, in particular by content¹ (section 2) and devices² (section 3).

Electronic communication services (ECS³) can enable end-users to access content; therefore content (e.g. audio-visual services) and ECS can be complementary goods. In the context of this report, content that is valued enough by end-users to make a sizeable share of them switch ECS provider (such as, but not restricted to, certain sports events and blockbuster films and TV series) is qualified as “premium content”⁴.

BEREC members were surveyed for the drafting of this report. In the majority of the surveyed countries, bundling is used by ECS providers to commercialise premium content, and this trend appears to be on the rise globally. Exclusivity agreements are widespread for sports and, to a lesser extent, for films and TV series. The larger ECS providers are the ones most able to offer premium content under exclusive terms bundled with ECS.

A mixed picture emerges regarding the impact of these practices on competition dynamics in ECS markets, with both negative and positive effects. Whether or not the bundling of premium content with ECS affects competition in the ECS market may depend on the ability of all actors to compete effectively with the bundled offers of large ECS providers. In this context, the role of premium content actors that do not bundle access to their content with the purchase of an ECS is highly relevant⁵. From the consumers point of view, bundling of premium content with ECS can be especially beneficial for those who are interested in both the premium content and the ECS that are offered together (provided that they are facing competitive offers). However, this may be not the case for other consumers only interested in ECS. In general, the effects of bundling on consumer welfare have to be analysed on a case-by-case basis, as this will depend on a number of elements, such as the structure of the market for both ECS and premium content, the market position of the actors involved, the nature of the underlying agreement between ECS and premium content providers (e.g. whether or not the agreement provides for exclusivity), the replicability of the bundle by competing ECS providers and the availability of the premium content to customers of competing ECS providers.

¹ In this report, the term “content” refers to the various products conveyed to the end-user by means of electronic communications services, such as text, audio, videos, images, and sound. For example, TV channels can be broadcasted through any means of transmission used by ECS providers – fibre, cable, satellite, terrestrial broadcasting, etc.

² In this report, the term “device” is understood as a piece of equipment, either mobile or fixed, connected to the Internet, and includes: smartphones, tablets, set-top boxes, IPTV boxes, computers, virtual assistants, game consoles, smart TV, as well as other connected objects offering access for the end-user (such as connected watches, e-readers, etc).

³ The term “Electronic Communication Service” (ECS) is to be understood according to the definition provided in the framework directive, i.e. as “a service normally provided for remuneration which consists wholly or mainly in the conveyance of signals on electronic communications networks, including telecommunications services and transmission services in networks used for broadcasting, but exclude services providing, or exercising editorial control over, content transmitted using electronic communications networks and services; it does not include information society services, as defined in Article 1 of Directive 98/34/EC, which do not consist wholly or mainly in the conveyance of signals on electronic communications networks”.

⁴ It can be noted that this definition of premium content, tailored for this report, does not necessarily correspond to the definition used in other contexts and by other organisations.

⁵ Such as satellite pay-TV providers, traditional broadcasters, OTT players, but also ECS providers when they do not restrict the access to their exclusive premium content to their ECS costumers.

Competition Authorities (European Commission and National Competition Authorities, NCAs) play a key role in addressing competition issues related to premium content, such as the risk of foreclosure arising from long or exceedingly wide exclusivity agreements for premium contents (notably sports). In particular, several mergers and acquisitions were blocked, or approved with remedies – such as limitations of exclusive rights and obligations to sell specific premium content to other actors. The ECS regulatory framework does not regulate the content of services delivered over electronic communications networks, including premium content issues. However, when regulating Markets 3a, 3b and 4⁶, NRAs are allowed to apply economic replicability tests for retail bundles including ECS and other services to avoid margin squeeze situations.

The second subject being analysed in this report is the effect that devices may have on the openness of the Internet (section 3). This issue is discussed not in terms of access services (the openness of the Internet is safeguarded by the European Regulation 2015/2120⁷); instead, the objective is to analyse whether devices may challenge the general objective of an open Internet in terms of how end-users can practically use Internet services on their devices (Section 3).

Devices and their embedded Operating Systems (OS) provide the interface for consumers to use the Internet; as such, the choice of Internet content and applications actually available to consumers may differ depending on the device they use. This report notes that the vast majority of the limitations observed as of today relate to unavoidable technical constraints (such as ergonomics or obsolescence due to the pace of innovation in the device industry) and seem to be accepted by end-users and to fit with their expected usage of the device. Such limitations are therefore not likely to raise any specific concern. However, with the rising popularity of the app format, traditional web-browsers are not anymore the main way through which end-users access content on the Internet. As such, the freedom for device manufacturers to pre-install the apps of their choice is already a subject of attention for the European Commission⁸. Moreover, in this context, app stores act as gate-keepers regarding applications, and subsequently regarding the much of the content to which end-users can have access on the Internet. As of today however, the potential threats that are identified in this report remain rather hypothetical.

To verify that Internet use remains open, BEREC is of the opinion that monitoring of devices markets and software platforms (OS and app stores) by regulatory authorities (being competition authorities or sector-specific agencies) might be useful. Monitoring can be a powerful tool in itself, as it may sometimes be sufficient to prevent the occurrence of possible market failures. The effectiveness of monitoring, where it is deemed appropriate to implement, relies on the ability of the authority in charge of such a task to collect the necessary data and manage the resources needed for its analysis. In general, as technology rapidly evolves in this field, light-touch options based on the publication of collected or crowdsourced data could

⁶ See European Commission Recommendation of 9.10.2014 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services

⁷ See 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.

⁸ See for example http://europa.eu/rapid/press-release_MEMO-16-1484_en.htm.

be an appropriate possibility to explore. Such a “data-driven intervention” could empower consumers by helping them make informed choices. Compared to other types of regulation, it would also have the benefit of limiting administrative costs for all actors (which is especially relevant for smaller players and new entrants) and of impacting every player proportionally to its size. A follow-up report in the coming years could help assess the evolution of the situation.

1. Introduction

The general purpose of this report is to study how the electronic communications sector is influenced by other sectors, in particular by content (section 2) and devices (section 3). Although NRAs do not generally have regulatory power over these sectors, it may be of interest for them to have a deeper understanding of the mechanisms involved, as they may have an indirect influence on some of the NRAs’ core missions. BEREC members were surveyed for the drafting of this report through a specifically designed questionnaire.

The influence of premium content⁹ on the markets for electronic communication services (ECS)¹⁰ is analysed in section 2 of this report. ECS enable end-users to access content; therefore content (e.g. audio-visual products) and ECS can be complementary goods. Market players are applying convergence strategies between content and ECS typically based on bundling practices¹¹ and content exclusivity offers. These strategies may have a direct impact on the ECS markets when the content in question is valued enough by end-users to make a sizeable share of them switch ECS provider. Such content, referred to as “premium content” in this report, is the focus of the analysis. The report aims to provide a snapshot of the current situation across Europe regarding the distribution of premium content by different actors, the bundling of premium content with ECS, and the exclusivity agreements applied to premium content (section 2.2.2). Furthermore, the report discusses the potential effects that bundling practices and exclusivity agreements regarding ECS and premium content may have on the ECS markets (Section 2.2.3). This snapshot is based on the aforementioned questionnaire sent to BEREC members, to which 30 NRAs responded, allowing a large collection of information regarding the various market structures, the observed practices, as well as regulatory responses taken across Europe. It should be noted that most NRAs in Europe do not have regulatory power over the media sector (which is often regulated by a separate regulatory body), nor can most of them impose pre-emptive remedies in the case of a merger, as this falls under the responsibility of National Competition Agencies (which are often separate regulatory bodies).

⁹ In this report, the term “content” refers to the various products conveyed to the end-user by means of electronic communications services, such as text, voice, videos, images, and sound. For example, TV channels can be broadcasted through any means of transmission used by ECS providers – fibre, cable, satellite, terrestrial broadcasting, etc.

¹⁰ The term “Electronic Communication Service” (ECS) is to be understood according to the definition provided in the framework directive, i.e. as “a service normally provided for remuneration which consists wholly or mainly in the conveyance of signals on electronic communications networks, including telecommunications services and transmission services in networks used for broadcasting, but exclude services providing, or exercising editorial control over, content transmitted using electronic communications networks and services; it does not include information society services, as defined in Article 1 of Directive 98/34/EC, which do not consist wholly or mainly in the conveyance of signals on electronic communications networks”.

¹¹ This may be applied by vertically integrated operators bundling their premium content offer with ECS services, or by an ECS provider coming into agreement with other actors to bundle their ECS with third-party premium content offers (as it could be the case for satellite pay-TV providers or OTTs not owned by the ECS operators).

The second area under discussion in this report is the effect that devices may have on the openness of the Internet. This issue is addressed not in terms of access services (the openness of the Internet is safeguarded by the European Regulation 2015/2120); the objective is to analyse whether devices may challenge the general objective of an open Internet in terms of how end-users can practically use the Internet on their devices (section 3). Indeed, devices and their embedded Operating Systems (OS) provide the interface for consumers to use the Internet and, as such, the choice of Internet content and applications actually available to consumers may differ depending on the device they use. This section provides a description of the device ecosystems and of the mechanisms through which devices can potentially restrict the choice of Internet content and services available to end-users. This section has a purely prospective purpose and, as such, analyses issues that are beyond the strict scope of NRAs' regulatory powers provided by the Regulation 2015/2120.

2. Premium content

2.1. Value chain

This section describes the actors involved in the commercialisation of premium content. This information is based on the NRAs' responses to BEREC's questionnaire. It must be made clear that not all respondent countries have the same definition of what can be qualified as premium content. For some countries, such as Austria, Italy, France or Switzerland, a national definition with a legal basis corresponding at least partially to the concept of "premium content" can be found¹². It can be noted that the definition of premium content used in this report does not necessarily correspond to the definition of premium content used in other contexts and by other organisations; it is aimed to focus the analysis on the effect of premium content provision on ECS markets¹³.

Some NRAs lacked a national definition of premium content, but, when answering the questionnaire, they still included other types of content that they deemed to qualify as premium content in their country, for example, music-streaming services.

Overall, audio-visual content, such as sports, films and TV series represent the vast majority of what can be considered as premium content in Europe. To provide an overview of the relevant stakeholders and their interactions, the main players in the value chain for premium sports events, films and TV series are described below.

Some players have more than one role in the value chain. For example, a company like Netflix delivers content as an OTT player and also produces its own premium content. This is discussed in more detail below.

¹² For example, regarding sports, an official list may be published that identifies major sports events and specifies various constraints applying to those events (e.g. the obligation of a free broadcast).

¹³ As an example, the European Commission has used other definitions in competition cases, as in the case of M.7000 – Liberty Global/Ziggo, where the distinction between Basic Pay-TV Channels and Premium Pay-TV channels is done on the basis of the following characteristics: (i) content: Premium Pay-TV channels in general feature premium films and sport events with fewer interruptions for advertising; (ii) pricing: Basic Pay-TV channels are typically included in broader Pay-TV packages, while Premium Pay-TV channels are offered under a dedicated additional subscription; and (iii) size of the audience attracted: Premium Pay-TV channels generally have a smaller audience, given the additional cost.

2.1.1. Content creation

Sports

Media rights in sports are an important source of revenue in all of the most important professional sports, both for sports teams/leagues, sports organisers and the hosting venues. For example for the financial year 2015/2016, 70% of UEFA's (Union of European Football Associations) revenues were generated through media rights¹⁴.

