OTT
Regulation

MINISTRY OF SCIENCE, TECHNOLOGY, INNOVATIONS AND COMMUNICATIONS (MCTIC)

Minister
Gilberto Kassab

Secretary of Computing Policies
Maximiliano Salvadori Martinhão

Director of Policies and Sectorial Programs for Information and Communication Technologies
Miriam Wimmer

Secretary of Telecommunications
André Borges

Director of Telecommunications Services and Universalization
Laerte Davi Cleto

Author
Senior External Expert
Vincent Bonneau

MINISTRY OF PLANNING, DEVELOPMENT AND MANAGEMENT

Ministry
Dyogo Oliveira

Secretary of Management
Gleisson Cardoso Rubin

Project National Director
Marcelo Mendes Barbosa

EUROPEAN UNION DELEGATION TO BRAZIL

Head of the European Union Delegation
João Gomes Cravinho

Minister Counsellor - Head of Development and Cooperation Section
Thierry Dudermel

Cooperation Attaché – EU-Brazil Sector Dialogues Support Facility Coordinator
Asier Santillan Luzuriaga

Implementing consortium
CESO Development Consultants/FIIAPP/INA/CEPS

CONTACTS

MINISTRY OF SCIENCE, TECHNOLOGY, INNOVATIONS AND COMMUNICATIONS (MCTIC)

Secretariat of Computing Policies
+ 55 61 2033.7951 / 8403
gab.sepin@mctic.gov.br
Secretariat of Telecommunications
+ 55 61 2027.6582 / 6642
sec.telecom@comunicacoes.gov.br

**PROJECT COORDINATION UNIT
EU-BRAZIL SECTOR DIALOGUES SUPPORT FACILITY**

Secretariat of Public Management
Ministry of Planning, Development and Management
Telephone: + 55 61 2020.4645/4168/4785
dialogos.setoriais@planejamento.gov.br
www.sectordialogues.org

OTT
Regulation

SECTOR
DIALOGUES

EUROPEAN UNION
BRAZIL

SUMÁRIO

1. Introduction on OTT concepts and markets

This chapter deep dives on the OTT markets. First; it addresses the various definitions generally associated with the concept of OTT. Then, it details the key sub-markets that can be encompassed into the OTT concept (depending on definitions) and their dynamics, with a focus on Europe. Finally, it provides a more global overview (ie independent of the segment) of the OTT ecosystem within those different markets (through the business models and value chains), as there are numerous common key components in those ecosystems.

1.1. Definitions of OTT

There is no universal definition for OTT (over the top services). The term "OTT players" was introduced in the USA in 2008 to distinguish ISP providers such as AT&T or Comcast from players providing video services "over the top" of the internet connection such as Netflix or Hulu. OTT was therefore in opposition to managed/specialized services provided by telcos and cablecos from end-to-end through their own facilities. It was also only addressing video services, but has been extended to any other services in the common language to non-video services.

Most stakeholders would agree that OTT service is not a transmission network, but is instead a service provided by a CAP (content and application provider) that runs over an Internet network; moreover, the OTT service provider is typically distinct from the operator of the underlying network. According to Wikipedia, OTT refers to content from a third party that is delivered to an end-user, with the ISP simply transporting IP packets. It applies at least to video and communication services.

1.1.1. Scope issues

It should be noted that some stakeholders only refer to OTT for video or communication services, other services being considered only online/Internet services. This is done essentially by players considering the competition with telcos. Some other stakeholders expand to other type of services like social media or cloud, which allow to exchange also content and/or communication.

Figure 1: A potential classification of services
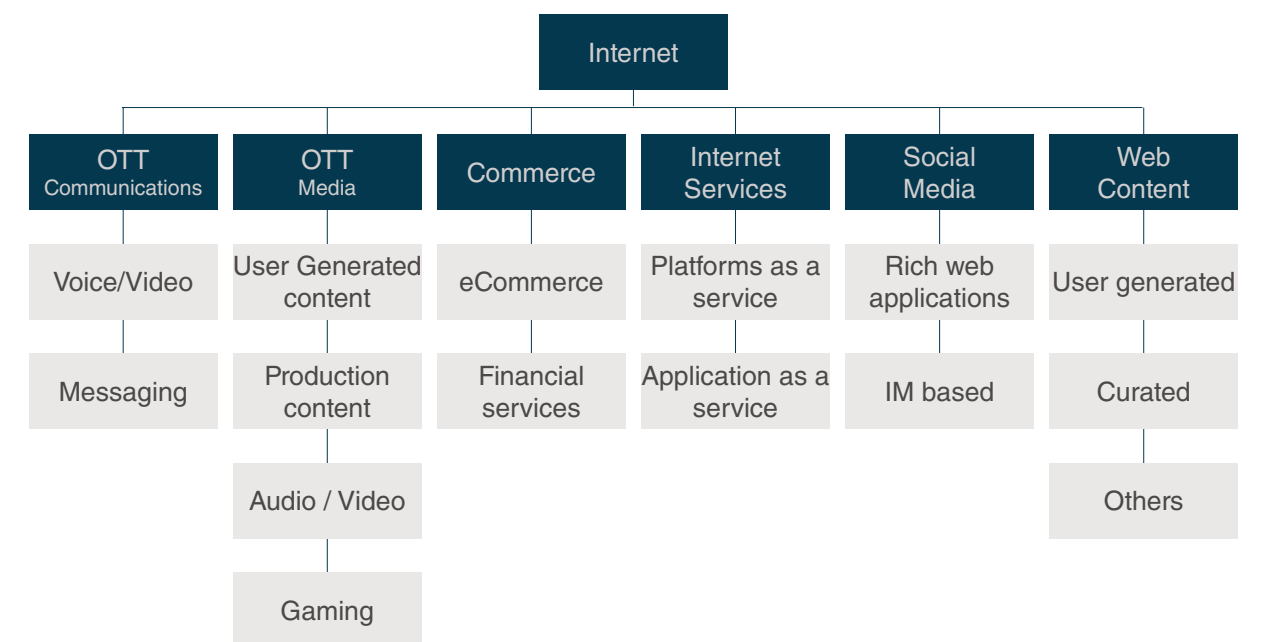
Source: Detecon

For ITU experts, OTT (Over-The-Top) refers to applications and services, which are accessible over the internet and ride on Operators' networks offering internet access services e.g. social networks, search engines, amateur video aggregations sites ,etc... It is therefore a quite large definition.

But, in a study for the European Parliament, by WIK and TNO, OTT are online services that can substitute to some degree traditional telcos and broadcasting services (communication, video). Some online services are therefore not OTT services like e-commerce. Detecon follows a quite similar approach.

All over-the-top services are unmanaged (even when using CDN as they do not control end-to-end the distribution in network) online services, but not all online services (as defined in the study) are over-the-top services, as they do not all compete with traditional telecommunications and broadcast services.
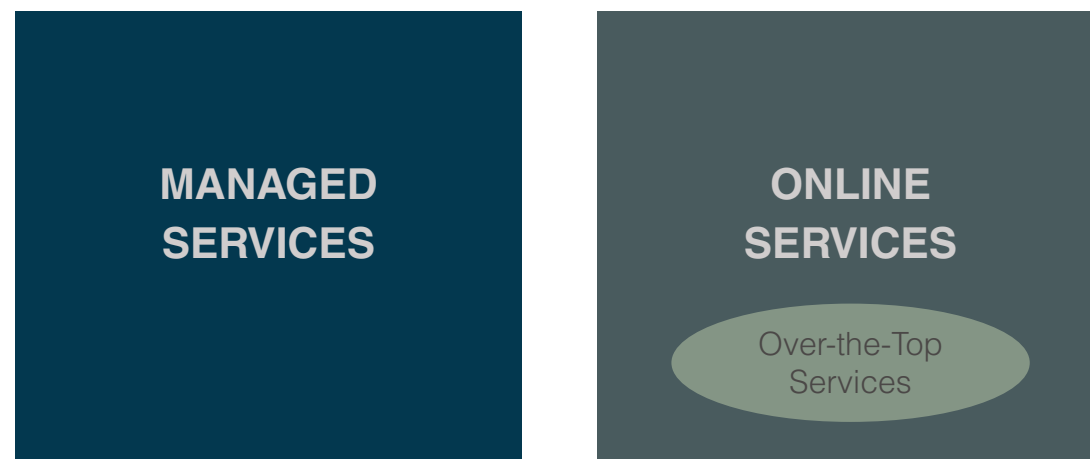
Source: WIK - Consult

1.1.2. European framework not addressing directly OTT

Current European directives do not refer to OTT, but only to ECS (Electronic Communication Services) and ISS (Information Society Services). OTT could therefore be seen as a subpart of ISS. Telcos are voicing concerns for level playing field (see next section) and are often asking public authorities to reclassify OTT services as ECS (especially for VoIP or video services). A few NRAs have considered such approaches have rarely gone beyond investigation.

The current definition of ECS

"Electronic Communications Service means 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 excludes services providing, or exercising editorial content 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" (Art. 2(c) of the Framework Directive).

According to this definition, a service must fulfil the following criteria to be classified as an ECS:

- remuneration, which may be indirect,
- conveyance of electronic signals.

The last criterion is crucial as it is used to draw the boundary between ECS and ISS services: services such as instant messaging or pc-to-pc voice over ip, which do not consist wholly or mainly in the conveyance of signals, are considered ISS and not ECS.

In addition to this definition, the Framework Directive further defines the boundaries of what services should be considered ECS. Recital 10 explicitly indicates that "voice telephony and electronic mail conveyance services are covered by this Directive":

"Voice telephony and electronic mail conveyance services are covered by this Directive. The same undertaking, for example an Internet service provider, can offer both an electronic communications service, such as access to the Internet, and services not covered under this Directive, such as the provision of web-based content."

Recital 10 explicitly excludes a wide array of services which are not considered as ECS and therefore are not subject to the obligations defined by the Framework Directive:

> *"The definition of 'information society service' in Article 1 of Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations and of rules of information society services spans a wide range of economic activities which take place on-line. Most of these activities are not covered by the scope of this Directive because they do not consist wholly or mainly in the conveyance of signals on electronic communications networks."*

The current definition of ISS

The definition of an Information Society Service (ISS) is provided by the Directive on technical standards (Directive 98/34/EC as amended by Directive 98/48/EC).

- "any service normally provided for remuneration, at a distance, by electronic means and at the individual request of a recipient of services. For the purposes of this definition:
- 'at a distance' means that the service is provided without the parties being simultaneously present,

- 'by electronic means' means that the service is sent initially and received at its destination by means of electronic equipment for the processing (including digital compression) and storage of data, and entirely transmitted, conveyed and received by wire, by radio, by optical means or by other electromagnetic means,

- 'at the individual request of a recipient of services' means that the service is provided through the transmission of data on individual request." (Art. 1(2) of Directive 98/34/EC).

According to this definition, a service must fulfil four criteria to be classified as an ISS:

- provided for remuneration,
- at a distance,
- by electronic means,
- at the individual request of a recipient of the service.

ISS are expressly excluded from the scope of the Framework Directive when "they do not consist wholly or mainly in the conveyance of signals on electronic communications networks".

1.1.3. The BEREC approach

A new definition?

BEREC, the institution facilitating the collaboration between Europe's national regulators also participates in the discussion about the competitive environment in the electronic communications sector and in how far the playing field between over-the-top players and traditional telecom operators might be skewed or not. BEREC therefore produced a "Report on OTT Services"[1], which was finalized in January 2016 is part of the body's input feeding into the review of the common telecoms framework, which is expected for later this year.

As a first crucial step to facilitate the discussion is a clarification of what makes an OTT as the scope of services and applications being referred to under this moniker is very large.

BEREC establishes a taxonomy that classifies OTT services on the basis of their relation towards electronic communication services (ECS) that are subject to tighter regulation. Three different types of OTT services can be distinguished according to BEREC's approach

- **OTT-0** services: OTT-0 are services that qualify as ECS

- **OTT-1** services: do not qualify as ECS themselves but can enter into competition with the latter

- **OTT-2** services: all other OTT services

BEREC acknowledges that the definition of ECS is not very precise and that due to the room for interpretation in the definition of ECS, this report does not answer that question but only gives an indication of what could be OTT-0 services[2]

BEREC recalls the principle that the conveyance of signals is key characteristic of ECS, thus VoIP applications that allow the user to make calls to public telephone network therefore seem to qualify as OTT-0 services. OTT-1 services on the other hand could be substitutes for ECS, for instance messaging services used by subscribers to replace traditional telephony services.