Examples of sports teams that are often associated with premium content are football clubs, Formula 1 teams and national teams for other sports. Venues are for example stadiums, race tracks or a location for an event like a World Championship. The role of sports event organisers is to coordinate teams and locations and set up the rules for certain sports events. Examples are FIA (Fédération Internationale de l'Automobile) for motor sports (e.g. Formula 1), UEFA (Union of European Football Associations) for European football, FIFA (Fédération Internationale de Football Association) for worldwide football or the International Olympic Committee (IOC) for Olympic Games.

In most BEREC members, the first football league is the main example of typical premium content given by NRAs in the questionnaire.

Films and TV series

According to a briefing of the European Parliament¹⁵, the European film landscape is characterised by the strong presence of US so-called 'majors' who account for almost 70% of the European Union film market. The large US companies are vertically integrated with activities spanning from production to distribution, thus controlling the most important components of the global audio-visual industry.

According to the responses given by NRAs to the questionnaire, blockbuster TV series such as "Game of Thrones", produced by HBO, or "House of Cards", produced by Netflix, are considered as examples of premium content in most countries.

2.1.2. Management of media rights

Once the premium content is created, the next level of the value chain is the commercialisation of media rights to content providers.

Sports

In most cases, rights management is done collectively for a set of sports events by a sports rights agency, whereby all the clubs in a league agree to sell their media rights collectively through their league or federation and allocate the proceeds of the sale between all clubs via a revenue-sharing mechanism.

Concerning the collective sale of sports media rights, the European Commission has set policy in this area with several leading decisions¹⁶ that also served as a model for the National Competition Authorities (NCAs), which have been adopting an increasing number of decisions

¹⁴ Source: UEFA Financial Report 2015/2016, page 3.

¹⁵ Source: European Parliament Briefing, An overview of Europe's film industry, December 2014.

¹⁶ Case 37398, UEFA Champions League of 23 July 2003, OJ 2003 L 291/25; Case 37214, Bundesliga of 19 January 2005, OJ 2005 L 134/46; Case 38173, FA Premier League of 22 March 2006, OJ 2008 C 7/18.

in this area in recent years. Some relevant topics in the decisions were the limitation of the duration and scope of exclusive vertical contracts, or the so-called ‘no single buyer’ obligations, as analysed in section 2.3.2.

Sports rights agencies usually try to maximise their total revenue and profit (in most cases on an international basis) and redistribute a relevant part of the revenue back to the sports event organisers. Examples of sport rights agencies are Formula One Management Ltd¹⁷ (FOM), or TEAM for the management of the UEFA Champions League. Most of the premium sports rights are managed by the largest 7-8 global market players¹⁸. In some cases, media rights are sold to intermediary media rights agencies instead of being sold directly to content providers. Examples of such situations are the award of the rights for the Olympic Games to Eurosport and its parent channel for most of Europe starting from 2018 and the selling of rights (e.g. Olympic Games, FIFA World Championship) to the European Broadcasting Union (EBU) in the past.

In some countries a legal framework provides rules on some of the aspects mentioned above. For example, in Italy, the commercialisation model for the national football league is described by a legislative decree requiring the production of guidelines by organisers of sporting competitions. In Germany, the NCA proclaimed a “no single buyer rule” for Deutsche Bundesliga in 2016 (see section 2.3).

Films and TV series

Traditionally, each form of commercialisation of a film/TV series happens in sequence, corresponding to the specific market involved (cinema, television, DVD and BlueRay, Video on Demand (VoD), etc.), having its own exclusive time window during which the film or TV series may not be exploited in a different medium.

At a later stage of exploitation, films are usually combined into libraries of films and sold as a package to a content provider. A common model to sell film media rights are so-called “output deals”. Following such a model, a content provider buys a certain amount of future productions – which usually also includes TV series – from a producer or label, and guarantees the distribution of this content.

Examples of licensing companies for films and series are Sony Pictures, MGM, Universal Studios, Warner Bros., 20th Century Fox, Paramount, DreamWorks, HBO or Disney. The producers are the same entity as the licensing companies in a significant number of cases, especially for US-based companies.

2.1.3. Content delivery

The next level of the value chain is content delivery, where, having acquired premium media rights, the players offer the content to their customers on their platforms. Several dimensions are relevant, as shown in the next figure.

¹⁷ Formula 1 Management was recently (in 2016) acquired by Liberty Media Cooperation.

¹⁸ For example, TEAM Marketing, Infront, FOM, IMG, Lagadere, MP & Silva, CAA Eleven.

Figure 1. Content delivery - dimensions

Players	· Broadcasters	· Telcos	· OTT
Aggregation & programming	· Aggregators	· Packagers	· Programme organisers
Transport	· Satellite · Cable · Terrestrial · IPTV · Video over internet access		
Consumption of content	· Linear	· Non-linear (Video on demand etc.)	
Charging	· Free	· Pay per view	· Monthly Subscription

Packagers and aggregators combine various programme streams into a “turn-key” package offered to consumers. Programme organisers create and provide programme services.

In the specific case of sports, the question of the timing of delivery is central. Sports coverage is most attractive when transmitted live and thus requires a guaranteed Quality of Service (QoS). This requirement can be achieved through traditional linear satellite or terrestrial broadcasting services or through IPTV, which may have a competitive advantage over pure-OTT services¹⁹ for transmitting premium sports content demanded by a mass audience when very-high speed connection is not available to all end-users.

Examples of typical content providers for premium sports and films are:

- Free-to-air TV broadcasters: private commercial and public service broadcasters;
- Pay-TV broadcasters using satellite broadcasting or terrestrial digital TV;
- ECS providers (typically bundling premium content with broadband and other ECS);
- OTT players: (e.g. DAZN, Netflix, Amazon Prime, etc).

Note that ECS providers can additionally operate as pay-TV broadcasters and/or OTT players.

2.1.4. Advertising

Along the whole value chain, advertising plays also an important role. It takes place at all levels of the premium content value chain (e.g. sponsoring of a football club, exclusive partnership with a league or online or TV advertising during a specific live event). In this context, the potential audience for the premium content is one of the major factors influencing its pricing and the commercial strategies that revolve around the management of media rights.

¹⁹ According to the definition used in the BEREC report on OTT services (BoR (16) 35), an OTT service is defined as “content, a service or an application that is provided to the end-user over the public Internet.”

2.2. Economics of bundling and interplay between content and ECS

ECS offers have presented some form of bundling practices for a long time (e.g. voice calls and SMS bundled together in a given mobile offer). However, more recently, bundles involving non-ECS products, in particular content, have become an increasingly popular way of commercialising ECS. On the supply side, many operators have been increasing the number of services that are included in the bundles they offer²⁰. The purpose of this section is to analyse the potential positive and negative effects that joint selling of premium content and ECS might have on ECS markets.

2.2.1. Definitions

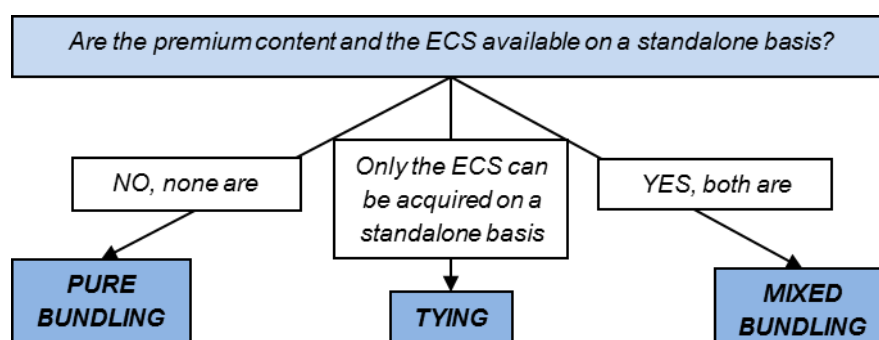
In the economic literature, **bundling** refers to the selling of different products/services together and can be divided in two subcategories:

- **Pure bundling:** all respective products/services are available solely in a bundled form and cannot be purchased on a standalone basis. Pure bundling typically occurs due to technical reasons (this can be the case for example for mobile access and mobile calls). Pure bundles are usually, but not necessarily, comprised of complementary products/services.
- **Mixed bundling:** consumers may choose to purchase either the bundle or each of the individual products/services. Typically, the price for the bundle is lower than the sum of the prices of the individual products/services. Relevant for the current analysis are the bundles including ECS and premium content, implying discounts for a joint purchase of ECS and content services (a so-called multi-product rebate). Bundling may also lead to quality increases, derived from technical enhancements when providing both services together (for example, IPTV services that can be offered along with a specialised Internet access service that allows for a guaranteed QoS, not always available through other means of accessing content, such as through an OTT offer; therefore if premium content is both available through an OTT offer and through an IPTV offer, then the bundled offer may provide a higher quality because of the guarantee on the QoS).

Another particular form of bundling is **tying**, which occurs when the acquisition of a product/service is conditional upon the purchase of another product/service (the tied one). Tying practices are particularly relevant for the present report since ECS providers are increasingly offering premium content tied to broadband access services. In this case consumers may be obliged to subscribe to broadband with this provider, regardless of their willingness to do so, to access this specific premium content. It may be that the price of such broadband access service is higher than what it would be if it did not include the premium content offer.

²⁰ See BoR (15) 77, BEREC Report “Indicators on Bundles“, July 2015.

Figure 2. Relationship between pure bundling, mixed bundling and tying for premium contents sold jointly with ECS



Additionally, the issue of **exclusivity** comes into play when the provision of certain services is restricted to a particular content provider. For example, if media rights are exclusively owned in one country by only one content provider, then this provider is the only one that can decide how this content is going to reach national consumers. In this case, the provider may choose to sell its content to the widest audience possible (in the case of an ECS provider being the rights holder, it can decide to make its content available to all consumers regardless of their ECS provider²¹), or it may choose to restrict the access to customers that are also contracting other services (in the case of an ECS provider being the rights holder, it can decide to make its content available only to its broadband service customers).

This may be applied by vertically integrated operators bundling their own premium content offer with ECS services, or by coming into agreements with other actors to bundle their ECS with third-party premium content offers (as could be the case for satellite pay-TV providers or OTTs not owned by the ECS operators).

In conclusion, bundling is a strategy that links two separate products (ECS and content), while exclusivity relates to content that is commercialised by just one actor (who can decide to offer it to all consumers on a standalone basis, or to bundle it with other services).

2.2.2. Situation in Europe

In order to investigate the specific practices in Europe involving the joint selling of ECS and premium content, specific questions were asked in the questionnaire sent by BEREC to its members. The results of the questionnaire clearly show that the bundling of premium content with other services (fixed and/or mobile) offered by ECS providers, is a trend that is visible and rising in the majority of European countries.

Among the 30 NRAs that responded to the questionnaire, 26 stated that ECS operators in their country are commercialising premium content bundled with other services. Out of these NRAs, 19 were able to qualify this trend and the vast majority of them (17 out of 19) considered

²¹ This could be done, for example, through an OTT offer. It could also be done following more traditional models, such as a standalone satellite TV offer, or a model like the following: Orange is the exclusive rights owner of some media rights (e.g. HBO content in France) and it created its own channel package "OCS" (formerly *Orange Cinéma Séries*). It used to be only available to Orange clients, but other ECS providers have had the possibility to propose it to their clients in the form of an extra option for several years now (and most of them actually do propose the option in their offers).

the overall bundling trend as rising, and none considered it as declining. The most popular bundles identified are the ones presented in the following two sub-sections.

Concurrent to the bundling trend, the offer of standalone OTT-based premium content is increasing in almost all countries²² and commercialisation of premium content supported by satellite pay-TV is still very relevant in most countries²³.

2.2.2.1. Bundling of fixed broadband services with premium content

European ECS providers have been offering bundles including content for several years now. The reason for the uptake of these bundles by consumers is driven by different factors, such as associated discounts, convenience, etc. Such bundling strategies are used not only to attract new customers, but also to retain existing ones, in particular when the content in the bundle is not available by any other means and is highly valued by consumers. It should be recalled that, according to the European Commission: *“Rights to recent premium films and most regular football events where national teams participate (...) constitute the essential factor (the drivers) that leads consumers to subscribe to a particular Pay TV channel/platform.”*²⁴

According to the surveyed NRAs, ECS providers apply different bundling strategies in order to commercialise premium content at the retail level.

In many countries, consumers can only get access to premium content provided directly by a fixed broadband provider if they also subscribe to other services of the same ECS provider (typically broadband access).

In a number of countries, consumers are offered a price reduction when they jointly purchase premium content bundled with an ECS (e.g. in Italy, Finland, Denmark). In some of them, the marketing involves consumers being offered premium content for “free” when they purchase highly priced offers. This is not only limited to audio-visual content (films, series, sports), as there are also ECS providers offering their customers a price reduction to music streaming services like Spotify or Deezer (e.g. in Germany, Denmark, the Netherlands).

There are also countries where ECS providers produce their own premium content, which is then offered for free, or exclusively, to their clients. In some cases, this premium content is also made available to clients of other ECS providers, but usually for an additional or higher fee (e.g. in Finland, the Netherlands.).

To a lesser extent, some ECS providers offer their customers access to third-party OTT services like Netflix for a discount or for free for a limited time period (e.g. in Ireland, Switzerland, Poland).

There are also a few cases where, instead of a price reduction, consumers get access to premium content at a guaranteed quality. For example, sports channels created by an ECS provider can be made available to end-users of competing ECS providers, but without guaranteed QoS because it is only made available via an OTT service (e.g. in France), i.e. not

²² For example, 27 out of 30 NRAs have indicated that the uptake of OTT services is rising compared to that of linear TV services.

²³ While 7 NRAs indicated that satellite TV is declining, 6 NRAs indicated that it is on the rise and 11 NRAs considered that satellite TV uptake is constant.

²⁴ Commission Decision of 2 April 2003 in Case COMP/M. 2876, Newscorp/Telepiu.

through a specialised service. Indeed, the absence of a service guarantee for OTT offers may prevent them from being considered as a perfect substitute for IPTV services, in particular in the case of live transmission of content (e.g. sports), where transmission quality is of utmost importance.

As has already been mentioned, bundling strategies can be applied by an ECS provider both with non-exclusive premium content and with exclusive premium content rights. In the non-exclusive case, the same specific premium content (a specific TV channel for example) can be offered by several ECS providers; as such, consumers can still choose between several ECS providers if they want to access this specific content. In the exclusive case, the premium content is only available from one ECS provider who can make the premium content available only to its own clients via the bundled offer. Exclusive premium content is tied by ECS providers in a number of countries, such as Portugal, France, Spain and the United Kingdom. Exclusive and tied premium content is mostly observed in the case of sports content.

As already explained in section 2.1, ECS providers can also vertically integrate premium content production in the value chain. This occurs to a lesser extent in the countries surveyed, but it is nevertheless something that is observed in a few countries (e.g. in Belgium, the Netherlands, Sweden). In most of these instances, it is not only that ECS providers vertically integrate within the value chain by acquiring content companies (the most recent sports rights example is the acquisition of Formula 1 Management Ltd. by Liberty Global Plc.), but also that ECS providers distribute their own pay-TV channels exclusively to their broadband clients.

In a relevant number of countries, it can also be the case that some ECS providers make the exclusive premium content available to clients of other ECS providers, for example via a standalone OTT service (e.g. in France, the Netherlands).

In Annex 1, some interesting cases regarding the role played by ECS providers and commercialisation models for premium content are detailed.

2.2.2.2. Bundling of mobile subscriptions with premium content

The amount of mobile data included in plans offered by ECS providers appears to have increased in recent years, making it possible for consumers to watch audio-visual content on their mobile devices, to the point that mobile devices are becoming a common additional way to access certain audio-visual content. Bundling of mobile subscriptions with specific audio-visual content occurs in many of the surveyed European countries. In these countries, mobile subscriptions are bundled with different types of audio-visual premium content. In most cases, mobile subscriptions are bundled with sports content (e.g. Sky Go, BT Sport, Eurosport Player), music streaming services (Spotify, Deezer, Tidal) or OTT TV applications. In France, Germany and Austria, mobile subscriptions can also be bundled with free access to online newspapers.

2.2.3. Benefits/drawbacks of bundling ECS and Premium Content

The economic theory provides references to certain potential benefits and drawbacks of bundling, which are presented below²⁵. The key question that needs to be answered is whether bundling is beneficial or detrimental for consumer welfare and, in particular, whether it has a distorting effect on competition that ultimately harms consumers²⁶.

From a practical standpoint, both the potential benefits and potential anti-competitive effects arising from the bundling of premium content by ECS providers depend on the specific market circumstances. As can be seen in the table below, which summarises the view of BEREC, the potential benefits and drawbacks can be identified both at the level of the consumer and at the level of the ECS provider.

Table 1. Potential benefits and drawbacks due to bundling of premium content with ECS

	Consumers	ECS providers
Benefits	<ul style="list-style-type: none"> - Lower prices for consumers interested in bundled offers - More premium content offers and technical innovation - Convenience (one-stop shopping) - Lower transaction costs 	<ul style="list-style-type: none"> - Efficiency gains - Higher ARPU and revenues - Diversification of activity - Churn reduction
Drawbacks	<ul style="list-style-type: none"> - Risk of higher prices for consumers not interested in bundled offers - Risk of higher prices for consumers interested in bundled offers if bundled offers are not replicable - Higher switching costs - Less transparency - Exclusive premium content tied to ECS requires consumers to take up ECS of the specific ECS provider, possibly giving less importance to ECS QoS, potentially leading, in certain circumstances, to a degradation of the QoS of ECS 	<ul style="list-style-type: none"> - Dependency on content owners - Need for extra investments in media rights - Risk of foreclosure effects with regard to competing ECS and resulting risks of increasing the market power of the main players - Less experience in content-related markets compared to traditional broadcasters

²⁵ The general economic literature on the topic is quite vast. However, there are also relevant papers that focused on bundling of a certain ECS - for example, the particular case of broadband bundling was analysed in the OECD report on "Broadband Bundling: Trends and Policy Implications", February 2011.

²⁶ See for example: ERG (09) 07, Report on the Discussion on the application of margin squeeze tests to bundles, pg. 5-6.

Innovation and synergies

Bundling of content (being premium or not) with ECS can increase the level of innovation in the market. Indeed, content adds a new dimension to the ECS market, which potentially allows for new offers to emerge.

Regarding technical synergies, if more substantial synergies can derive from the bundling of mobile and fixed ECS, some technical innovation can still be expected in the case of the bundling of ECS and content. A few examples of these technical innovations are replay services, sharing and saving of content, and watching content whenever and wherever you want (“content on the go”). Bundling of premium content with ECS can also be more convenient for customers willing to acquire both products as they only have to deal with one provider through a one-stop shop.

ECS revenues

Diversification of activity may reduce the financial risk of ECS providers. Moreover, ECS providers can benefit from the bundling of premium content with ECS in terms of higher average revenues per user (ARPU), as revenues from ECS are added to revenues coming from premium contents. This does not necessarily translate into higher profitability, as this will depend on the level of financial investment initially needed to acquire the premium content rights, which can be high.

Investment in infrastructure

On the one hand, if the ability to provide premium content turns out to be a major factor of choice between ECS providers from the consumer standpoint, more than the quality of the ECS provided, theoretically there may be a potential incentive for ECS providers to prioritise investment in premium content. Given the cost of premium content rights, this could have a non-negligible negative impact on the investment of ECS providers in their infrastructure.

On the other hand, ECS providers may also reach agreements with the content providers that own premium contents rights (OTTs or satellite pay-TV) to bundle ECS with their premium content offer, and thereby lower the cost of providing bundled offers. Supply of premium content might also boost the take-up of very high speed connections, as a good connection is necessary to take full advantage of the content accessible, and therefore this is likely to increase investment in infrastructure. For example, increasing availability of premium content offers under an OTT basis could act as an incentive to ensure good ECS quality for consumers – although it should be underlined that this positive effect does not require exclusive bundling strategies to take place. Interest in services only available through IPTV (with guaranteed QoS, replays, etc.) can also give incentives to ECS providers to upgrade their network in areas that are currently insufficiently covered to provide such services.

The global effect of the acquisition of premium content on network developments therefore remains unclear.

Impact on ECS prices

Bundling of premium content with ECS could potentially result in lower prices for consumers who are interested in these particular types of bundled offers. This could be the result of

bundled offers allowing for price discrimination by the ECS provider. Economic theory²⁷ also states that if two products are complementary – which can be the case for ECS and premium content – and sold together, the positive externalities will be internalised by the seller and the total price charged to the consumers will become relatively lower (“Cournot effect”). In general, this is beneficial to consumers who would be interested in both the premium content and ECS when not offered together, but whose willingness to pay is lower than the total cost when acquiring the two separately.

On the other hand, the inclusion of premium content could also lead to higher ECS prices for consumers who are not interested in premium content if competition shifts from pure ECS offers to bundled offers that all include premium content. ECS prices may also increase for consumers interested in premium content, notably if only one ECS provider offers premium content bundled to its ECS services: this would indeed subdivide the ECS market into two segments, with only one actor active on the “premium” segment of the market. In this case, the impact on prices would depend on whether the “premium” market is contestable: if other actors can replicate the premium content offer, then no specific concern would arise regarding the ECS prices.

In any case, when the various types of premium content are not available on a standalone basis (i.e. ECS are bundled with packages of content that cannot be fully customised), it could also be the case that consumers will not be able to find offers that exactly match their wishes, leading them to either pay for unwanted content included in their offer, purchase overlapping offers, or settle for a sub-optimal package.

While some of the effects described above refer to the case of tying practices, it should be noted that similar conclusions can also be drawn in the case of mixed bundling. Indeed, when the incentive to choose the mixed bundle instead of the standalone products is high (for example because the discount offered for the joint purchase is significant), the mechanisms described above can also occur.

More generally, the impact of bundling practices on the level of competition on the ECS market has to be taken into account when analysing the potential effects on ECS prices.

Effects on competition in ECS markets

The main concern regarding the effect of bundling practices on ECS markets pertains to the possibility of leveraging market power. When a firm that has market power in market A, and bundles product A with product B, it might be able to leverage its dominant market position into market B. In the present situation, the concern would arise if only one ECS provider (or a limited number of them) is able to provide premium content, as it could then leverage its market power from the premium content market into the ECS market. This could notably raise concerns if the ECS provider in question was already enjoying a dominant position in ECS markets.

The concern about leveraging market power may be relevant in the case of premium content and ECS markets, in part due to the large investment needed to acquire premium content rights and the economies of scale when commercialising those rights. . Thus, smaller ECS providers could find it difficult to compete with larger ECS providers for the acquisition of

²⁷ See for example Spengler, *Vertical integration and antitrust policy*, 1950.

premium rights. This would be especially the case for the acquisition of premium content on an exclusive basis and commercialised in a bundle with ECS, as the potential audience then simply corresponds to the ECS client base. In comparison, large ECS providers could use their economies of scale to acquire premium content under more favourable conditions than smaller ECS providers.

As a result, small ECS providers would be less able to offer attractive bundled offers of premium content and ECS (e.g. cheaper offers or more premium content) in comparison to the larger ECS providers. This means that larger ECS providers could use their capacity to bundle premium content under exclusive terms to consolidate their dominant position on the ECS market.