While according to BEREC's taxonomy, imposing regulatory remedies on OTT-0 services would seem to be a conceivable option, the report also clearly refers to the proportionality principle. On the one hand this can mean that different regulatory regimes can apply to similar services if the implementation of a given regulation would be particularly burdensome for one player/group of players concerned. It could also mean that the scope of regulatory obligations is not extended to include further players but instead it could lead to a deregulation of currently existing remedies.

_____
1. Available: berec.europa.eu/eng/document_register/subject_matter/berec/reports/5751-berec-report-on-ott-servicess, web site accessed July 2016

_____
2. Ibid.

Figure 2: BEREC's OTT taxonomy

communication services | other services

ECS | **not ECS**
but potentially competes with ECS

OTT-0	**OTT-1**	**OTT-2**
OTT voice with possibility to make calls to PATS	OTT voice, instante messaging	E-commerce, video and music streaming

Possible examples
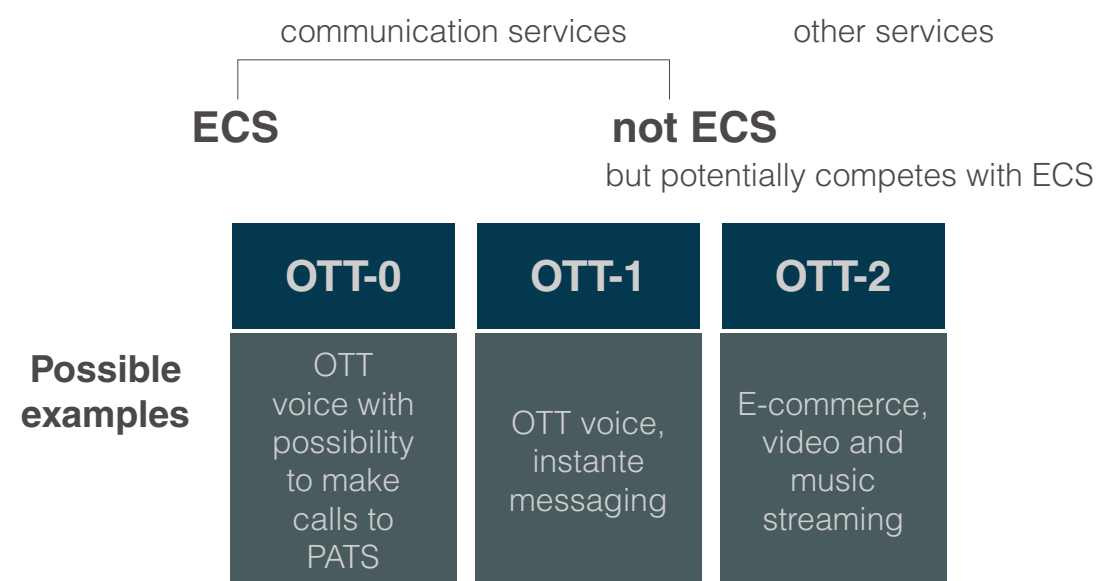
Source: BEREC

Substitutability?

In the report, BERC mentions that only one NRA (NKOM) found OTT voice service with the capability to make calls to the PATS as a substitute for traditional voice services. Other NRAs (CNMC and ANACOM) considered that nomadic voice services (OTT-0) are also part of the voice market.

NRAs that do not find OTT-0/1 voice services a substitute to ECS are mainly of the opinion that there is no clear evidence at the moment that the use of OTT-0/1 voice services may impact the provision of traditional voice. Some of the reasons of the lack of substitutability provided by the NRAs are that end users perceive OTT services as having lower quality and security, lack of interoperability among OTT voice services i.e. the caller and called party have to be subscribed to the same service.

Of those NRAs that regulate or considered to regulate the market for SMS termination (ARCEP, DBA, AGCOM), two NRAs (DBA, AGCOM) found that SMS can be substituted by mobile instant messaging and by emails. ARCEP did not find substitutes for SMS mainly because the interoperability is not fulfilled yet. A recent notification of a new market analysis decision on termination by ARCEP has however been withdrawn

in January 2015 after an Article 7 Framework Directive phase II procedure. In this procedure the European Commission expressed serious doubts about the finding that there are no substitutes for SMS.

1.2. Types of services offered

OTT services encompass any information services offered over the open Internet. The use of the Web and alternative similar channels (like apps) is intensifying, with it serving both as a competitive medium and entertainment centre (as users are spending more and more time on the Internet, including mobile: 3 to 6 hours per day in Europe).
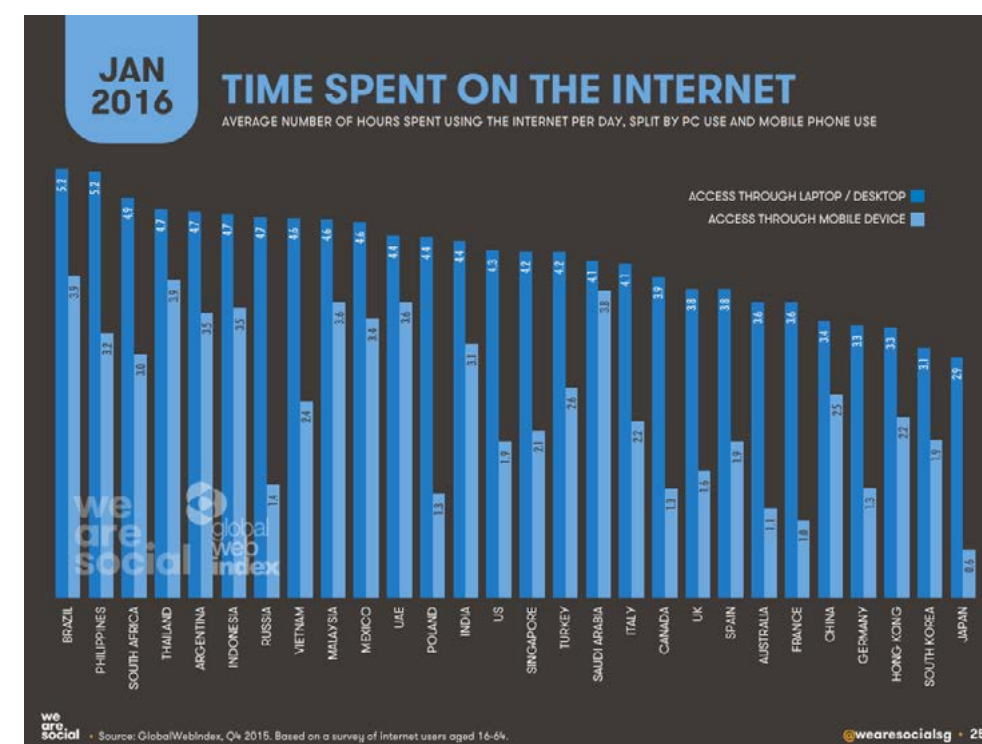
Internet is also as a major practical tool to organise its communications, to shop for physical goods and immaterial services, to discover new information, to organize themselves, to define and publish ones own services, and to contribute actively. Somehow, the web enables indeed the same key services that already existed offline (communications, commerce, practical services, consumption of content) with often better performances. But it also allows for new services with a much greater scale. The same can be said for professional with software (and even hardware) being replaced with cloud services.

Figure 3: Correspondence between offline and online services and applications

	Content	Communications	Commerce	Practical
Offline	Traditional media	Mail, phone, F2F voice	Supermarket mail	Yellow Pages
Offline	Portal, digital content	Email, IM, Forum, social network, Voip	C-commerce	Search, maps

Source: IDATE

While many services are now popular, only a few ones are really mass market: search, email, e-commerce, social networks, online video and digital content; plus information such as news (that can be classified as digital content) and maps/itineraries (that can be classified as subpart of search) and more recently sharing economy or IP messaging services.

Most market segments are dominated by US-based players for both USA and Europe. The leading US players even tend to have a bigger market share in Europe than in their domestic footprint, in which they are often challenged by players with a domestic-only approach. This dominant position often opens the door to investigations on abuse of power and other competition issues.

Many of the market segments addressed by OTT are either segments that have been historically addressed also by telcos and/or cablecos (communication, video, some business services like hosting) or on which telcos are trying to diversify (cloud, plus to a lesser extent mobile apps, digital content and search in the past). Some details are provided below on key OTT markets, with a focus on Europe (stakeholders).

1.2.1. Search

A search engine helps users to find information or data on the web, generally for free. It can be information published on a web site, pictures, maps … Many usages have a dedicated search engine (in vertical markets, for instance Kayak on search of flights). The user types what he is looking for on the engine input. Then, it displays a list of results, ranked by relevance, most of the time. In order to work, a search engine needs databases that contain a huge amount of information related to its usage. Analysis is mostly based so far on keywords.

Among these usages, we can list the main types of search engine:

- **General**: This search engine looks for words or expression written on web pages content or title. It is possible to set the search language/country, the type of pages (html, pdf …) …

- **Images**: Rather than looking for text, it looks for pictures. To do that, the engine looks at pictures' title and at the text around the picture. Picture size or dominant color can be set for instance. Most advanced solutions try to analyze the content of the pictures themselves, but they have yet to be efficient.

- **Maps**: it is inspired by navigation devices. The user types an address, a place, or even GPS coordinates. Then it displays a map with one or more points found. Various views are available: classic road map, satellite photos, terrain, or road traffic for instance.

- **Vertical**: it is a specific search engine that focuses on a particular segment of online content. Common verticals include shopping (Shopping.com, Google Shopping), the automotive industry, legal information, medical information, and travel. Images and maps engine are actually vertical search engine.

Search market still growing despite numerous signs of maturity

IDATE estimates that online search on fixed networks had a global penetration of 82.4% with 2.1 billion search users by the end of 2016, which will be approaching saturation levels. Mobile search, like mobile Internet in general, is now even more used than fixed search since 2014 with 2.5 billion search users or 30.4% of mobile subscribers by 2016, (a CAGR of 12.4% compared to 2012).

Concerning revenues, the search market generates revenues from advertising, and online advertising revenue from search marketing is expected to grow from 67 billion EUR worldwide in 2016 to over 95.5 billion EUR in 2016, giving a CAGR of over 9%. This represents 53% of all online advertising revenues in 2016 (the other significant online advertising revenues come from display at 40%), and this ratio is expected to remain almost stable, decreasing just 1% to 53% by 2016.

Figure 4: Search advertising revenues worldwide and regional breakdown, 2010-2020 (Billion EUR)

Source: IDATE DigiWorld, State of OTT markets worldwide, July 2016
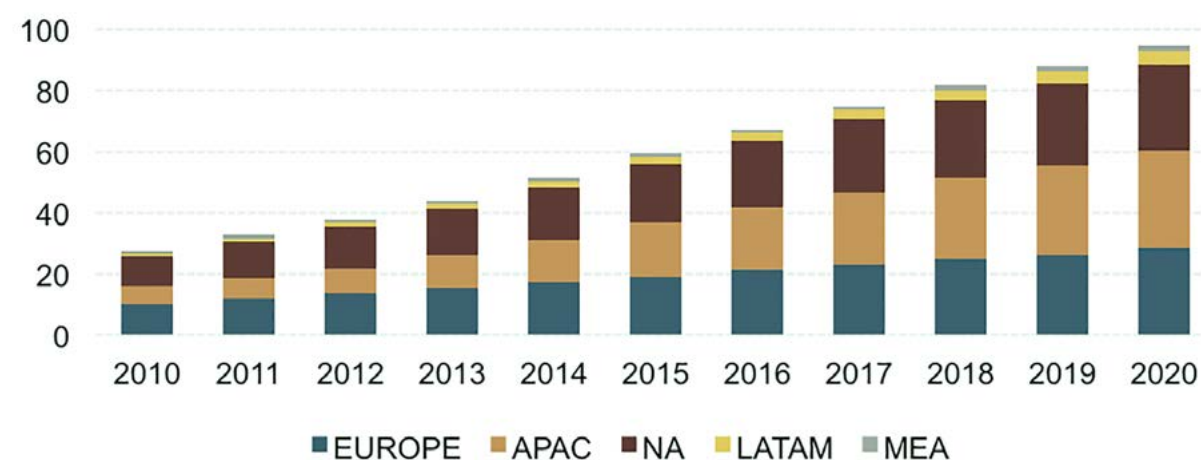
Source: Return On Now, Internet World Stats, May 2016

Google dominates globally, but not in all regions

Google leads the global market by a significant margin, with Yahoo! (now Verizon) and Bing fighting it out for second and third place. However, there are regional tendencies, most notably in Asia, for example, with local search players Naver in South Korea and Baidu in China who have the majority share in their respective countries. Japan is also a complicated situation where Yahoo! Japan is the most popular search Website (and Internet portal site) in Japan, majority owned by SoftBank (not Yahoo!), but in fact it uses the Google search engine. In the United States, Google indeed leads the search market, according to comScore, but with 'only' around two-thirds of the market throughout 2012, as opposed to the 90% global dominance Google enjoys in Europe.