Of course, it should be noted that there are several options to offer access to premium content besides exclusive bundles. For example, agreements with a third-party content provider (e.g. OTT players, satellite pay-TV operators, etc.) on a non-exclusive basis can be struck. As already mentioned, in general, no specific concerns arise as long as an offer bundling premium content with ECS can be replicated by alternative ECS providers.

Switching costs

The inclusion of exclusive premium content in the bundled offers could contribute to increased switching costs for consumers in ECS markets. This would be due to the fact that consumers might be reluctant to switch ECS provider, given that they would not get access to the same content with a different ECS provider. This could also be due to the fact that comparisons between various bundled offers may be more difficult, therefore diminishing market transparency, and, as a result, possibly increasing switching costs.

Role of other content providers

An additional relevant issue to take account of when assessing the impact on competition is the role played by OTT content providers (or, in general, by actors commercialising access to premium content on a standalone basis). ECS operators are not the only actors offering premium content, and OTT content providers such as Netflix, HBO, or BeIN Sports are increasingly competing for the market of premium content. Furthermore, satellite TV operators are still commercialising premium content (sports, TV series and films) in many European countries. Finally, some ECS operators choose to commercialise their premium content rights beyond their customer base, without requiring the purchase of an ECS. All these actors potentially benefit from economies of scale, as their potential audience is the whole population in the country, or even transnational. Competition for providing premium content on a standalone basis could impair the larger ECS providers' capacity to leverage their market position on the ECS market using the provision of premium content. Indeed, it could, for example, allow for smaller ECS providers' clients to also access premium content: although the premium content exclusively commercialised by larger ECS providers would remain out of their reach, they would have access to a variety of other premium content, which they might consider as potential substitutes.

2.2.4. Conclusions on premium content/ECS bundling practices

In the majority of the surveyed countries, bundling is used by ECS providers to commercialise premium content and this trend appears to be on the rise generally. Exclusivity agreements

are widespread for sports and, to a lesser extent, for films and TV series. The larger ECS providers are the most able to offer premium content under exclusive terms bundled with ECS. TV content is not the only type of content offered in combination with ECS, as in some countries music streaming services and online newspaper subscriptions can also be bundled with ECS. Whether or not the bundling of premium content with ECS affects competition in the ECS market depends on the ability of all actors to compete effectively with the bundled offers of large ECS providers. In this context, the role of premium content actors that do not tie the access to their content with the purchase of an ECS²⁸ is highly relevant.

For consumers, bundling of premium content with ECS can be especially beneficial for those who are interested in both the premium content and the ECS that are offered together (provided that they are facing competitive offers). However, this may not be the case for other consumers interested only in ECS.

Bundling of premium content with ECS can be beneficial or detrimental to consumer welfare, depending on the particular circumstances; assessments must be made on a case-by-case basis, as they will depend on a number of elements, such as the market structure for both ECS and premium content, the market positions of the actors involved, the nature of the underlying agreement between ECS providers and premium content providers (e.g. whether or not the agreement provides for exclusivity), the replicability of the bundle by competing ECS providers and the availability of the premium content to customers of competing ECS providers.

2.3. Regulation and National Cases

2.3.1. EU and national provisions

Audio-visual content in Europe is regulated in general terms under the Audio-visual Media Services Directive (AMSD)²⁹, which is focused on different issues not related to its impact on ECS, but on aspects such as advertisement, protection of minors, freedom of speech, and promotion of European audio-visual productions. This Directive has been transposed to national legislation in all the EU Member States. All the issues discussed in this report about how commercialisation of (premium) content by ECS providers may impact competition among ECS providers are beyond the scope of this Directive.

Consistent with the current regulatory framework, in specific cases in the European Economic Area (EEA), there are national provisions for content that is considered to have a special public interest and which is selected to be broadcast free of charge. For instance, these provisions may include certain exceptions for this content or obligations (such as “must-carry” obligations). However, in general, the national provisions in European countries do not directly address exclusivity for premium content, nor do they address their impact on competition in ECS markets.

²⁸ These may include satellite pay-TV providers, traditional broadcasters, OTT players, but also ECS providers when they do not restrict the access to their exclusive premium content to their ECS customers.

²⁹ See European Parliament and Council Directive 2010/13/EU of March 10, 2010 on the coordination of certain provisions laid down by law, regulation or administrative action in member states concerning the provision of audio-visual media services (Audio-visual Media Services Directive). The directive applies to audio-visual media services, either scheduled or on-demand services, provided that they are “mass media” meaning that they must be intended for reception by, and could have a clear impact on, a significant proportion of the general public.

With regard to the specific issue addressed in this report, the impact of content markets on ECS markets, this has been addressed in the past by both NCAs and some NRAs. Some case studies about these national considerations are outlined in the following sections.

BEREC notes that competition issues regarding content are mainly in the scope of Competition Authorities (national authorities or the European Commission, depending on the geographic scope). Some ex-ante regulatory authorities (NRAs) also act as Competition Authorities regarding broadcasting or other regulatory issues, as is the case for ACM in the Netherlands, CNMC in Spain or OFCOM in the United Kingdom. .

2.3.2. Cases under competition law

Several procedures were opened or are still open by NCAs regarding bundling of ECS and premium content. Some relevant examples are described in the following case studies that have been identified by NRAs.

Portugal

Regarding football rights in Portugal, between 2013 and 2015, the NCA (AdC) conducted an investigation into the agreements between the football league and the intermediary that is traditionally in charge of reselling the rights for a pay-TV sports channel and found that they may give rise to a risk of foreclosure due to the lengthy exclusivity agreement³⁰. The investigation was closed with the adoption of a Commitment Decision: the intermediary committed to give the football clubs the right to terminate their contracts without penalty and committed not to acquire media rights on an exclusive basis for periods longer than three football seasons.

More recently, the four operators in the Portuguese market for pay-TV and multiple-play offers entered into an agreement to grant access to the acquired and future media rights of the main football league and share the purchasing costs of such rights. The NCA opened a procedure, (analysis is still ongoing) to assess whether this horizontal agreement could raise concerns with regard to collusion or market foreclosure³¹.

Belgium

In Belgium, after one of the broadcasters transferred its broadcasting rights to a cable operator, certain sports events were only available to the cable operator's customers, whereas they were previously available to every ECS providers' customers. This exclusivity clause was annulled by the NCA³².

Switzerland

³⁰ Case PRC/2013/02 CIM, Olivedesportos e PPTV:
http://www.concorrenca.pt/vPT/Praticas_Proibidas/Decisooes_da_AdC/Documents/Decis%C3%A3oPRC201302.pdf.

³¹ See:
http://www.concorrenca.pt/vPT/Noticias_Eventos/Comunicados/Paginas/Comunicado_AdC_201611.aspx?lst=1&Cat=2016.

³² Case MEDE-V/M-15/0024:
<https://www.bma-abc.be/sites/default/files/content/download/files/2015vm65-bma-pub.pdf>.

In Switzerland, a sports rights holder had an exclusive agreement with the incumbent ECS provider and provided only a limited set of content to other ECS providers' customers. The NCA sanctioned Swisscom with a CHF 70 Million fine and, in the same year as the enquiry ended, the sports rights were reallocated³³.

United Kingdom

In November 2015, Ofcom removed the obligation on Sky to provide premium paid sports television content to other pay-TV providers on a wholesale basis, in light of the wide range of commercial arrangements for Sky Sports 1 and 2³⁴. The obligation stemmed from the review of the pay-TV market in the UK that Ofcom concluded in March 2010³⁵ using its legal powers regarding the audio-visual sector. More recently, in February 2016, Ofcom published the initial conclusions from its Strategic Review of Digital Communications, where it made a public commitment to monitor the pay-TV market³⁶. Furthermore, Ofcom currently produces an internal six monthly report that covers the key trends and developments in the pay-TV market.

Germany

The media rights for the German football league have been the subject of antitrust proceedings several times in the past. The last decision, from April 2016³⁷, includes a commitment of the German football association (DFL) for a "No single buyer rule". This commitment means that from 30 to 102 matches of the season (in which there are 306 matches in total) have to be acquired by a second company. The result is that, from the 2017/2018 season onwards, there will be two media companies (Sky and Discovery) conducting live broadcasts of the Bundesliga. Two of the main ECS providers (Deutsche Telekom and Vodafone, both with an IPTV offering) negotiated a partnership with Sky in the past, so that their customers could also watch Bundesliga football.

³³ Case 32-0243 Swisscom, , CT Cinetrade AG and Teleclub AG:
<https://www.newsd.admin.ch/newsd/message/attachments/44078.pdf>

³⁴ "Review of the pay TV wholesale must-offer obligation":
https://www.ofcom.org.uk/_data/assets/pdf_file/0022/76081/Review-of-the-pay-TV-wholesale-must-offer-obligation-.pdf?lang=en

³⁵ See https://www.ofcom.org.uk/_data/assets/pdf_file/0021/55470/paytv_statement.pdf

³⁶ "Making communications work for everyone Initial conclusions from the Strategic Review of Digital Communications":
https://www.ofcom.org.uk/_data/assets/pdf_file/0016/50416/dcr-statement.pdf

³⁷ Case B6 - 32/15 German League Association and German Football League:
<http://www.bundeskartellamt.de/SharedDocs/Entscheidung/DE/Entscheidungen/Kartellverbot/2016/B6-32-15.html>

Romania

In Romania, all sports rights were previously sold exclusively to one broadcaster, leading to market foreclosure. The national competition authority forced the rights holder to divide its offer into various packages, with exclusive or non-exclusive offers, and auction those rights in an open, transparent and non-discriminatory manner³⁸. Here again, it was forbidden for all the rights to be bought by a single broadcaster.

Croatia

An investigation into a similar case is also being conducted in Croatia, where sports rights for the for premium content football coverage were sold exclusively to one operator, HT (owned by Deutsche Telekom). The national competition authority has opened an investigation in order to determine whether this exclusivity restricts market competition.

Merger control

Regarding merger control, several cases related to premium content and ECS occurred in the EEA countries. For example, in Portugal, AdC blocked a vertical merger whereby the former incumbent intended to enter the already existing joint venture between ZON Optimus and Controlinveste (that already combined ECS and media activities). The merger raised serious competition concerns, both in terms of vertical and coordinated effects³⁹.

In Belgium, when Telenet (a cable network operator) acquired the pay-TV channel Canal+ N.V. in 2003, conditions were imposed, such as a must-offer obligation with regard to the Canal+ channel and an access obligation to its network.

In Spain, an interesting case is the acquisition of DTS (former leading satellite pay-TV provider and main rights holder of premium content at a national level) by Telefónica in 2015. In its preliminary findings, CNMC considered that the proposed merger could potentially restrict competition in various ways: DTS would be eliminated as Telefónica's main competitor for pay-TV services and for the acquisition of audio-visual content, DTS's pay-TV services could be bundled with Telefónica's ECS, and Telefónica could stop providing some of DTS's channels that had previously been licensed to its ECS competitors. Additionally, Telefónica's strengthened position in the pay-TV and audio-visual content markets could be leveraged onto fixed and mobile communications markets in the light of the increasing importance of convergent offers⁴⁰.

CNMC imposed a series of conditions on Telefónica. Regarding premium content, among other compromises, exclusive rights were limited to three years, Telefónica must forgo any rights of first refusal and it must make its "own" premium TV channels available to competing

³⁸ Romanian Competition Authority (Consiliul Concurenței), 19 April 2011, Decision n° 13, Romanian Football Federation (Federația Română de Fotbal) (FRF) and Romanian Professional Football League (Liga Profesionistă de Fotbal din România - LPF):

<http://www.consiliulconcurentei.ro/uploads/docs/items/id6401/decizie.pdf>.

³⁹ Controlinveste*ZON*PT / Sport TV*PPTV*Sportinveste:

http://www.concorrenca.pt/vPT/Noticias_Eventos/Comunicados/Paginas/Comunicado_ADC_201410.aspx.

⁴⁰ Case C/0612/14: TELEFÓNICA/DTS:

<https://www.cnmc.es/expedientes/c061214>.

pay-TV operators (including OTT providers) on a non-exclusive basis and under “fair, reasonable, objective, transparent and non-discriminatory terms”. This wholesale offer must include any channel which is part of Telefónica’s retail premium offer, including free-to-air broadcasting and SVOD⁴¹ channels. Competitors may purchase up to a maximum of 50% of the available content and can freely decide on the channel mix. Each of these channels must also be available individually on-demand by Telefónica’s IPTV subscribers.

2.3.3. Cases in the scope of the ECS framework

The telecommunications regulatory framework is focused on ECS, and premium content is not included in its scope. This implies that most NRAs do not have any power to intervene directly on competition issues related to premium content provision and rights management, although those with powers that extend to audio-visual markets can also act on content issues not directly related to ECS.

However, as explained in the previous sections, ECS operators are bundling premium content with ECS. This allows for a limited intervention by NRAs, focused on ex-ante regulation, as is the case for the replicability of bundles including ECS and premium content.

To this end, the vast majority of NRAs have not opened any procedure to address ex-ante competition concerns that could potentially arise from the commercialisation of premium content by ECS providers. At this moment, just three NRAs (Ofcom in the UK, ACM in the Netherlands and CNMC in Spain) have addressed such concerns in the context of either specific procedures or the review of wholesale markets that are susceptible to be regulated on an *ex-ante* basis. Replicability is also assessed in Croatia, where HT and its affiliated companies are obliged to communicate their retail offers to HAKOM prior to their commercialisation (i.e. such offers, including bundles, are subject to an ex ante margin squeeze test to allow HAKOM to assess replicability).

In 2017, ACM carried out a study concerning the effects on competition resulting from both bundling (including fixed-mobile) and adding exclusive content to bundles⁴². ACM performed such a study, among other reasons, because it had received complaints from ECS providers and other market players about the commercialisation of exclusive content. ACM considered such concerns by focusing on the relationship between the telecoms sector and content markets. ACM could not draw firm conclusions about the presence of serious competition issues at the current stage. However, bearing in mind that the market is rapidly changing, ACM also stressed that the competitive landscape could change in the near future and therefore it will continue monitoring the market.

In Spain, based on the decision of February 2016⁴³ concerning the review of wholesale markets 3a, 3b and 4, CNMC imposed on Telefónica an obligation (among others) to

⁴¹ SVOD: Subscription Video On Demand.

⁴² “*Bundling of telecom services and content in the Netherlands: analysis of possible consequences for competition*”, July, 2017: <https://www.acm.nl/en/publications/publication/17560/Study-into-bundling-of-telecom-services-and-content-in-the-Netherlands/>

⁴³ Resolución por la cual se aprueba la definición y análisis del mercado de acceso local al por mayor facilitado en una ubicación fija y los mercados de acceso de banda ancha al por mayor, la designación de operadores con poder significativo de mercado y la imposición de obligaciones específicas (ANME/DTSA/2154/14/MERCADOS 3a 3b 4): https://www.cnmc.es/sites/default/files/1511874_12.pdf.

communicate their retail broadband offers prior to their commercialisation. Telefonica must therefore communicate every offer, including bundles with premium content, in order to allow CNMC to assess replicability.

In order to assess replicability, the valuation of audio-visual content regarding the costs of channels included in Telefónica's wholesale offering is done at their wholesale price, called Cost per Subscriber (CPS). As for audio-visual content not included in the wholesale offering, CNMC applies the Equally Efficient Operator (EEO) standard and values all channels, premium or not, by referencing to Telefónica's production and acquisition costs (as stated in existing contracts) over a conservative, but prospective, horizon. The costs information submitted by Telefónica must satisfy the assignment, allocation and recognition criteria laid out in the Telefónica/DTS merger commitments for the wholesale offered referred in the previous section.

In the UK, Ofcom considered it appropriate to include in a margin squeeze case the costs related to premium content (in particular of BT Sports rights) when assessing the Virtual Unbundling Local Access (VULA) margin⁴⁴. Ofcom presented evidence that shows that BT's investment in BT Sport is closely linked to its strategy in retail broadband to maintain and grow its superfast broadband customer base. In Ofcom's view, excluding BT Sport from the Economic Replicability Test would leave a 'gap' in the test which would allow BT to set a margin that is insufficient for an (adjusted) EEO to compete profitably against BT's superfast broadband packages, where these are bundled with (free) access to BT Sport.

2.3.4. Interesting cases in non-EEA countries

Outside of Europe there have been several examples of telecommunications operators acquiring or merging with content rights holders/providers, so as to vertically integrate media into their product portfolios. The US experience in this field is most illustrative, as there have been three major cases over the last decade, all of which have attracted significant attention by competition and regulatory authorities. A short description of these three cases is provided below⁴⁵.

Comcast's acquisition of NBC (2011)

In December of 2009, following a failed hostile takeover of Walt Disney Studios in 2004, Comcast announced its intention to acquire a majority share in NBC Universal (which had formed after the merger of NBC and Universal Studios) from General Electric. The move received considerable attention at the time and was subject to scrutiny from both the Federal Communications Commission (FCC) and the Department of Justice (DoJ), as there were concerns that the resulting firm could limit competition in both telecoms and media markets. The deal was finally approved in January of 2011 after Comcast agreed to regulators' proposed remedies, which included relinquishing all management rights associated with NBC's minority stake in Hulu, the OTT streaming service, and which were set to be in effect until 2018. In 2013, Comcast increased its stake in NBC Universal by purchasing the remaining 49%, achieving total control of the media firm, placing it among the largest media-telecoms conglomerates in the world.

⁴⁴ See case UK/2015/1692.

⁴⁵ Source: Cullen International, 2017.

AT&T's acquisition of DirecTV (2014)

In May 2014, AT&T announced its acquisition of DirecTV, the largest pay-TV platform in the US (with satellite, cable and OTT audio-visual services). The deal was completed a little over a year later for a total of \$48.5 billion and the resulting entity surpassed Comcast as the largest vertically-integrated telecoms-media company in the US, while also becoming the largest pay-TV service in the world. As with the Comcast-NBC merger, the FCC intervened to ensure that the deal did not harm consumers or limit competition in any relevant markets. In July 2015, the merger was approved, subject to a series of conditions, which included fulfillment of the net neutrality guidelines, offering unbundled broadband services to low-income customers, increased reporting on the company's wholesale agreements and investment commitments to expand both companies' networks to 12.5 million new customers.

AT&T's proposed acquisition of Time Warner (2017)

The trend towards vertically integrated telecoms-media companies had continued to develop with the announcement of an \$85.4 billion merger between AT&T and Time Warner (the third largest media company in the world). Announced in October 2016, and approved by Time Warner shareholders in February 2017, if cleared, the deal will further expand AT&T's audio-visual portfolio with production companies such as HBO or the news outlet CNN. Although it is not expected that the FCC will review the merger, the DoJ is still assessing the need to impose remedies and the merger's approval is pending the conclusion of this investigation at the moment of writing the present report.

These three cases in the United States illustrate that the trend for telecommunications operators to enter into the content market and complement their offer of electronic communication services is not exclusive to Europe.

2.3.5. Conclusions on regulation and national cases jurisprudence

Premium content is regulated in Europe by a set of European and national bodies. All audio-visual content is regulated in general terms under the Audio-visual Media Services Directive (AMSD) and its corresponding national transposition. The Directive applies to audio-visual media services, either scheduled or on-demand services, and it covers aspects such as advertisement, protection of minors, freedom of speech and promotion of European audio-visual productions. Additionally, there are national provisions for certain content that is considered to have a special public interest and which is selected to be broadcast free of charge. For instance, these provisions may include certain exceptions for this content or obligations (such as "must-carry" obligations). However, in general, these national provisions in European countries do not directly address competition issues among ECS providers when providing premium content bundled with ECS.

Competition Authorities (European Commission and NCAs) play a key role in addressing competition issues related to premium content. Several competition authorities have addressed competition issues related to the risk of foreclosure arising from lengthy, abusive or exceedingly wide exclusivity agreements for premium content, especially for sports. Additionally, several mergers or acquisitions between premium content providers and ECS providers have been considered in the EEA countries. In Some cases these M&As have been blocked or have led to other regulatory interventions, such as commitments or limitations of exclusive rights and obligations to sell specific premium content to other actors.

The ECS regulatory framework applied by NRAs does not explicitly address premium content issues, and the vast majority of NRAs have not opened any procedure to address competition concerns that could potentially arise from the commercialisation of premium content by ECS providers. However, when regulating markets 3a, 3b and 4, NRAs are allowed to apply economic replicability tests for retail bundles including ECS and other services to avoid margin squeeze situations.

3. Devices and openness of the Internet

3.1. General aspects

This report also analyses the industry of devices connected to the Internet with reference to issues linked to the openness of the Internet, as such issues fall under the scope of NRAs' mandate. BEREC has been deeply involved with the subject of the openness of the Internet with regard to Internet access services since 2010⁴⁶. BEREC provided input to the EU institutions during negotiations on the Telecoms Single Market Regulation, which established new rules, and BEREC provided guidelines for their application.

The openness of the internet has been an important driver for innovative services in the past years. In particular, it contributes to the emergence of start-ups and the overall productivity of the European economy. On 30 April 2016, the European Regulation 2015/2120 on open internet access became applicable. This Regulation aims “to protect end-users and simultaneously to guarantee the continued functioning of the internet ecosystem as an engine of innovation”⁴⁷. It enshrines in particular the right for end-users “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 provider’s location or the location, origin or destination of the information, content, application or service, via their internet access service”. At the same time, it provided a framework for practices to be implemented by providers of Internet access services in the management of their networks⁴⁸. Thus, this Regulation is focused on the neutrality of the networks managed by the providers of Internet access services. However, in the chain that connects end-users to Internet content, information and applications, there are several other essential links.

First, content and application providers generally deliver their data to reach users via hosting companies. These hosting companies either interconnect with the different Internet Access Providers (ISPs) or use transit operator services to reach end-users⁴⁹. Second, end-users are

⁴⁶ For example, BEREC explored issues such as transparency, competition, quality of service, quality monitoring and IP interconnection. BEREC also carried out an investigation into traffic management practices and published research into how consumers value net neutrality.

⁴⁷ See:

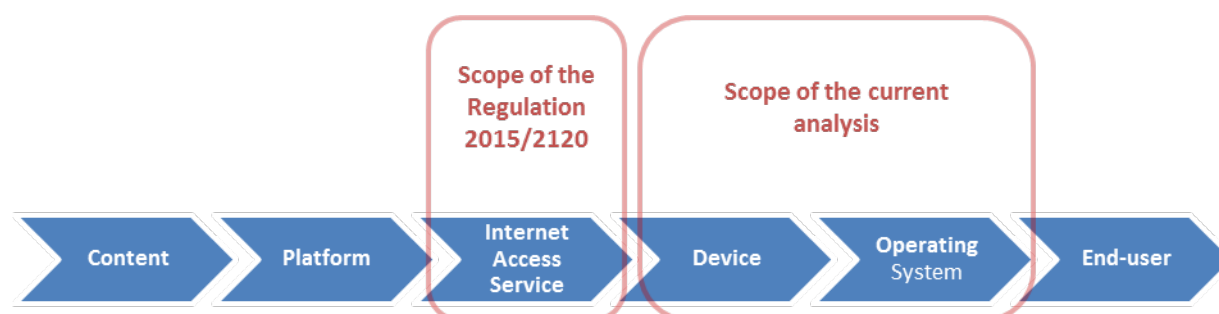
<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015R2120&from=DEhttp://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32015R2120>, p.1.