Europe is indeed not competitive on the search market

Europe is lagging behind USA. This can be explained by a few key reasons. Search is entirely an adaptation of "below-the-line" marketing solutions already available offline, which are clearly far more developed in the USA. Also, search was introduced first in the USA, which has a clear advantage coming from history. USA is also generally the first country in which new features are being introduced. Those new features generally facilitate usage and/or provide higher ROI, which encourage advertisers to shift more of their budgets to search. All those developments are focusing first USA, because of the valuable market that is USA from an advertising point of view, but also because of the player origins.

All the leading players in terms of both market value and technology are indeed coming from the USA, with Google as the posterchild of search. All of the attempts in Europe to create alternatives have either failed (Lycos) or have had limited success (Exalead). Even in markets in which Europe holds strong positions like for geobased information and mapping, European players have been surpassed by generalist players like Google and Microsoft (leveraging its other portal activities). European

players are therefore really only challengers around maps with for instance Mappy in France. Telcos tried to position in this market in the past (Voila from FranceTelecom/ Orange, Virgilio from Telecom Italia), but have failed to become significant, even in their domestic country.

Europe is trying to reposition around multimedia search thanks to some advanced technology and R&D in image recognition. But it is likely that these features will be rather integrated in existing generalist solutions rather than provided as standalone services.

Growth driven by mobile, video and social

At one point, the search market appeared to have reached saturation. Looking at Google, in the early 2000s their search advertising revenue was growing at over 100% year on year, but gradually decreased to the point of 8% in 2009. Then, in 2010, this increased to 23% and then 29% in 2011. This upturn in growth can be attributed to advances in the markets of mobile, video and social. The rise in popularity of smartphones has certainly helped in terms of the increase in mobile Internet users, which in turn increases mobile searches and thus advertising opportunities;

Video has become a massive part of online consumption, and is starting to compete with traditional entertainment offerings for some users, even during prime time, and searches relating to video are gaining more traction. Finally, social networking provides for the social graph, allowing for more targeted search based on a user's social connections, and indeed Facebook released Graph Search based on this concept in January 2013. It should also be noted that the emergence of technologies such as big data (an extension of data mining) and the 'Semantic Web' are further increasing the search user experience by extracting more meaningful search results and providing more targeted approaches that improve the average revenue per search, compensating the slower growth of searches overall due to maturation of the market.

1.2.2. Social media

Online social networks include the likes of Facebook and Twitter (or for business users LindkeIn), where the core service is built around the representation of a user (normally in the form of a profile), and the social relations of that user (such as friends, interests and current activities).

IDATE also includes within that definition virtual worlds, such as Second Life and Habbo (Sweden-based), since the core service of social relations remains the same, the only difference being the representation of the user is in the form of an avatar, and interactions take place within a virtual world.

Conversely, not included are online communities which are centred on groups rather than individuals, and gaming platforms (MMOG) which are more centred on entertainment and fiction representations.

Social media markets

Social media, and in particular the social networking market, continues to grow. In 2016, the market stood at 30 billion EUR, and is expected to grow to 45.5 billion EUR by 2020, which translates into a CAGR of 10.9%.
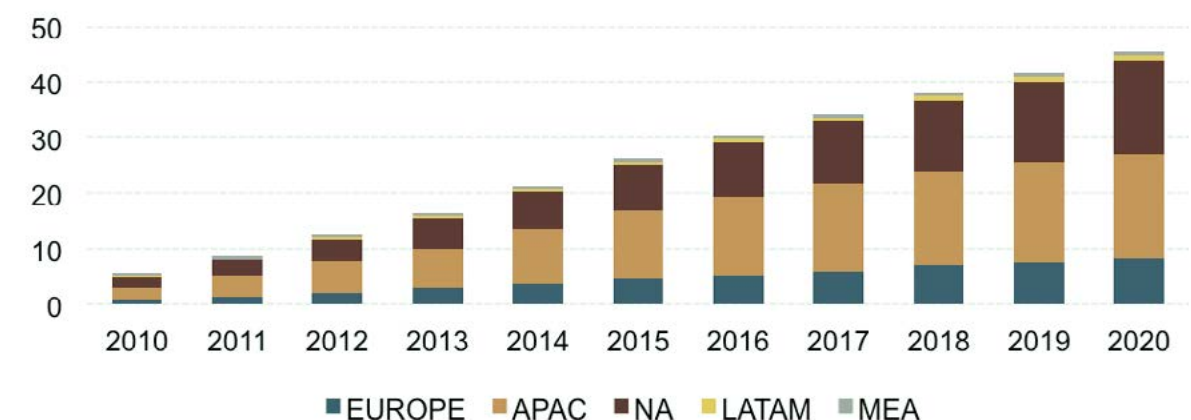
Source: IDATE DigiWorld, State of OTT markets worldwide, July 2016

Facebook continues to dominate this market, with a reported 1.55 billion monthly active users as of end-September 2015, up from 1.35 billion monthly active users a year before. By contrast, its closest global competitor, Qzone, is a distant second with less than half the users of Facebook: a reported 653 billion monthly active users as of end-September 2015, up from 629 million a year before. With operations primarily in China, Qzone remains well ahead of Google+, a very international brand that has not released any recent figures on active monthly users.

Other popular social networking sites, Instagram (acquired by Facebook in 2012) and Twitter were reporting, respectively, 400 million and 320 million active users a month in

September 2015. Also noteworthy is Snapchat (which rebuffed Facebook's takeover offer in 2013) with an estimated 200 million active users a month: launched in 2011, it has been the fastest growing social networking site of the past four years.

Facebook has been more successful than other Internet heavyweights in monetising mobile

The mobile sector is becoming a major driving force for the social media market, with Facebook offering a prime example: the mobile sector represented 11% of the company's ad revenue in 2012, 45% in 2013 and 66% in 2014. This trend continued on through 2015, with mobile accounting for 78% of ad revenue in Q3 2015. At the end of September 2015, Facebook had 1.39 billion active mobile users a month, compared to 1.12 billion one year earlier, or only 0.16 billion fewer than the total number of active users a month. So solid proof of a successful transfer of its fixed revenue to mobile. By way of comparison, IDATE estimates that the percentage of ad revenue that Google and Amazon were earning on mobile was only just over 10% in 2014, so well below Facebook even if, in terms of total revenue (hence value), the social media giant trails well beyond those two veteran players.

Figure 5: Share of advertising revenue between fixed and mobile for Facebook, 2012-2015
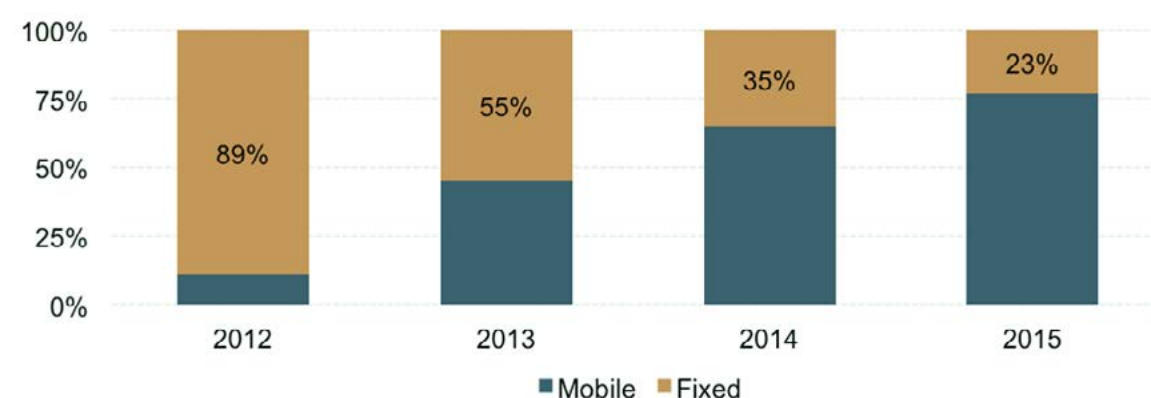
Source: IDATE DigiWorld, State of OTT markets worldwide, July 2016

Europe has only been able to create niche domestic players

Today's leaders (Facebook, Twitter) are based in the US, and as is the expected challenger (Google). It should be noted, however, that these services are provided on a worldwide scale and thus a large proportion of the audience also comes from outside of the US. For example, according to ComScore, 79% of Facebook's audience comes from outside of the US.

Still, Facebook is the leading social network (by a long distance) in the US and many of the European countries, although there are players who are strong in a given country: Hyves in the Netherlands, Tuenti in Spain, Bebo in the UK (before being acquired) and SkyRock in France (now very marginal) are such examples. Similar things can be said for business oriented social networking tools with LinkedIn as the dominant platform progressively overtaking local champions like Viadeo in France or Xing in Germany. Local players have generally benefited from localization issues like language, but this is an advantage that can become quite limited over time, especially if locals also speak English.

In China and Japan, the regional connections are much stronger, with local providers Tencent and Renren in China, and mixi and GREE in Japan being the major players. In Russia, the local Vkontakte is by far the leading market player.

Telcos have not really tried to create their own social networks and many of them have been partnering early on to promote their mobile data plans and mobile broadband offerings. Social networking as a service was indeed not seen as direct substitute, despite its primary usage being communication itself (with different approach as being more asynchronous).

In Asia/Pacific, the bulk of revenue being generated by paid services not advertising

Particularly in the US, and in most European nations as well, the social networking market's value lies mainly in the advertising revenue it generates. The picture is somewhat different in Asia-Pacific, however. There too mobile is steadily becoming the main revenue driver, but the majority of the value is generated through revenue

from paid services as opposed to advertising. Particularly in Japan and South Korea, paid games form a critical part of the social networking experience, where paying for a monthly subscription and/or making one-off payments (to buy extra lives or weapons, for example) is not uncommon. Added to this is the magnifying effect of China, the home of Tencent which owns the social networking service Qzone, second only to Facebook. With Qzone also integrating paid games within its network, a large majority of the revenue in Asia-Pacific as a whole comes from direct paid services.

1.2.3. Mobile applications

"Mobile applications" include any applications downloaded onto the mobile, and also contents relating to such applications (such as in-app purchasing of items, levels etc, … in a gaming application). Key applications include games and communication services. Pure digital content is excluded from this scope (the likes of ringtones, wallpapers and videos have a distinct market of their own).

Only native applications are covered here, ie applications downloaded (or sideloaded) from an application store (typically App Store from Apple or Google Play). Web applications, executed over HTML, are not included in this market.

Market

The worldwide paid mobile applications market is expected to surpass 41.5 billion EUR by 2020, growing from an estimated 32 billion EUR in 2016. This represents a global CAGR of 6.8% from 2016 to 2020. This forecast includes all types of mobile application paid business models such as downloads, in-app purchases and subscriptions, but excludes content-specific markets such as wallpapers, music, e-book and video applications.