⁴⁸ The Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 and BEREC’s Net Neutrality Guidelines (BoR (16) 127) of 30 August 2016 concern safeguarding equal and non-discriminatory treatment of traffic in the provision of internet access services. Indeed, according to article three, paragraph three of the EU Regulation 2015/2120, providers of internet access services shall treat all traffic equally 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 (p. 8).

⁴⁹ They can also connect directly using their own CDN or a third-party CDN to reach end-users.

connected to the network via one or several physical devices⁵⁰, either mobile or fixed. Finally, online platforms (such as app stores) and the device's operating system (OS) channel Internet content to the end-user. Regarding online platforms, they are a subject of interest for the European Commission, as they are deemed to “*play a key role in innovation and growth in the Digital Single Market*”⁵¹. As far as hosting companies and transit operators are concerned, they mainly target business customers, and are considered to operate in a sufficiently competitive market⁵². On the contrary, devices, along with the software environment tied to them, concern mainly the general public. According to the Regulation, end-users should have the right to use the device of their choice to access information, content, applications or services via their internet access service. This is the focus of the present analysis, as set out in figure 3 below.

Figure 3. Scope of the analysis



Within this report, BEREC takes an approach based on a wider view of the concept of openness of the Internet, as the report does not only refer to the openness of access to the Internet in itself, but also to other elements necessary for the provision of Internet-based services. In particular, this report analyses potential restrictions or potential bottlenecks for the end-user stemming from devices, OS and app stores. The report is focused on how the right to access and distribute Internet content, information and applications without discrimination can be in practice experienced by end-users, which is referred to in this report as the concept of an open *use* of the Internet.

As such, this section of the report does not concern issues that are within the NRAs' regulatory powers derived from the Regulation 2015/2120. It merely aims to consider potential limitations to the general objective of the openness of the Internet in terms of how end-users actually experience it through the use of their devices. However, it should be noted that those limitations do not necessarily cause a negative impact on end-users' experience. Indeed, those limitations often derive from innovation, or result from a deliberate choice made by the end-user, and therefore do not necessarily raise concerns. Some other limitations are purely hypothetical and might never materialise. Nevertheless, NRAs may find a purely prospective discussion such as this one useful, where the analysis focuses on the way in which some features of connected devices may interfere with the general objective of the openness of the Internet, in order to identify possible future issues and to explore how NRAs could keep themselves informed about developments in this area.

⁵⁰ In this regard, the devices included in the scope of this report are the following: smartphones, tablets, set-top boxes, IPTV boxes, computers, virtual assistants, game consoles, smart TVs, as well as other connected objects offering access for the end-user (connected watches, e-readers, etc).

⁵¹ See http://europa.eu/rapid/press-release_IP-16-1873_en.htm.

⁵² See BEREC Report on IP-Interconnection practices in the Context of Net Neutrality (BoR (17) 111).

3.2. Development of devices enabling connection to the Internet

The device industry and the ECS sector share a common and linked evolutionary path. The European market for electronic communications devices was deeply transformed by the process of liberalisation since 1988. Since then, the former incumbent ECS providers lost their monopoly on the import, commercial exploitation and maintenance of telecommunications terminal equipment⁵³. This separation of network and the retail customer devices led to an innovative push in the following years. The next big step took place in the 1990's, when end-users started to acquire mobile telephones and to connect their home to the Internet via personal PCs.

The rollout of the GSM (Global System for Mobile communications) standard enabled the widespread use of mobile telephony in Europe. Consumers were soon attracted to the technology and by the year 2000, approximately one in two Europeans had a mobile subscription⁵⁴. When SMS (*Short Messaging Service*) was introduced to consumers as a new alternative means of communication, usage subsequently soared.

In parallel, consumers started to use the Internet through their personal computers. In 2002, about a third of EU households had Internet access. By 2010, this figure had jumped to about 7 out of 10 households⁵⁵. Around this time, although a few mobile Internet access packages were made available, use of the Internet remained largely limited to fixed computers⁵⁶.

The following years witnessed the emergence, and mass adoption, of smartphones⁵⁷. These new devices, with their touch-screens and various sensors, offered new possibilities to consumers: now they were able to browse the web while on the move. Furthermore, the combination of Internet access and sensor data from the device (e.g. GPS) enabled new, innovative services (e. g. marketing services based on location).

The arrival of smartphones was followed by other new mobile devices, such as tablets, offering consumers yet another mobile option to connect to the Internet, bringing their use closer to the desktop experience.

The success of these devices has completely changed the fixed nature of access to the Internet. Fixed computers no longer represent the main point of access to the Internet. Mobile access to the Internet has developed to the point that mobile phones are now the devices most used to surf the Internet⁵⁸. A study⁵⁹ showed that the share of time spent on the Internet worldwide via mobile devices went from 40% in 2012 to 68% in 2016, and is expected to rise even further, to reach 79% in 2018.

⁵³ Source: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM:l24119a>.

⁵⁴ Source: European Mobile Industry Observatory 2011, GSMA.

⁵⁵ Source: Digital Scoreboard. Note that the figure obtained for 2002 does not encompass all the EU28 members.

⁵⁶ In 2010, around 10% of individuals in the EU28 had accessed the Internet at some time in the previous 3 months through a mobile phone via UMTS (3G). Source: Digital Scoreboard.

⁵⁷ See for example GSMA, Global mobile trends, available at:

<https://www.gsmaintelligence.com/research/?file=357f1541c77358e61787fac35259dc92&download>

⁵⁸ http://europa.eu/rapid/press-release_STAT-16-4477_en.htm

⁵⁹ Study *Mobile Advertising Forecasts*, Zenith.

Smartphones and tablets have offered new ways to access information and content from the Internet. For example, content has become accessible in the form of apps, i.e. free or paid-for downloadable software, particularly adapted to the ergonomics of mobile devices' touch screens. Such apps also make full use of other sensors and functionalities offered by mobile devices – e.g. motion sensors or access to the camera sometimes providing more functionality than traditional websites. Within a decade, the way consumers access information and content on the Internet has radically changed: when accessing the Internet, web-browsers are now less relevant than apps. For example in 2016 in the US, according to ComScore⁶⁰, nearly 60% of the time spent on the Internet involved using apps. This proportion is even higher if only time spent on smartphones and tablets is considered. This renders app stores a critical point of access to content and information on the Internet.

Additional means of using the Internet have also been developed over the last 10 years. Many electronic devices not initially designed to browse the Internet have evolved and now let users reach or share information and content on the Internet. Such is the case with certain games consoles and smartTVs nowadays.

The early 2010s witnessed another stage of innovation regarding devices: the intelligent personal assistant⁶¹. More and more devices are now equipped with such features, responding to voice commands, providing end-users with a new way of getting access to Internet content and interacting with their devices. The use of intelligent personal assistants is expected to expand in new fields, such as the Internet of Things (IoT).

More generally, the fast pace of innovation observed on the device market is likely to continue or even accelerate, possibly leading to the development of new habits regarding access to Internet content. Analysing the compatibility of these new habits with an open use of the Internet could therefore be of interest for NRAs in the future.

3.3. Interactions between devices and the open use of the Internet

The objective of this analysis is to describe how devices and their embedded OS may influence the type of content accessible to end-users and, in particular, to identify potential bottlenecks that end-users may face with regard to an open use of the Internet. Some obstacles may derive from technical constraints, while some others may derive from ergonomics considerations, or commercial practices.

In this regard, one should take into account that when end-users acquire a device, they will make their choice in accordance with their intended usage plan. For example, whilst a smartphone offers multiple functionalities that are not available on fixed devices, it may not offer a practical way to develop applications or to host content. This choice will have direct consequences on the access to, and supply of Internet content, information, applications and services. It may also involve an element of brand loyalty and could raise switching costs at the time when a user purchases a new device. For instance, willingness to switch may be affected by the knowledge acquired under a certain OS and the ease of transferring settings and apps. The potential limits that go along with this choice seem to be generally known and

⁶⁰ Source: ComScore - Media metrix multi-platform & Mobile metrix, U.S., total audience.

⁶¹ For example, Apple's Siri, Google Assistant, Amazon's Alexa or Microsoft's Cortana.

accepted by consumers, and therefore are not likely to raise any specific concern. However, the same may not apply if certain end-users were to find that they face restrictions in their usage of the Internet, even though they chose the most open environment available to them.

Thus, this section of the report seeks to identify the limitations and bottlenecks that could potentially be faced by certain end-users, taking into account the importance of preserving an open Internet environment.

Two levels of potential restrictions could be considered when end-users wish to access Internet content through a given device: the content could either be completely inaccessible, or it could be barely accessible in practice⁶². These potential restrictions can derive from different sources, as analysed in the following sub-sections.

3.3.1. Apps

The success of apps, which are now the main way of accessing Internet content on mobile devices, can be linked to the fact that they are more adapted to the design of certain devices and, therefore can provide a better experience for consumers. It is, however, in the nature of apps that their use is often intrinsically more controlled and restricted than the use of general-purpose web-browsers, as apps are designed to provide a specific service in a convenient way. While this simplifies consumers' experience, it may also reduce the control they have over the available information and the way this information is managed and displayed compared to a web-page. This is accompanied by the fact that certain OS providers pre-install some apps to device manufacturers, beyond the ones that are indispensable for the device to function. Those apps are sometimes impossible to deactivate or to suppress, thereby conditioning user experience. For example, the by-default pre-installed search engine cannot always be configured in accordance to the device manufacturers' preferences. This effect is reinforced by the fact that consumers tend to use a limited number of apps – about half a dozen on a regular basis⁶³ – and, as the European Commission has noted, consumers rarely download apps that would provide similar functionalities to an app that is already pre-installed⁶⁴.

The development of intelligent personal assistants goes even further in this direction, as such services provide a particularly smooth and simplified experience, but at the expense of the end-user's control: for example, for the sake of efficiency and to avoid an overload of information, a voice assistant usually provides a limited number of responses to an enquiry (usually not more than one or two responses). The algorithm used to find such an answer is not necessarily transparent. This is a more extreme version of the effect already observed on

⁶² For example, it can be the case that Internet content comes in a specific format that is not supported by the device. In this case, the content is completely inaccessible. It can also be the case that Internet content is barely accessible in practice, for example on a smartphone where an ergonomically adapted app is not available for a given Internet content. In this case, it can usually still be accessed through a traditional web browser, but in some cases the web version is not well adapted for use on a mobile device. In this case, the content is in theory accessible, but in a very inconvenient way – it can then be considered to be "barely accessible". Another example would be the case of an app that cannot be easily found on an app store because of its low ranking – which can derive from users' notation, but could also derive from the app store non-transparent algorithms.

⁶³ Indeed, a study by Google and the Mobile Marketing Association (*Global Perspectives: The Smartphone User & The Mobile Marketer*, June 2011) illustrated that users actively use only about ten apps on a monthly basis. More recently, the Forrester's US Consumer Technographics Behavioral Study, published in 2015, showed that each user's top five most used non-native apps represent 84% of the total time spent using apps. See also Localytics survey, conducted by Research Now in October 2015, which reported that 90% of US smartphone app users use less than 10 apps on a weekly basis.

⁶⁴ See: http://europa.eu/rapid/press-release_MEMO-16-1484_en.htm.

search engines – which is not specifically related to devices – as consumers rarely explore past the first page of results from an enquiry.

3.3.2. App stores

The use of an app store in a given OS can be inevitable for technical reasons as it is important to ensure that the apps are compatible with the OS for certain mobile devices to work properly and without security risks. However, it may also constitute a bottleneck in the Internet use, since it may involve selecting content published on the store based on other considerations, such as commercial interests. Depending on the terms and conditions of the app store, as well as its editorial policy, some Internet content may not be accessible on a device — at least not with the convenience necessary for mobile devices that is offered by the app format.

In fact, the imposed terms and conditions have led to some complaints regarding a potential restriction to access app stores, allegedly for competition reasons. For example, a music streaming service (Spotify), competing with a vertically integrated service of an app store provider (Apple Music), claimed that an anti-competitive strategy was behind the decision to reject a version of its app⁶⁵. Some complaints were also made regarding censorship, especially as the judgement about what is considered “objectionable content” is subjectively assessed by a private company and might go beyond what is legally required⁶⁶. The way in which the various apps are displayed in an app store (i.e. whether they are included among the highest ranking apps) is also up to the app store provider. More generally, app stores could change their terms and conditions instantly. Although one might tolerate the restrictions applied today, or consider them desirable, as they help to guarantee the quality of the apps selected, one should also have in mind that those restrictions could potentially be altered overnight. In short, app stores act as gatekeepers, enabling or hampering access to apps (and consequently to the information and content specifically adapted to certain user interfaces or exclusively available in an app format).

Such a constraint could be of particular relevance if end-users have, in practice, few options to choose from in terms of app stores. The number of app stores is actually impacted by the number of OSs available. Indeed, in some cases, the OS is natively linked with a specific app store. Therefore having few available OSs – which is warranted by strong network effects⁶⁷ – can potentially restrict the number of app stores available to consumers. This is the case, in particular, for Apple products, as Apple uses an “integrated” business model, where only the app store controlled by Apple is authorised on their devices. Therefore, in this business model,

⁶⁵ As reported by the press in 2016. See for example <https://www.ft.com/content/28b0dfae-3f44-11e6-9f2c-36b487ebd80a>.

⁶⁶ For example, in May 2015, the app of France Musique (a state-owned radio station) was temporarily removed from an app store after one of its podcasts displayed the painting *Olympia* by Manet. As of today, its download is still restricted to customers aged 17 years or above. As so-called “mean-spirited” content can also be rejected on this app store, satirical or political content can also sometimes fall in a grey area.

⁶⁷ The scarcity of OSs is warranted by the presence of network effects and switching costs, which tend to make it more difficult for smaller players in the OS market. Indeed, having to develop different versions of an app can be burdensome for developers. They thus have the incentive to first develop a version for the OS adopted by most consumers: the already most popular OSs are therefore likely to offer the highest quantity of content and applications. This in turn attracts consumers to these OSs, as they value having a large choice of content and applications available on their device. This network effect, combined with the switching costs that all end-users face if they want to change OS, naturally drives smaller players out of the market and restricts the number of OSs that can actually co-exist in the long-run. See for example: http://europa.eu/rapid/press-release_MEMO-16-1484_en.htm. As of today, the choice appears to be limited: there were more than 7 mobile operating systems in existence in 2009, but now Android and iOS largely dominate the market (as in January 2017, they gathered a worldwide market share of more than 90% according to StatCounter).

the company has an extended control of the device, both on the hardware and on the software side. Apple emphasises that this model helps to guarantee an end-user experience that is as smooth as possible, selling simultaneously devices and services that are optimised for each other. By contrast, Google allows several app stores to be potentially available on Android devices. If Android end-users were dissatisfied with the service provided on the Play Store, they would still have, in theory, the possibility to turn to another app store. Nevertheless, the possibility to easily switch to another app store could be questioned with regard to the average consumer, as it requires some parameters to be adjusted manually on the device. Moreover, given that Google prohibits the distribution of alternative app stores within its own Play store, the possible publicity given to alternative app stores remains limited. Possibly due to these reasons, the Play Store remains largely dominant among Android consumers⁶⁸.

3.3.3. Compatibility issues

Some programming languages and software development packages are also differently supported by different devices, impacting the Internet content and information accessible to end-users⁶⁹. The extent to which the OS provider chooses to support a given programming language can derive from a technical constraint (for example, concerns regarding security issues), but could also potentially derive from a business strategy decision, for example if vertically integrated companies are involved.

The issue of obsolescence is also to be considered for all types of devices. Indeed, OS providers can limit the number of running versions of their OS, for example to improve security, to limit costs, or to incentivise end-users to switch to a new device. In order to accelerate the extinction of an old OS version, OS providers can decide, with a system update, not to provide access to their API (applications programming interface⁷⁰) anymore, affecting application developers that do not always have the resources to redevelop the code to make up for this. End-users that did not, or could not, upgrade their OS version can then lose access to those applications. In general, obsolescence (either of applications running on older versions of an OS or of the device's hardware) can lead to the end-user having a limited access to Internet content when devices cannot be upgraded to the latest version of the OS (forward compatibility) or, conversely, when an update of the OS might affect the functioning of an application (backward compatibility). This is a common issue in the IT industry, and while it may affect the Internet content to which an end-user has access, it could also be argued that encouraging consumers to switch devices frequently also decreases barriers to entry for new players, which is, in the long-run, an important parameter for the openness of the Internet use (see part 3.4). Overall, the effect of obsolescence on the open use of the Internet is therefore unclear.

Conversely, having a large number of different versions of a single OS ("fragmentation") can also limit the Internet content and information available to end-users. This issue is particularly relevant for an OS developed with an "open-source" approach, where the code is available to all developers. For example, Android can be customised to a certain extent: overlays can be

⁶⁸ This can be illustrated by the fact that, according to Statista, 2.8 million apps were available on the Play Store in March 2017, compared to 600 thousand on the Amazon AppStore.

⁶⁹ For example, some functionalities of HTML5, which is used for many websites, are not available on Apple devices, impacting the features that can be proposed on the devices using this OS. Adobe Flash was not supported either by iOS, despite the language being widespread..

⁷⁰ API is a set of sub-routine definitions, protocols, and tools for building application software. An API makes it easier for developers to implement certain functions, since these functions are delivered via the API.

added, and forks (i.e. systems based on the open-source code that are being developed independently) can be created. On the one hand, this can foster competition and innovation, given that new versions of an OS can be developed with relative ease. On the other hand, application developers may not always have the technical capacity or resources to ensure that their content is compatible with all Android devices currently on the market⁷¹.

In conclusion, both possible strategies for OS providers regarding the issue of fragmentation (either to minimise or to maximise the number of OS versions supported) have unavoidable technical limitations regarding the access to Internet content for their end-users.

3.3.4. Potential incentives to offer a less open use of the Internet

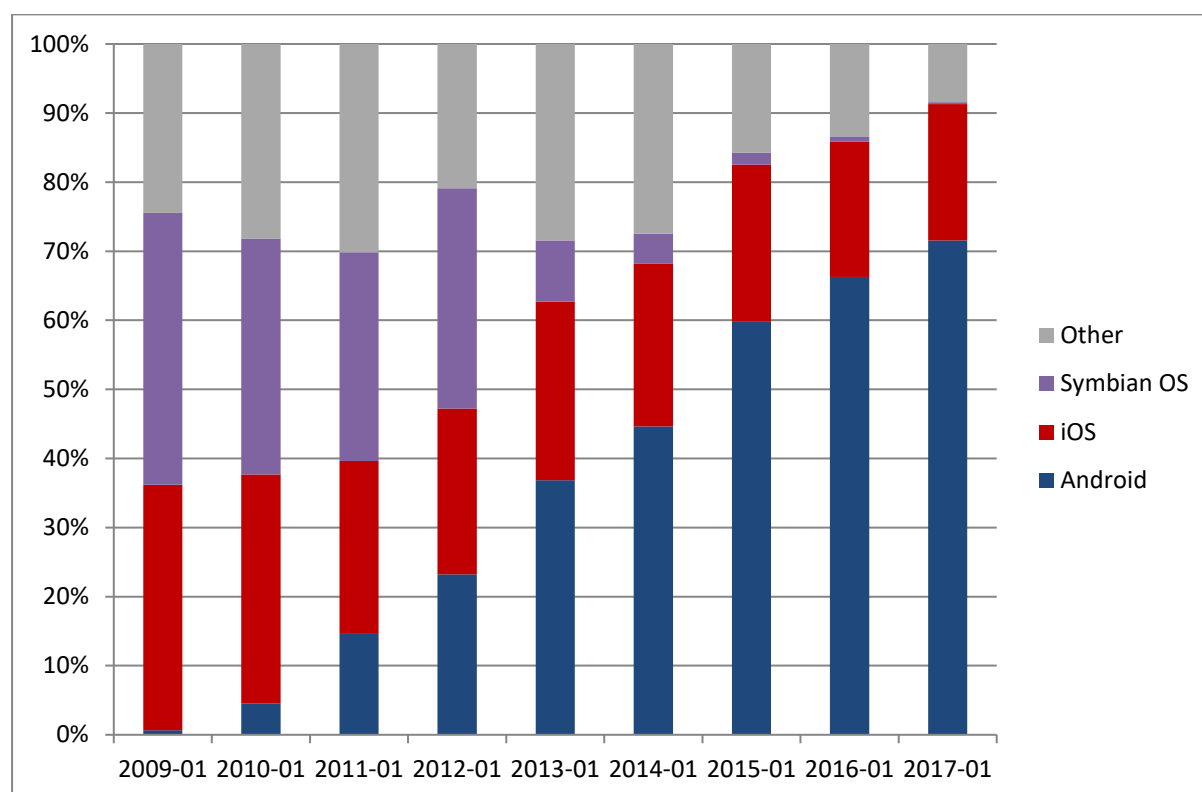
Enabling an open use of the Internet can interfere with other parameters that an OS provider has to take into account when designing a product, e.g. ergonomics, technical constraints, provision of new features, marketing strategy, etc. As long as the different actors compete on the degree of openness of Internet use that their devices enable, there is an incentive for OS providers to enable an Internet use as open as possible – or at least for one actor to offer an OS with minimal restrictions – allowing end-users to choose their favourite option. It should be noted, however, that end-users may not have countervailing market power, or OS providers may not have sufficiently strong incentives to offer the most open use of the Internet possible. In any case, OS providers must weigh up the various constraints in the design process, among which the openness of access to Internet content is only one factor among many.

More prospectively, the question of the level of competition on the OS market might also be relevant regarding openness of the Internet use on devices.

As of today, in terms of market position at the level of device sales, one can observe a steady increase of Android's market share, a small decline of Apple's market share and the progressive disappearance of alternative OS providers.

⁷¹ Google requires device manufacturers that wish to pre-install Google proprietary apps (including Google Play Store and Google Search) on any of their devices to enter into an "Anti-Fragmentation Agreement" (AFA). An AFA commits the device manufacturer not to sell devices running on Android forks. The European Commission has already expressed concerns regarding the scope of the restrictions imposed by this agreement. See: http://europa.eu/rapid/press-release_MEMO-16-1484_en.htm.

Figure 4. Market share of devices running different mobile operating systems worldwide (January 2009 - January 2017)



Source: StatCounter

It is not within the remit of this study to establish whether this level of competition is sufficient to ensure that end-users are presented with a choice of OSs with at least one satisfactory option that offers minimal restrictions to the open use of the Internet.