Asia-Pacific, pushed particularly by Japan, has historically been the leader in the paid mobile applications market, providing for a larger market than the likes of the US and China despite its much smaller population. This is due to the culture in the Far East, where mobile Internet took off before its fixed line counterpart, and it is seen as standard that monthly subscriptions should be paid for access to various mobile applications.
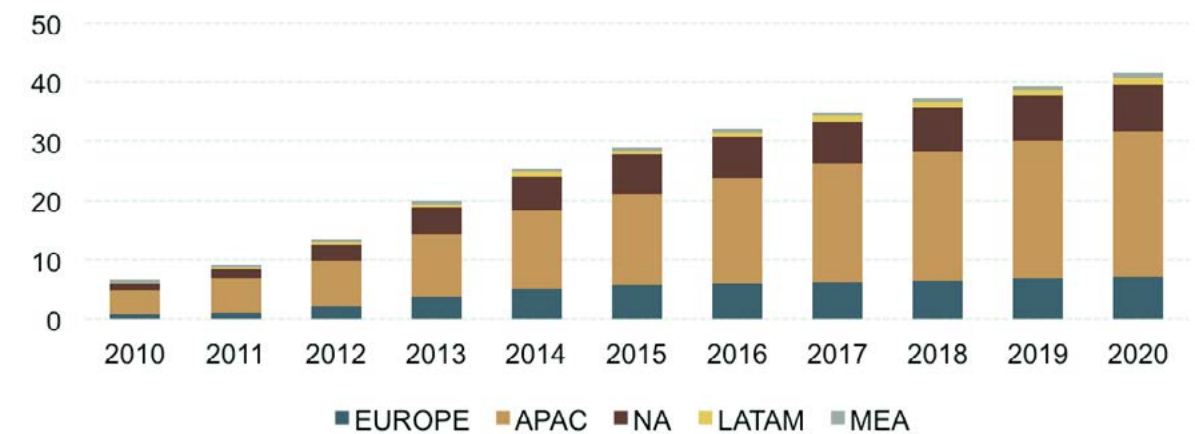
Source: IDATE DigiWorld, *State of OTT markets worldwide*, July 2016

In-app purchases to become the main revenue generator for mobile applications

There are three types of revenue models for mobile applications; paid apps, in-app purchasing, and in-app advertising. Paid apps can be a one-off payment or subscription model, required to gain access to the mobile app. In-app purchasing, on the other hand, allows free access to the mobile app and its basic functionalities, but requires payment once within the app to access the more advanced functions or various advantages within the app. The three revenue models are not mutually exclusive, and can in fact often co-exist to maximise the revenue potential for the developer.

In the early days of mobile applications, in-app purchasing was still rare. However, as the popularity of mobile apps increased, the in-app purchasing model became more popular, and IDATE estimates that by 2015 29% of mobile application revenue were generated in this way; 57% was still generated by paid apps, with the remaining 14% being generated from in-app advertising. In fact, we forecast that the rise of in-app purchasing will continue, and that by 2020 more than half of the mobile application revenue will come from this model, with the share of paid apps dropping to 30%. Revenue from in-app advertising is expected to increase progressively, up to 23% in 2020. Already in 2015, the vast majority of applications available on the market, roughly 90% of them, were free to download, and within the remaining 10% of paid mobile applications, half of them were under 1 EUR or equivalent. This highlights the trend and importance of first providing the application for free, after which monetisation strategies can be considered.
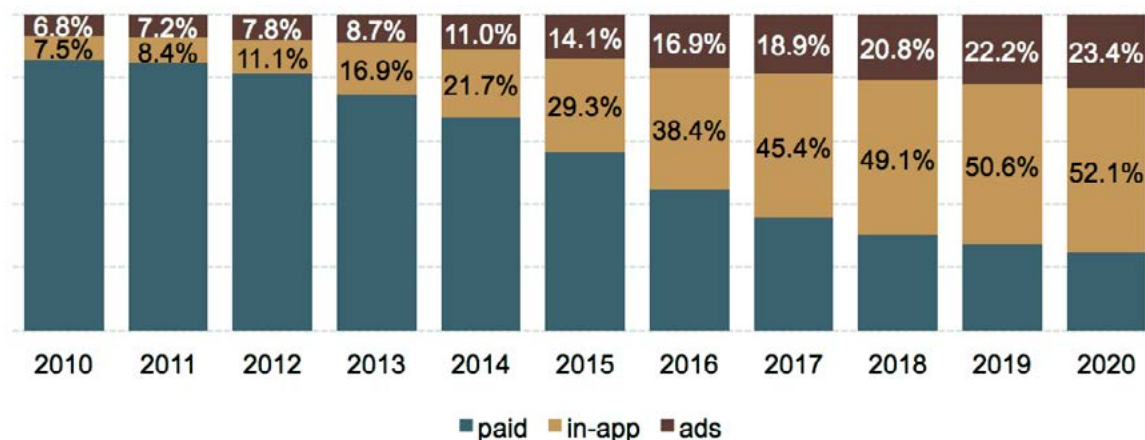
Source: IDATE DigiWorld, State of OTT markets worldwide, July 2016

Social and communication applications dominate the most installed mobile applications, supplied by the Internet giants

The three most popular mobile applications in the US in 2015 (measured in terms of percentage of users with the application installed) are heavily skewed towards social and communication applications. If smartphones deliver a multitude of services through a host of applications, users' core needs and desires are still to communicate and interact with one another.

It is interesting to note that the 10 most popular apps are supplied by Facebook (including Instagram), Google (including YouTube) and Apple – providing solid proof of the influence these three companies have. It should be noted that Google-based applications enjoy an advantage here, since their applications are pre-installed on Android OS phones which have a significant share of the smartphone OS market.

Also worth noting is that none of these mobile applications in the top 10 require any fees to download or use; they are reliant on in-app purchases, advertising, or revenue from another source. By way of example, Google+ has no obvious revenue generation mechanism, but this is not a problem as Google itself generates revenue elsewhere, in part using the data gained through the provision of Google+).
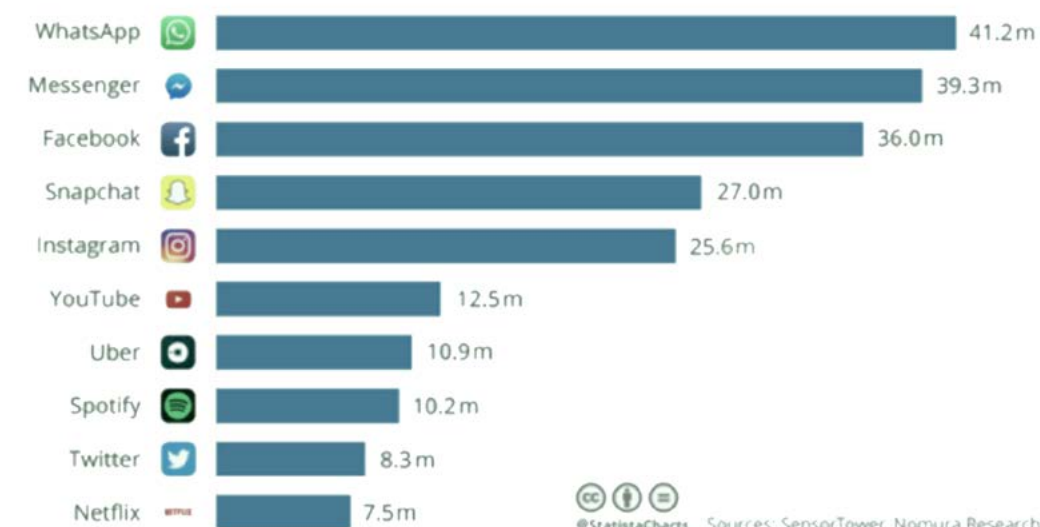
Europe often competes for individual apps, but is trailing behind for appstores and platforms

It is difficult to see beyond Apple and Google at present in terms of application stores and mobile OS. Nokia of Finland who was the dominant force worldwide (although not in US) has seen its shares plummet with the rise of Apple and Google (and to a lesser extent others). Nokia and Microsoft have formed a partnership and are hoping to challenge the duopoly based on Microsoft's Window Phone OS, but how much of an impact they can make remains to be seen. The competitiveness of Europe will largely depend on whether Nokia can become a force once again in the face of Apple and Google. All telcos also offer their own mobile app stores, but their impact on this market remains marginal. They may attract essentially beginners and/or non-tech savvy people, as they can leverage their particular position on mobile devices (they often subsidize and distribute the device and therefore can specify it to promote their own applications and app stores).

As for developers, Finnish games developer Rovio has had a massive hit with Angry Birds, one of the most talked about success stories of mobile apps. Similar can be said of a few other players like Gameloft from France. But it is not only games; there is

a wide array of mobile applications, ranging from travel to weather to communication. For example, Skype, the largest VoIP provider can also be used as a mobile app, and although now part of Microsoft Skype is still headquartered in Luxembourg. Other key companies on mobile include WhatsApp, which is also European before being acquired by Facebook. The competitiveness of Europe for mobile apps is very much dependent on the type of app, but on the whole, it can compete with the likes of the US.

1.2.4. Communication services

The global OTT communication market exceeded 5 billion EUR in 2015, and will grow to 9.9 billion EUR by 2020, representing a CAGR of 16%. The market is composed of three segments: VoIP (such as Skype) and IP messaging (such as WhatsApp).

VoIP has existed for more than a decade, Skype being the juggernaut, but their finances suggest that it is extremely difficult to turn a profit in this business. IP messaging services may be enjoying limelight but, again in terms of revenue, questions remain: WhatsApp may boast that it handles tens of billions of messages a day, but it ultimately earns a mere 1 EUR per user (and even announced to get rid of that pricing mechanism).
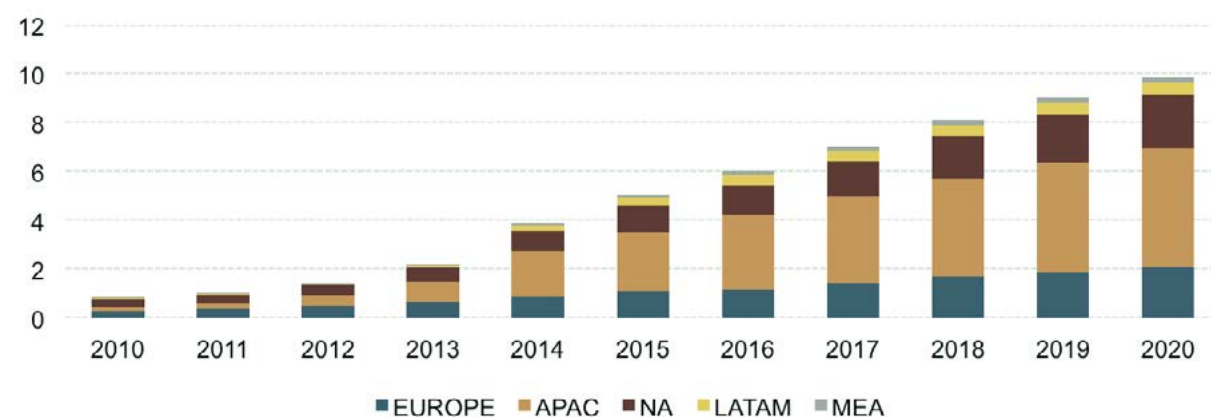
Source: IDATE DigiWorld, State of OTT markets worldwide, July 2016

OTT communication services form part of a platform strategy

Despite generating only modest revenue, the VoIP and IP messaging markets are not short on appeal. Facebook ultimately acquiring WhatsApp for some 21.8 billion USD was one of the big headlines of 2014, along with other high profile acquisitions such as Skype by Microsoft, Viber by Rakuten, and Alibaba investing in Tango. These deals form a part of the platform strategy whose aim is not to generate revenue directly

from communication services, but rather to use them as tools to grow the user base, which in turn can be used to monetise the service through different means, such as advertising, paid games and commerce. Applications such as WeChat and LINE from the Far East, which are second and third respectively behind WhatsApp in monthly active users, have been more successful in terms of revenue generation, while also deploying a platform strategy. WeChat in particular has successfully integrated a social network, e-commerce, payment, online-to-offline and an Internet of Things portal, transforming itself into a mobile, social and sales hub.

Figure 6: Active users of messaging / chat / VoIP services (Millions)
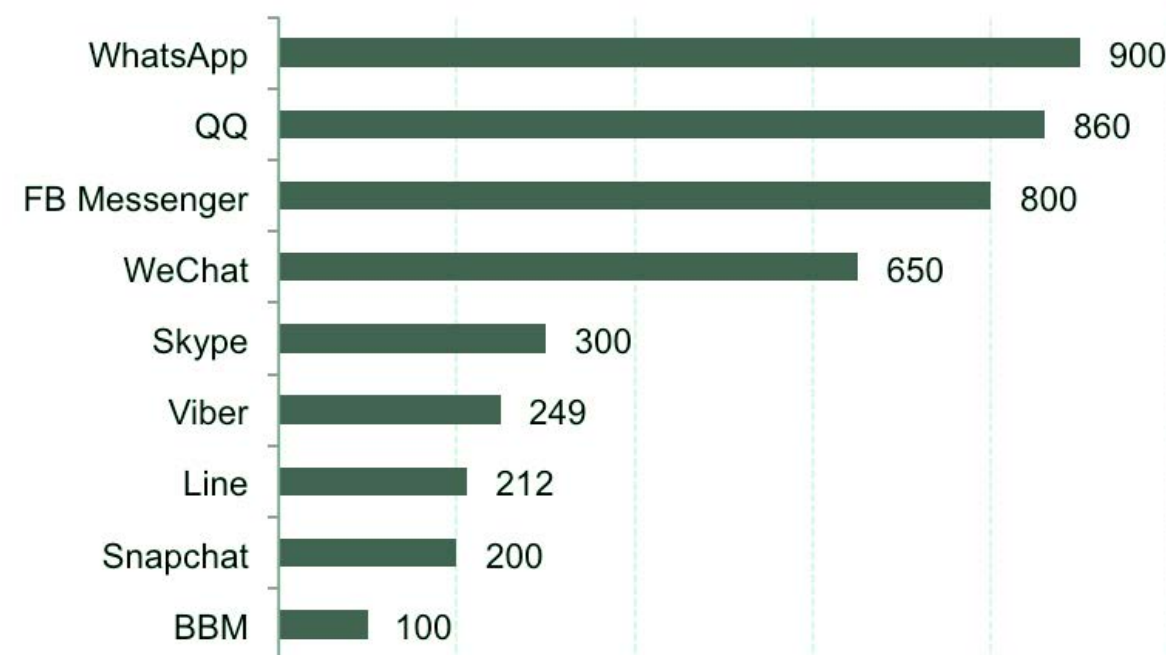
Source: We Are Social, January 2016

OTT having little impact on telcos in Europe

Internet companies are earning only a tiny – albeit growing – percentage of the communications market, which remains very solidly telcos' dominion. OTT communications are therefore not depriving telcos of their revenue, which they have managed to maintain in this market in Europe (or USA). In fact, it is the economic downturn, competition between telcos (leading often to abundance offerings like unlimited SMS or voice) and regulations (e.g. over roaming prices) that are affecting the value of telcos' core markets, far more than OTT solutions. In France or UK,

competition between operators (with unlimited SMS flat rate) was already fierce when alternative online solutions began to appear. In other countries, such as Spain or Netherlands, SMS and mobile calling revenue has been slipping for some time (before the emergence of OTT offerings), and cheaper OTT services have only aggravated the trend. Effects may be important in other regions of the world like China.

Five main telco strategies in response to the rise of OTT communication services can be observed: block, bundle, partner, telco-OTT and RCS. **Blocking is now rare**, as it can often be perceived as negative, leading to churn and also debates about net neutrality (see specific section). **Bundling unlimited and/or abundant voice and SMS is a highly useful strategy**, lessening the price advantage of OTTs; France is a pioneer in this regard, with 9.99 EUR offers including unlimited SMS and 2 hours of free off-net calling. **Partnerships with OTTs can be a useful differentiation strategy**, to be used as a driver for data plan subscription. **Telco-OTT** sees the telcos offering their own OTT communication service, with the likes of Telefónica and Orange demonstrating that **a simple carbon copy of OTTs is not good enough and is combining telco-OTT with their own unique telco strengths. More WebRTC capabilities are also increasingly being offered by telcos.** Finally, RCS is a GSMA-led initiative designed to bring all OTT-like capabilities onto the mobile with the ease of telco voice and SMS, but **currently remains far from the promised 100% ubiquity of 'just works'.** Whereas some telcos (such as Deutsche Telekom) are integrating RCS into their future all-IP networks, others (such as Telefónica) appear to be much more cautious in their aproach.

Europe has lost ground on this market

Despite an early positioning on this market, there are no more real European players on this market after the acquisition wave, with Skype within Microsoft (and before within eBay) and WhatsApp within Facebook (plus to a lesser extent Viber acquired by Japanese Rakuten). Remaining European players are generally active on niche markets like Telegram.

1.2.5. E-commerce

E-commerce refers to the buying and selling of products or services over Internet. However, the term may refer to more than just buying and selling products online. It also includes the entire online process of developing, marketing, selling, delivering, servicing and paying for products and services. E-commerce relies on innovations

in electronic funds transfer, supply chain management, Internet marketing, online transaction processing, inventory management systems, and automated data collection systems.

The scope considered is only e-commerce on the consumer market, that is to say B2C (Business to customer) or B2B2C (consumer marketplaces). This segment excludes B2B e-commerce.

Market growth

The global e-commerce market has reached almost 2.1 trillion EUR in 2016. It is expected to expand to almost 3.3 trillion EUR by 2020, representing a CAGR of 14%. An important aspect of e-commerce is localisation: not least the language, but also the ability to adapt to the specific needs and cultures of each country and/or region. For example, the e-commerce giant Amazon takes a localised domain approach, such as amazon.de in Germany, which is in consequence the largest e-commerce player in Germany. A similar pattern follows in many other countries. In countries with a strong local presence, however, these tend to have their own leader, such as Alibaba in China, Rakuten in Japan and Ozon in Russia.

It is also worth noting that the leaders in e-commerce are Internet players, as opposed to the traditional retailers moving into e-commerce. Such players have been able to combine local advantages together with digital advantages, such as a wider audience reach and product range, and increased cost efficiency through no need for a physical property, targeted advertising and social integration.
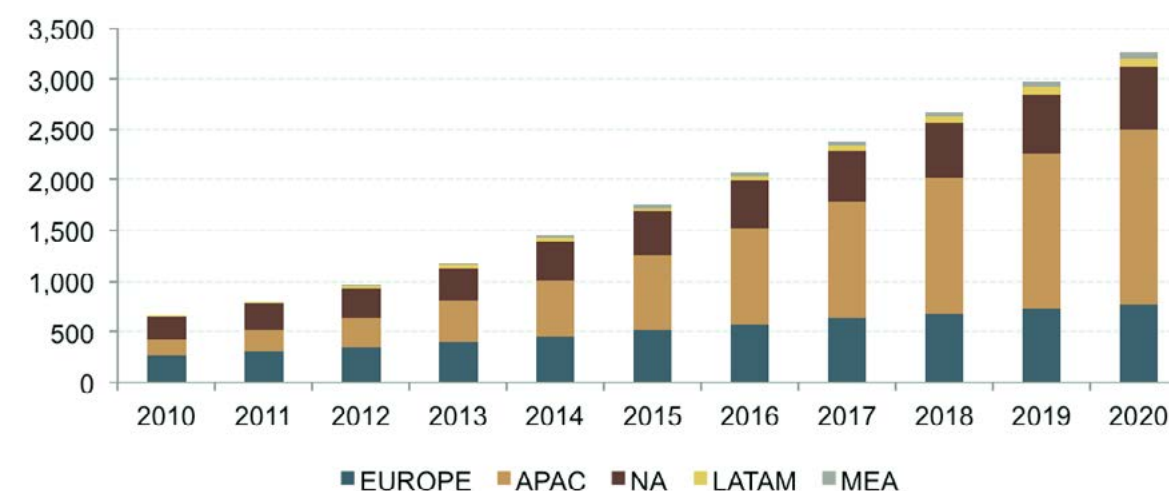
Source: IDATE DigiWorld, State of OTT markets worldwide, July 2016

Europe is a competitive challenger on e-commerce but has not dominant platform

Regarding the competitive landscape, Europe is dominated by the two US-based services (Amazon and to a lesser extent eBay), but some European players have succeeded to take market shares.

However, some player could play a part in the US market: for instance the French website Vente-privée, which has been innovating with dicounts on high-end products, aims to launch in the USA in mid-November. Ventes-privées hopes to replicate its success through a partnership with U.S. giant credit cards American Express.

However, Europe has to challenge market structure characterized by national players as well as American or Japanese giants. And the European successful players tend to be acquired by foreign players:

- For instance the French Meetic (online dating service) has been acquiring many competitors to reach an international level (13 countries and 14 million users in 2010). In 2011, Match.com, the US leader, has launched a voluntary public tender offer and now owns 75% of the Meetic shares.
- In the same way, the Japanese Rakuten has bought the French website PriceMinister in 2010.
- Groupon, the US couponing website, has also acquired many competitors over the world (for instance CityDeal in France).

Telcos are still active indirectly in payment rather than e-commerce (a few telcos used to have e-commerce stores but have sold them) like carrier-billing services, which are notably for online and in-app purchase of digital goods. P2P and mobile financial services are successful in the markets where the bank infrastructure is not well developed, such as Africa and Latin America. Nonetheless, telco strategies regarding NFC services and the mobile wallet have significantly changed since 2014, when the first attempt at NFC services did not pay back.

The dissolution of the major carrier-led mobile payment venture marks the failure of NFC initiatives by telco alliances. The UK initiative, Weve, said that they had no plans to move back to this market; and the CEO of AT&T admitted that NFC payment is a more natural fit for the OS manufacturer. One exception is the alliance founded by Deutsche Telekom, Vodafone and Telefónica. The joint efforts are chiefly invested in the partnership with card networks (MasterCard) and with local retailers in Germany, aiming to speed up the service development and increase the merchant acceptance.

Share of m-commerce within e-commerce on the rise

Mobile commerce, or m-commerce, is increasingly becoming an integral part of the online commerce experience. The 'mobile first' strategy is becoming more widespread, and an increasing amount of transactions are undertaken through the mobile device. IDATE forecasts that, globally, 25.8% of the e-commerce market value in 2016 came through the mobile and it is expected to reach 37.6% by 2020. The CAGR of the global m-commerce market between 2015 and 2019 is forecast at 23.5%. Japan and South Korea are distant leaders in terms of mobile commerce, as the mobile Internet infrastructure itself had already been established back in the early 2000s, with mobile Internet access being the norm. In the West, the concept of mobile Internet has only transpired to the general mass more recently, on top of which m-commerce is based. It should nevertheless be noted that the UK and the United States are making up for lost time.

Amazon pulls ahead of Wal-Mart in terms of market capitalisation, while Alibaba is in decline

One of the outstanding headlines out of the e-commerce sector in 2015 was Amazon overtaking Wal-Mart in terms of market cap in July 2015. Amazon has continue to grow, and its market capitalisation stood at 325 billion USD by year-end. Chinese e-commerce giant, Alibaba, on the other hand, which conducted a spectacular IPO in 2014, raising 25 billion USD, performed very poorly in 2015. Its market cap of close to 300 billion USD at the end of 2014 began to slide, plummeting down to 143 billion USD in September 2015 before climbing back to 200 billion USD by December. In addition to the economic downturn in China, Alibaba is having to contend with growing competition from fellow Chinese companies such as JD.com and Tencent. Tencent now has a higher market cap than Alibaba, even if this is being challenged not only by analysts but also by the Chinese government, with the gaming giant being accused of false advertising.

1.2.6. Cloud computing

Cloud computing describes scalable and often virtualized resources that are provided as a service over the Internet, over the "cloud". Resources can be calculation or data storage. The users do not need expertise in the technology, neither control over the infrastructure in the cloud that supports them. The concept incorporates infrastructure as a service (IaaS), platform as a service (PaaS) and software as a service (SaaS) as

well as other recent technology trends that have the common theme of reliance on the Internet for satisfying the computing needs of the users. Cloud computing services usually provide common business applications online that are reached from a web browser, while the software and data are stored on the servers.

◊ **IaaS or Infrastructure as a Service** provides computer infrastructure (typically a platform virtualization environment) as a service. Rather than purchasing servers, software, datacenter space or network equipment, clients instead buy those resources as a fully outsourced service. The service is typically billed in function of the amount of resources consumed. The cost will typically reflect the level of activity. It is an evolution of web hosting and virtual private server offerings. IaaS could be used by system administrators, network architects and applications architects as additional IT resources.

◊ **Platform as a service (PaaS)** is the delivery of a computing platform and solution stack as a service. It makes the deployment of applications easier without the cost and complexity of buying and managing the underlying hardware and software layers. It provides all of the facilities required to support the complete life cycle of building and delivers web applications and services entirely available from the Internet. There is no software download or installation for developers, IT managers or end-users. These services are provisioned as an integrated solution over the web. PaaS could be used by application developers.