In principle, an OS provider with sufficient market power could have in theory a financial interest in enabling a less open use of the Internet. Indeed, if there is no competitive pressure to enable a more open access to Internet content anymore, an OS provider could find it more beneficial, for example, to filter apps based on commercial partnerships, despite the deterioration in the quality of the apps catalogue that might derive from it. It could also decide to close the access to alternative app stores. The degree to which such a strategy would be likely to be adopted depends in particular on the barriers to entry on the OS market, as those barriers determine how far the utility of end-users could decline before a challenger is likely to successfully enter the market and propose an alternative. In that regard, barriers to entry on the OS market might be high, given the level of research and development resources required. Moreover, the incumbent OS providers have a sizeable comparative advantage. Indeed, they can benefit from the network effects of their related app store(s)⁷². They can also benefit from the quantity of data on end-users' usage that they have already collected, which can be a relevant parameter in the case of models where services are improved by data collection, as well as in the case of business models relying on the monetisation of personal data by

⁷² App developers have an incentive to first develop a version for the OS already adopted by most consumers, and consumers tend to favour an OS with the most compatible apps available.

advertising. The assumption about the existence of high barriers to entry on the OS market might be supported by the the limited success of attempts to enter the market that have been observed in the past years, despite being, in some cases, led by major tech companies (e.g. Fire OS by Amazon, Firefox OS by Mozilla, or Windows Phone by Microsoft).

However, it should be noted that countervailing effects might also be at work. For example, offering a less open use of the Internet, and the negative impact this could have on consumers' utility, would also bear the risk of decreasing consumers' interest in devices with that OS. This could also become financially harmful for the OS provider. Indeed, if the OS provider benefits from a pervasive use of its product by consumers (e.g. the OS provider collects and monetises personal data), then consumers spending less time using its product could translate into less revenue for the OS provider.

As such, it is unclear what would be the optimal strategy for an OS provider regarding the degree to which it offers an open use of the Internet.

3.4. Conclusion and envisaged approaches

As previously illustrated, possible issues regarding devices posing a potential threat to the open use of the Internet in the near future might appear rather hypothetical at this stage.

To verify that these risks do not materialise, BEREC is of the opinion that monitoring of device markets and software platforms (OS and app stores) by regulatory authorities (being competition authorities or sector-specific agencies) might be useful. Monitoring can be a powerful tool in itself, as it may sometimes be sufficient to prevent the occurrence of possible market failures. The effectiveness of such monitoring, where it is deemed appropriate to implement, relies on the ability of the authority to collect the necessary data, as well as manage the resources needed for its analysis.

In general, as technology rapidly evolves in this field, light-touch options based on the publication of collected or crowdsourced data could be an appropriate possibility to explore by the authorities that would resort to monitoring. Such a "data-driven intervention" could empower consumers by helping them make informed choices. Compared to other types of regulation, it would also have the benefit of limiting administrative costs for all players (which is especially relevant for smaller players and new entrants), and of impacting every player proportionally to its size.

More generally, a close cooperation with the various relevant regulatory authorities, notably competition authorities, would be advisable, in particular if some of the risks mentioned above were to materialise.

A follow-up report in the coming years could help assess the evolution of the situation.

Annex 1- Examples of the provision of premium content in Europe

As analysed in the body of the report, in recent years ECS providers have become increasingly involved in content markets, both at wholesale (acquiring rights to distribute content) and retail (selling premium content to consumers) levels. This new trend has manifested itself in several ways, with one of the most conspicuous being the integration of premium content into operators' portfolio of bundles.

To achieve a better understanding of how audio-visual markets are impacting the EEA member states' ECS markets, BEREC surveyed participating NRAs on the regulation, distribution and retail provision of "premium content". For the purpose of the survey, this concept was defined as any audio-visual content that has certain characteristics that make them highly valuable to consumers and has the potential to make a sizeable share of end-users/subscribers switch ECS operator. Given the subjective nature of this definition, as what constitutes premium content can vary significantly from one state to another, BEREC requested that NRAs answer questions regarding the value chain for two common examples of premium content.

The first of these is the HBO series "Game of Thrones", a good example for premium series because of its wide availability throughout European markets and popularity among consumers. The second is "National Football Competitions", given that it also fulfils these criteria (availability and popularity in most of Europe).

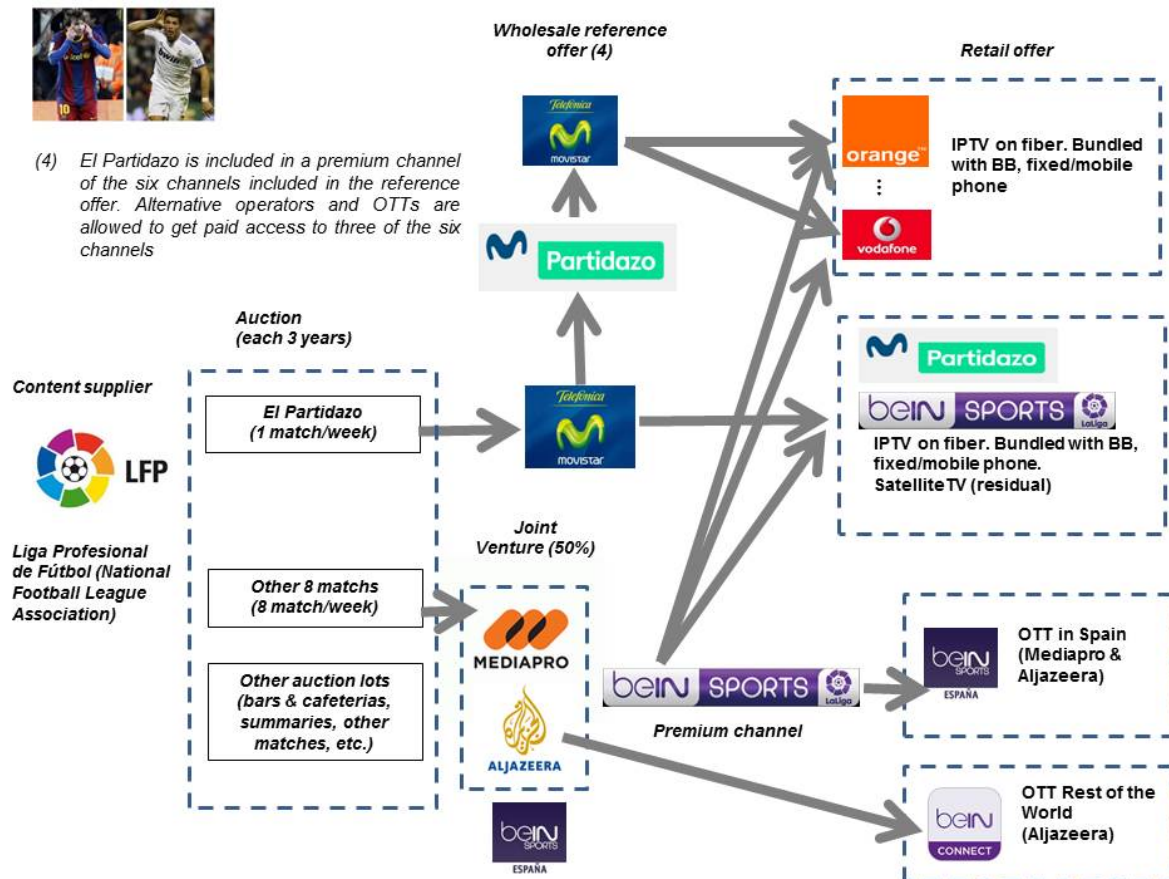
The answers to the questionnaire allowed BEREC to identify common aspects to the functioning of wholesale media rights markets and how such content is delivered to end-users. As expected, NRAs' descriptions of the value chain relevant for both types of content tended to follow the generic model used to analyse media markets (as described in section 2). At one end of the chain, content producers sell the rights to distribute their audio-visual productions to content managers or aggregators, which may or may not have their own audio-visual platform.

A relevant example can be found in Spain (see figure 5), which presents all characteristics of the value chain mentioned in section 2.1. Rights for the national football championships belong to "Liga Profesional de Fútbol" (professional football league), LPF. LPF periodically organises an auction for the rights, splitting the rights into several packages or lots. The most relevant ones are "El Partidazo" (the most important match of the week) and another package that includes 8 matches each week (El Partidazo is not included). Telefónica, the incumbent ECS provider, currently owns the rights to "El Partidazo", which is packaged into a single channel and then sold to alternative operators, as part of a wholesale reference offer put in place after it merged with a pay-TV operator. El Partidazo is not provided under an OTT model, and Telefónica and other operators include it in their bundled retail offer (IPTV-based).

On the other hand, MediaPro (a Spanish media producer) and Al Jazeera acquired the package that includes 8 matches per week. These matches are aggregated in a premium TV channel and commercialised in Spain under an OTT model under the brand "Canal Bein Sports La Liga". Additionally, the channel is resold to IPTV providers, such as Telefónica,

Orange and Vodafone (among other regional and minor operators) on a non-exclusive basis. Al Jazeera commercialises these matches in the rest of the world, including them in the “Bein Sports” international channel.

Figure 5. Value chain of national football in Spain



Interesting results were also obtained in the analysis of NRAs' answers regarding the retail end of the value-chain. Specifically, BEREC looked into what kind of market actors were involved in the retail provision of premium content – whether the firms involved operate TV broadcasting services, are OTT web platforms or also offer ECS (broadband access, mobile services, etc.).

Satellite pay-TV platforms, which can be owned and operated by ECS providers, are among the key distributors for both types of premium content. (i.e. sports events and TV series). According to the responses to the questionnaire, 18 NRAs out of 30 indicated that commercialisation of premium content on FTTH is rising, while in a relevant number of countries, premium content provision using terrestrial TV and satellite is, in general, stable or declining in most countries⁷³. In the case of “National Football”, a significant number of BEREC member countries report that the most important national football league matches are only

⁷³ Regarding satellite TV, 11 NRAs indicated that premium content provision has not experienced rise or decline, 7 indicated that it has declined and 5 indicated that it is rising. Regarding terrestrial TV, just one NRA has indicated that it is rising, while 15 have indicated that it is constant or declining.

aired on pay-TV services (being supported by fixed broadband services or by satellite TV). It is also becoming common practice in a relevant number of countries to tie pay-TV services provided by ECS operators to traditional telecoms services, such as broadband, implying that premium content is only available to consumers contracting the respective ECS services⁷⁴. In Belgium, for example, consumers must subscribe to one of three pay-TV services included in the major ECS operators' bundles (VOO, Proximus or Telenet), despite the fact that national football rights sales are not limited by exclusivity clauses. BEREC found similar situations in a number of member states, such as Switzerland, Czech Republic, the Netherlands and Spain.

The second finding, which is closely related to the first, is that OTT streaming services are also gaining a foothold in the supply of premium content. There are only a handful of countries where subscribers cannot access premium sports or top series, such as *Game of Thrones*, through online platforms. In some cases, these OTT services are operated by telecoms operators, as is the case of Movistar+ in Spain, but usually content managers or producers operate at an international level, as is the case with Netflix. Another example is HBO Go, an OTT platform used by HBO to air "*Game of Thrones*" and its other series and programmes, directly to subscribers. This platform is marketed in many BEREC member countries.

Regarding national football content, there are also a variety of OTT platforms operating in Europe. Among these, the services with the greatest international footprint appear to be beIN Sports Connect (available in France and Spain) and DAZN (Austria, Germany, Switzerland and Japan). However, the extent to which OTT providers of premium sports content operate across borders is more limited than is the case for premium series, mainly due to the different manner in which football media rights are packaged and sold from one country to another.

⁷⁴ 12 NRAs have indicated bundling and exclusivity practices that limit access to specific premium content to customers contracting other (ECS) services.