◊ **"SaaS" or Software-as-a-Service** is a model of software deployment. A provider licenses an application to customers for use as a service on demand. SaaS software vendors usually host the application on their own web servers. The on-demand function may be handled internally to share licenses within a firm or by a third-party application service provider (ASP) sharing licenses between firms. SaaS could be directly used by information workers and end-users as traditional applications.

The cloud computing concept can also be referred to as "utility computing", where end-users can access IT resources as easily as they access electricity or water. It can be private (internal to the organization's information system) or public (external). It is a tool for firms that enhances their information system. The remaining of this section focuses more on public cloud. Whether IaaS (Infrastructure as a Service), PaaS (Platform as a Service) or SaaS (Software as a Service), cloud solutions have reached a degree of technological maturity that is helping to bolster their reputation.

Strong growth and technological outlook for hybrid cloud and container solutions

IDATE forecasts that the global cloud computing market will continue to enjoy steady growth up to 2019 at least, increasing by an average 16% a year thanks to the development of IaaS solutions, which are forecast to represent 44% of the cloud computing market in 2019, compared to 37% in 2015. The SaaS segment will nevertheless continue to be the biggest earner.

Cloud adoption rates are climbing, and are now being employed by virtually every company department: accounting, human resources, administration, sector-specific solutions. The same is true of SaaS for which subscription is the easiest way to access a service, and can now be used by anyone in the office – which can, however, be detrimental to the efficient management of a company's information system.

More and more large corporations are adopting hybrid cloud solutions, which consist of deploying IT resources both in-house and in a public cloud. They offer the advantage of allowing a company to keep sensitive data in-house while outsourcing hosting of the least sensitive ones.

Up until now, the cloud has employed virtualisation technology to ensure flexibility. But recently introduced container technology brings with it a new form of flexibility, allowing a business to switch providers more easily, thanks to less cumbersome software.
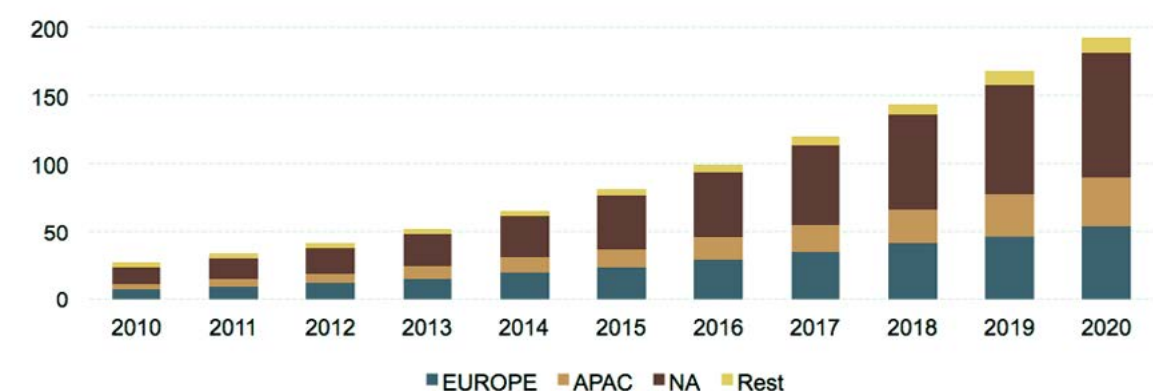
Source: IDATE DigiWorld, State of OTT markets worldwide, July 2016

Still real concerns over data security, but European regulations could give local players a leg up

Cloud computing offers users a number of advantages including increased profitability, flexibility and simplicity. It also allows companies to avoid having to make heavy investments in servers. But there is still a reluctance to hand over the management and storage of what may be sensitive data.

The current climate of insecurity on the Web is exacerbating users' data protection concerns. Businesses and government agencies are leaning more and more in favour of locally-based cloud services, rather than international ones. Moreover, the Safe Harbor agreement (over transatlantic data flows) having recently been declared invalid, combined with forthcoming European data protection regulation, should give European cloud computing companies an advantage over North American giants when serving the European market.

At the same time, the market's leading players are waging a price war over lost leaders whose margins are shrinking, especially when it comes to IaaS solutions. These slim margins are driving vendors to design their own servers and no longer call on veteran IT infrastructure suppliers.

A market still dominated by Internet and IT heavyweights, now dealing with the emergence of *cloud brokers*

The IaaS segment requires massive investments, and most of the providers that populate it are IT or Internet heavyweights, starting with Google, Amazon and IBM. PaaS solutions are being supplied by only a handful of major IT companies and a few pure players. Software as service, on the other hand, has lower barriers to entry and is therefore open to a greater number of new entrants, big and small.

Over the past few years, a new brand of intermediary has entered the cloud computing market: cloud brokers that resell existing services by connecting customers with cloud service providers. They include Jamcracker, AppDirect and Apptix.

Telcos, meanwhile, are concentrating their efforts chiefly on infrastructure as a service solutions, but moving gradually into SaaS and PaaS as well. Some are also adopting wholesale or broker strategies that allow them to resell their cloud products to other telcos that do not want to invest massively in developing their own in-house solutions.

Europe is trying to catch up

Europe is lagging behind the U.S. in Cloud Computing, especially because the current leading players are all based in the US: from former start-ups like Salesforce.com or Google to traditional technology player such as IBM or Oracle/Sun. First of all, US companies were the first ones to embrace globalization and the cloud was a natural fit for them in line with global strategies. Second, there is no question that the cloud pioneers were created in the US thanks to the VC money raised before and after the e-business craze.

On the other hand, Europe definitely has strong assets thanks to its leading telecommunications industry. Cloud computing is based on volumes and low margin sales delivered from a data centres through the Internet. This model is therefore well suited to the telecom operator existing business models. However these players face major challenges as they have to master the software code before they can thrive in this domain. Google, Apple, Amazon, IBM, Microsoft… all have tremendous software development capabilities that they leverage to build their cloud offerings. Telecom operators' domains of expertise remain today mostly around networks, security, servers…

In the automation aspect enabled by this model, cloud computing replaces workforce by capital investment, which maps the evolution model of advanced economies in classical economic theories. Europe has capital and an expensive workforce in some countries (Western Europe). The impact of the development of the cloud computing model on the European software industry could have similar impacts than automation trends that took place in manufacturing industries (such as the automotive industry) in recent history to lower the cost of producing manufactured goods. Cloud computing is following the same trend as it enables the automation of computing resources production processes (computing power, platforms and applications).

Localization of business processes and regulations are important barriers that will benefit to the European players. A new ecosystem of start-ups is growing around those technologies.

1.2.7. Video

We will either refer to online video or OTT (over the top) video services in this chapter. OTT is defined as video content available through non managed Internet networks (like IPTV or cable).

The consumer online video services market can be broken down into five main segments, which differ in terms of content length, content quality (premium blockbuster/popular shows versus long tail), place in the media chronology and business models (free versus paid versus bundles):

- Free short clips services (still the leading services in penetration but less and less in time spent), generally funded by advertising, provided through UGC (user generated content) platforms like YouTube or more and more through social networks like Facebook or Twitter

- Streaming platforms (mostly illegal content coming from Megavideo). Illegal content is obviously not valued, while legal solutions around SVoD offerings like Netflix have become quite popular. The value proposition of SVOD OTT is very strong, including low-price video offering, with freedom of engagement and of usage. Step by step, this proposition is strongly impacting 'traditional TV offerings' which are typically premium priced through bundles. A one-year commitment for subscriptions is often the rule, and on-demand and multiscreen viewing is only part of the telecom line-up

- Catch-up TV services (rerun but fresh content, mainly available for free for a short period of time), generally funded by advertising

- Premium VOD offers (paid services on pay per view basis or subscription basis). Typical offerings come from Apple and also from telcos.

- Live streaming services (all live video, especially sports, including also illegal contents), often packaged with other (offline) services and therefore often not valued specifically within the OTT video market. Pure OTT revenues for live are quite limited, and the consumption of live video is also marginal (except during a few major sport events) compared to on demand. Recent services from social networks like Periscope are gaining popularity to stream live content, but generally not for legal premium content.

There are three main pricing models for paid premium video content:

- the sale of digital copies in the form of video files, usually called EST (Electronic Sell-Through) or DTO (Download To Own)

- the rental of digital copies, which allows access to content for a limited time, also known as DTR (Download To Rent)

- subscription to a video-on-demand offering (SVOD)

At the moment, free and legal access models for this type of premium content (F-VOD) are virtually non-existent. In addition, community video platforms such as YouTube and Dailymotion mainly host UGC content, semi-professional content or even linear TV programming, available for a limited period following broadcast as part of a catch-up TV model. Some stock content may be offered, but on a paid to la carte basis or via subscription.

Note that there are also VOD services offered for free but linked to a main offering as part of a bundle. (For example:a selection of titles available for free as part of a subscription to a telecommunications service, a channel package or a premium television service (e.g. HBO Go) or a VOD offering included as part of a subscription to a loyalty program premium service offering, such as Amazon Prime).

Market

The market for OTT video was close to 20 billion EUR in 2015 and should reach almost 47 billion EUR by 2020, ie a CAGR of 15.8% over the 2016/2020 period. This is obviously a strong growth, but is only average compared to other OTT segments and is also quite small compared to the growth of online video traffic (see section 1.5).
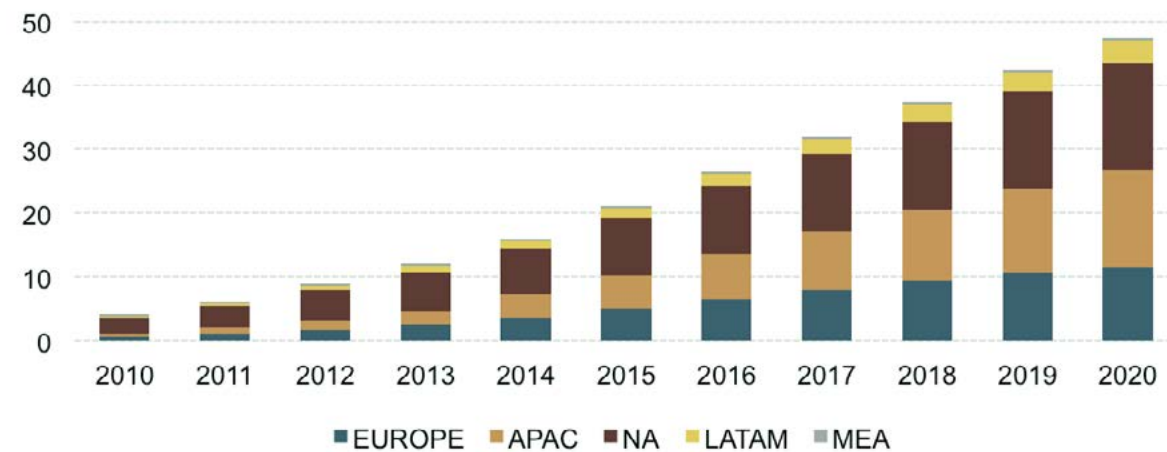
Source: IDATE DigiWorld, State of OTT markets worldwide, July 2016

The tendency of business models, between paid and advertising, depends on each region. The leader, North America, together with Europe has a roughly 50/50 split, although a little skewed towards the paid model. Conversely, APAC generates almost two-thirds of revenues from advertising.

The main drivers for online video are:

♦ **Shift to on-demand consumption**. While the time spent on linear TV tends to remain stable, consumption of online video is growing fast. On-demand videos provide more flexibility and choice in the time and place of consumption, following the motto 'AnyTime, AnyWhere, AnyDevice' (ATAWAD). The content catalogue is also growing fast, generating more time spent.

♦ **Better technologies accelerating consumption**. The progressive rollout of new technologies will clearly lead to more video consumption. Video is benefiting from better QoS and encoding and also better access technologies like fiber or LTE making it easier to consume long videos. The number of viewed videos is also going up, especially with recommendation tools and new devices offering more consumer opportunities.

♦ **Price competition on CDN bandwidth, leading to lower costs for OTT video services**. In recent years, there has been a major decrease in CDN pricing (as with transit), especially for large volume contracts. Bandwidth costs have been falling in the CDN space, due to the intense competition

imposed by new entrants, mostly pure players in the first phase and potentially now by telcos. This price competition will lead to lowest delivery costs (unit price).

♦ **Deals between OTT providers and other players.** Access to the TV set is getting easier through set-top boxes from manufacturers or cable/IPTV providers. OTT can therefore position itself as a real alternative to traditional TV.

The main barriers for online video are:

♦ **Slow adoption of connected TVs**. Whereas the consumption of short clips is likely to be dedicated mainly to the PC and the mobile phone, the delivery of long form premium programming over the Internet needs a user-friendly solution to address the television set. The connected TV set is likely to provide this missing link, but we are cautious about the rhythm of adoption by consumers beyond deals mentioned above. By 2017, all TV sets sold will have built-in Internet connectivity, but it is strongly felt that the current first generation of connected-TV sets lack the proper interfaces and 'killer services' to turn connectable TV sets into actually connected TV sets – at least in Europe.

♦ **Need for more profitable advertising solutions**. Many services rely on free and ad-based online content. The best example is that of catch-up as their content is still bad monetised. Nevertheless, the 'productivity' of advertising on OTT premium programming is at least as high as on traditional television. The growth of time spent watching premium online video should be translated into sustainable business models. TV channels and large OTT players have nonetheless made huge progress in terms of monetization of the free content, for which advertising was initially providing limited revenues. Nonetheless, there is still a huge imbalance between their share of the online video traffic and their share of the online video market revenues.

♦ **Linear TV consumption still leads**. Even though online video consumption is growing very fast, linear TV still dominates the video industry, by far. It should be noted that linear TV networks (especially broadcast ones) are cheaper alternative networks than unicast-based ones (used for on-demand content).

- **Content rights/catalogues**. The offering remains very fragmented and incomplete on the Internet. Regulation is a limiting factor around SVoD, but is not the only hurdle. Right holders are also negociating exclusive rights and experimenting various strategies to maximise their return on investment. Some long tail contents are also not offered online.

- **Piracy.** Piracy is clearly one main threat, as content is already digitalised and easier to share. The fight against piracy is also the main driver for changing regulations about 'right windows'.

From the content providers' perspective, overall strategy is still based on the size of the catalogue, both in terms of quality and quantity. To achieve this goal, they are competing to expand their catalogues; they are also providing exclusive content by increasing investment in original production as well as by acquiring, for example, sports and partnerships with studios. The delivery strategy of content providers depends on the video traffic delivered. The largest content providers, especially Google and Netflix, have built their own infrastructure while intermediate players increasingly rely on third-party CDN solutions such as Akamai to enhance QoS. Paid peering agreements are increasingly seen as an alternative for content providers to deliver their traffic arbitrating between managing volume and providing QoS. This is one of the major issue underlying the questions around Net Neutrality discussions (see Net Neutrality section).

Key trends around premium content

Videogram rentals were traditionally the primary means of accessing premium video content by the unit in the United States. However, over the recent period, the total volume of rental transactions is decreasing significantly (-14.2% between 2012 and 2015) while sales were up slightly (+2.9% between 2012 and 2015).

This slight increase is driven by growth in digital copy purchases (+146.6% between 2012 and 2015), which is compensating for the decline in physical copy sales volume for the time being (-13.0% over the same period).

Note that in absolute terms, the number of rental transactions is still nearly three times higher than that of sales, physical and dematerialised worlds combined.

Figure 7: Volume of video titles rented on physical media and in dematerialised form, United States, 2012–2016 (Million transactions)

Source: IDATE DigiWorld, Content Economics, June 2016

The difference in consumption habits in the physical and dematerialised worlds is even more pronounced in Europe. Videogram purchases were traditionally the primary means of access for individual video titles in Europe. However, rental transactions overtook the sales volume of physical and digital copies for the first time in 2013.

Between 2012 and 2015, audiovisual work sales on DVD, Blu-ray and in dematerialised form fell by 24.4% while rental transactions increased by 25.1%.

Figure 8: Volume of video titles rented on physical media and in dematerialised form, Europe, 2012–2016 (Million transactions)

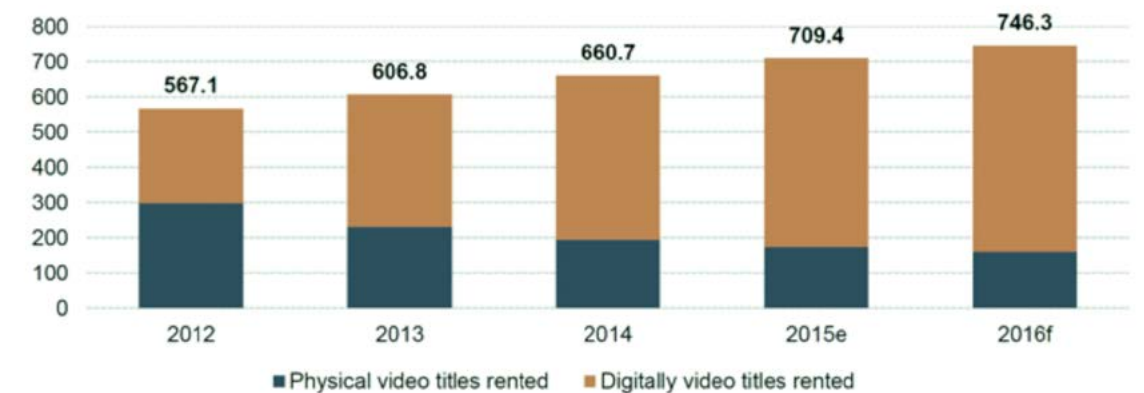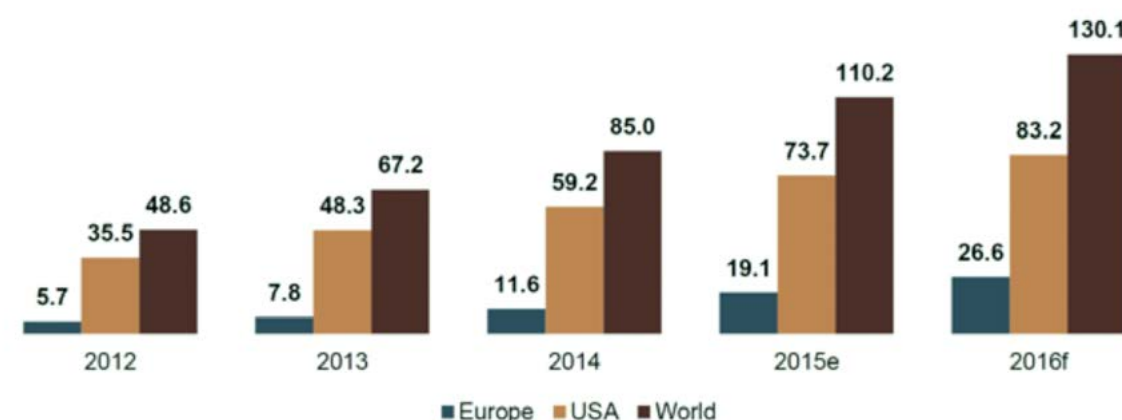Source: IDATE DigiWorld, Content Economics, June 2016

This paradigm shift can be explained by:

- earlier growth of EST in North America, driven by iTunes in particular, Apple's online store

- larger growth of rental VOD offerings in Europe, via cable operator platforms and IPTV providers especially

- the significant impact of electronic piracy (P2P and DDL), which particularly damages sales of digital copies in Europe

- new competition from subscription video-on-demand services (SVOD), which is catching on around the globe.

The growing success of SVOD services

IDATE estimates that subscriptions to an SVOD service amounted to 110.2 million in 2015, nearly three times more than in 2012. North America, and in particular the United States, is by far the most advanced SVOD market, due to the success of brands such as Netflix and Hulu Plus and now HBO Now and Amazon Prime Instant Video which has been available as a standalone product since April 2016. In total, over three-quarters of SVOD service subscribers were located in the US in 2015.

Figure 9: SVOD subscribers in the United States, Europe and worldwide, 2012–2016 (Millions of subscribers)

Source: IDATE DigiWorld, Content Economics, June 2016

In Europe, the SVOD market is traditionally driven by broadcasters of linear television channels and pay-TV service providers (Canal+ with CanalPlay in France, for example, Now TV by BSkyB in the United Kingdom). However, these initiatives are part of a defensive strategy. For the time being, this strategy has proved to be unsuccessful, the US brands (especially Netflix) are having greater success with these services than traditional TV players.

In particular, the globalisation of North American services has contributed to stimulate growth in the number of subscribers to SVOD offerings in Europe. Between 2012 and 2015, the number of subscribers to an SVOD service in Europe tripled, reaching 19.9 million at the end of the period.

Europe competitiveness is limited

The main players of the consumer video markets have very different origins:

- Traditional TV players extending to the Web, mostly with catch-up TV and also VOD. Some of them are also betting increasingly on live sports

- Internet giants from different origins (search, social network, e-commerce) expanding to video, with first free short clips and now to other type of video services

- Start-ups offering technical tools or acting as aggregators of content catalogues

Thanks to their good connectivity, the most advanced European markets don't lag behind in terms of online video consumption and quality of experience. This assumption is however less effective in tier 2 European markets.

In terms of revenues, the European video market is more advertising based than the US. Indeed, if paying systems developed quite well in the US for online videos, there will be a need in Europe to find the efficient technical tools (synchronisation and audience measurement systems) and corresponding advertising formats to favour more advertising based online video business models.

The video content itself is a big issue for Europe, US studios and TV networks still generate the largest audience per TV program/film. The fragmentation of the European production market and the strong TV regulation (differing from the web) in the continent could hamper the development of competitive European video programs, beside

few exceptions. According to the world capillarity of the web and the simplest US copyrights' rules, there is a threat that US players grab even more revenues from online video contents in Europe. This trend could materialize both in B2B (revenue sharing) and B2C (direct distribution to consumer) systems.

More generally speaking, the market of online video is dominated by US players in almost all segments. Content for sure, aggregation (with YouTube, apple iTunes, Netflix or Amazon also active outside the US), technologies with software environment. Only the CPE segment is led by Asian players, with the immense exception of Apple. With different strategies, open vs walled garden, respectively Google and Apple could take a major share of the future online video European landscape, in addition to Netflix.

Telcos opportunities and risks around video

Video clearly represents a large part of Internet traffic and requires even more investment with no direct revenues for telcos -- the extra bandwidth consumption being charged only in metered plans. **This video traffic is nonetheless indirectly paid by broadband access. With the explosion of traffic, however, it is getting harder for telcos to cover costs.** More specifically, the expansion of Netflix overseas is driving the market, creating defensive reactions.

The major operators are particularly involved in TV/video delivery for their own clients. Video has been used as a way of selling triple-play packages by most telcos with linear TV (delivered through multicast) as well as with video-on-demand solutions. Telcos are now looking for ways to attract users and increase their subscriber base. They are starting to diversify their video offerings by providing Pay-TV services through partnerships or acquisitions. A few initiatives also indicate the telcos' desire to enter the OTT space for on-demand video through portals or multi-screen offerings at the risk of cannibalizing their video offer over managed services. **After traffic, set top boxes are becoming another issue between OTT and telcos**. Telcos have developed a walled garden through set-to-boxes, the simplest way to access the TV set. This may disappear with the challenge of the boxes available, notably provided by the largest OTT players Apple, Amazon and Google. Today, Telco STBs are nonetheless key and some OTTs like Netflix are inking deals with telcos to gain access.

Telcos still have real opportunities around paid content in leveraging managed services, i.e. a combination including customer base, network with QoS, billing service and set-top boxes, which is still necessary for mass market access to the TV set. The retail option (i.e. reseller or packager) clearly has more potential, as **the world market for on-demand video will be close to 6.5 billion EUR in 2018** on managed networks (mainly telcos/cablecos). **The big challenge remains the telcos' capacity to grow the SVoD market** (which may grab market shares from the VoD market) **for which they now only capture 22% of revenues**. All the major operators, essentially the incumbent operators, have implemented telco CDN solutions. But there are fewer opportunities as technology enablers through telco CDN than for video content.

1.2.8. Collaborative economy

The collaborative economy refers to consumers making their surplus resources available to others through online platforms that serve as intermediaries, be they financial resources (savings, treasury), capacity (housing, means of transport), time (with specific skills to offer) or goods. It is already covered in the e-commerce market. Nonetheless, there are numerous specific regulatory developments that justify to isolate this trend.

An age-old concept, but a disruption in terms of scale and scope

Consumer involvement in producing services is by no means a new idea on the Internet. It already exists with services that are delivered online, ranging from the production of software (open source) and digital content (Wikipedia) to sharing computer resources (P2P), by way of C2C commerce (eBay). With Uber, Airbnb and BlaBlaCar, the concept has expanded to include local services as well.

This involvement also existed well before the Internet, through want ads, B&Bs, etc. But the Internet has changed the paradigm in terms of the size of the target market and in consumers' approach to consumption, shifting from ownership to on-demand usage.

A lasting phenomenon that's growing

The phenomenon has already reached massive proportions, with close to 10% to 15% of Internet users employing the most advanced services, even if only between 2% and 4% of them actually contribute. More and more are embracing collaborative services, thanks to the ability to offer very competitive prices, practical, useful services and, to a lesser degree, a change in lifestyle that puts less and less emphasis on ownership. The number of people sharing their resources is also growing fast, many of whom have a modest income and are therefore attracted by the ability to earn some extra money.

Emergence of new Internet heavyweights

The champions of this collaborative economy are players that are positioned as resource aggregators, providing a consumer-to-consumer distribution platform. Their growth has accelerated tremendously over the past two years, driving their market value into the stratosphere. Some see them as the future Internet giants.

Banking on serving as key intermediaries between buyers and sellers, more than on monetising personal data, their current approach is rather different from the one taken by today's Internet giants, even if they have adopted some of their practices: expanding their platforms as much a possible, swift geographical expansion (which sometimes means having to compete with local players, such as Didi Kuaidi in China) and diversification (Uber delivering food). They are also having to compete with veteran Internet heavyweights in some instances, e.g. Google vs. Waze for carpooling.

Most the leading players are US-based or Chinese-based (but essentially for domestic operations), often copied by local players in Europe, that may be acquired when US players expand to Europe (similar moves have been seen in the past around for instance for online auctions). There are nonetheless some significant that emerged from Europe like French Blablacar for carpooling. Telcos have not been involved so far around sharing economy, directly or even indirectly (like for instance with partnerships).

Regulatory pressure is building

The collaborative economy creates the ability to offer very competitive pricing, and even charge nothing for something like couch surfing or through the use of crowdfunding. Which is why it is challenging the traditional economy and, by extension, the economy as a whole. The main obstacle to its development is rooted in regulation, even in those countries that are reluctant to regulate the Internet. Governments are working to protect traditional businesses, and do not hesitate to forbid certain services, including in France and Germany. Federal governments also want to be able to collect taxes from the companies providing services which, in theory, cannot seek refuge in the (alleged) tax evasion schemes that Internet companies employ, as the services they provide are very local.

1.3. Business models

1.3.1. Revenue models

For Internet services, there are three main direct business models in which revenues are only linked to Internet services and not bundled with any other vertical service or products): direct paid services, e-commerce and advertising:

- **Direct paid services** include the provision of digital services through a payment (one-off or subscription) like the cloud (especially professional services like Salesforce or Amazon Web Services), paid mobile apps (like games) social networks (paid content in social networks, especially in Asia), OTT video (especially SVOD and VoD like Netflix or ITunes), OTT VoIP, fixed online games (like MMORPG War of Warcraft), music (like iTunes or Spotify); this model is not so different from traditional business models of the content industry or to a lesser extent of the software industry. Regulation concerns focus essentially on pricing level impacts (and indirect benefits that may come from taxation for instance) and competition with equivalent physical content.
- **Online advertising** revenues, on the other hand, include search, social networks, OTT video, fixed online games and various other forms such as portals and press. It should be noted that some Internet services, such as social networks and video, have both paid models and ad-funded models. Regulation concerns generally arise around relevant questions around personal data (like privacy).
- **E-commerce**[3] includes all services based on transactions for a physical good or service, therefore ranging from online merchants of electronics and travels (like Amazon or Booking) to sharing economy platforms (like Uber or Airbnb). Regulation concerns focus mainly on competition aspects, but should evolve over time also towards privacy with the increasing use of data targeting (see below RTB and retargeting)
- There are also alternative models that need to be considered in the overall landscape:

---

3. The value of the e-commerce itself is not included, only the value added created through the Internet; thus, for example, if a car is bought online the value of the car itself is not included, but a small percentage of it accounting for the revenue creation for the Internet is included.

- **donation-based.** Service can generally be used for free, but users are encouraged to help fund the service through donations or resource sharing. While this model is quite marginal in terms of number of services using it, some significant services are making most of their living with this model. The prominent service being behind it is Wikipedia (knowledge sharing), but we could also mention many open source based initiatives like OpenStreetMap or P2P file sharing systems (BitTorrent). The core of the service is generally maintained by activits/hobbyists.

- **Cross subsidies from offline activities.** Many services are often provided for free as companion service to physical goods or offline services. They do not have a business model per se, but contribute to increase the value of a product/service already funded otherwise. This is typically the case of most online banking services provided by traditional banks or government based services. Cross-susbsidies raise naturally competition concerns.

Internet services are often perceived as 'free' by users, meaning that they do not need to pay any money to receive the majority of services available on the Internet. In reality, though, the majority of such services are funded through the advertising model.

There are also cases of the 'freemium' model, often used in mobile gaming applications, where users can play games for free up to a certain point and/or with limited access, but are required further to pay in order to play the game to its maximum. There are also cases of genuinely free mobile apps provided by players who have a different revenue stream, such as banks, who provide free mobile banking apps. These are designed to enhance user experience of their main service, in this case banking, and they do not aim to make any revenues from the apps *per se*.

Focus on advertising

Advertising is mainly implemented around two types of formats: search and display. Search involves self-selection; it leverages cookies for finer targeting, leading to better performance for advertisers. Display, in such forms as banners, rich media or video, has so far been replicating traditional media with a mass audience approach, but it is progressively using targeting techniques.

Figure 10: Worldwide advertising markets breakdown in 2016 and 2020
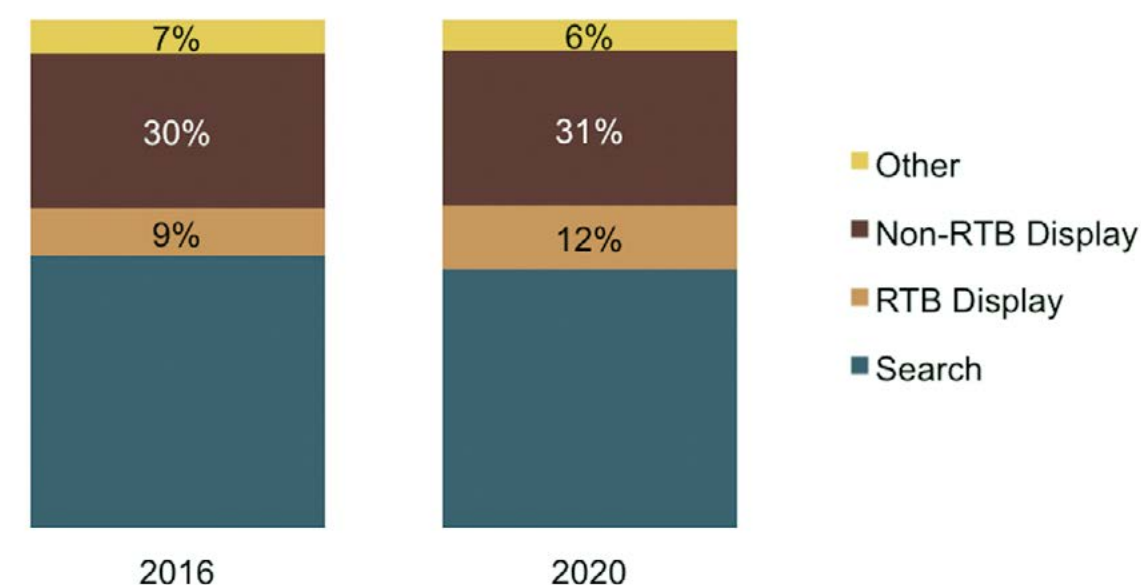
Source: IDATE DigiWorld, State of OTT markets worldwide, July 2016

Advertising (so far used by only a few offline services such as TV) will remain a major source of revenue for services, at least those with a zero marginal cost structure, as with for instance OTT communication services. It will continue to improve with simplified automated tools and metrics measurement for ad buyers, but also better targeting technologies combined with higher data quantities (RTB, big data and analytics, sensors) improving ad prices and offering the possibility to fund new services this way.

Data will also be monetised outside advertising for marketing (direct or not) for internal sales optimisation (cross-sell, up-sell) or by sales to third parties. Nonetheless, not all services can be funded this way and only players with large (direct or indirect) access to data can operate this way. Advertising is obviously key as the basis for most free services on Internet (except donation-based services and cross-subsidised services), users and payers being different entities.

Figure 11: Player shares of online advertising revenue, 2015
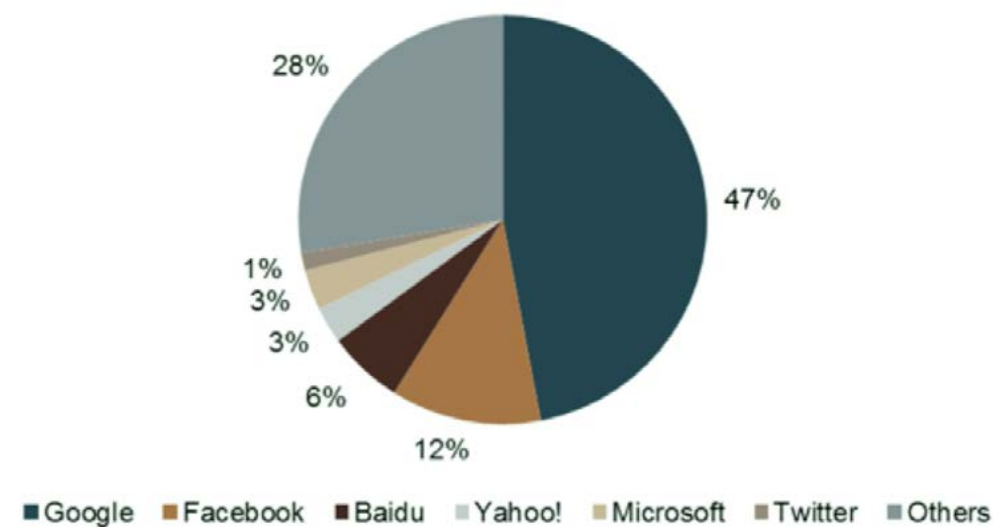
Source: IDATE DigiWorld, State of OTT markets worldwide, July 2016

Figure 12: Player shares of mobile advertising revenue, 2015
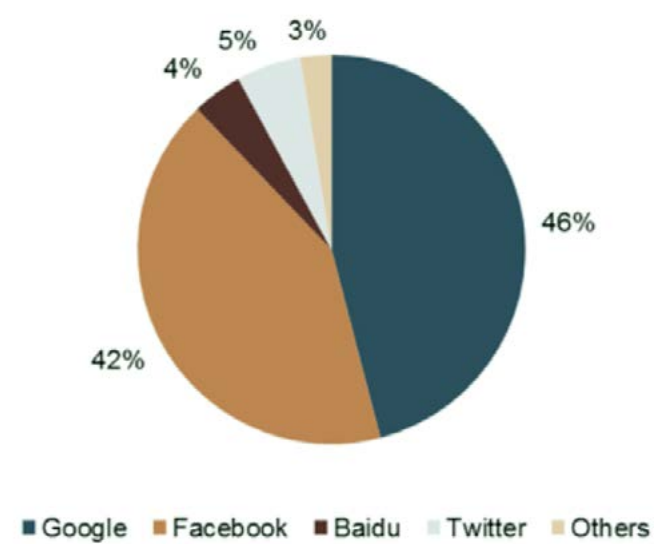
Source: IDATE DigiWorld, State of OTT markets worldwide, July 2016

Focus on RTB

RTB is a form of programmatic ad buying, and forms a part of the display-advertising market. It is complementary to targeted advertising which is refined through the use of personal data, where RTB gives this targeted advertising the real-time added value. RTB is the fastest-growing segment within the advertising market since 2012. IDATE forecasts the global RTB market to grow to 23 billion EUR by 2020, up from an estimated 12 billion EUR in 2016, or a CAGR of 17.9% over the period.

Figure 13: The Real-Time Bidding process
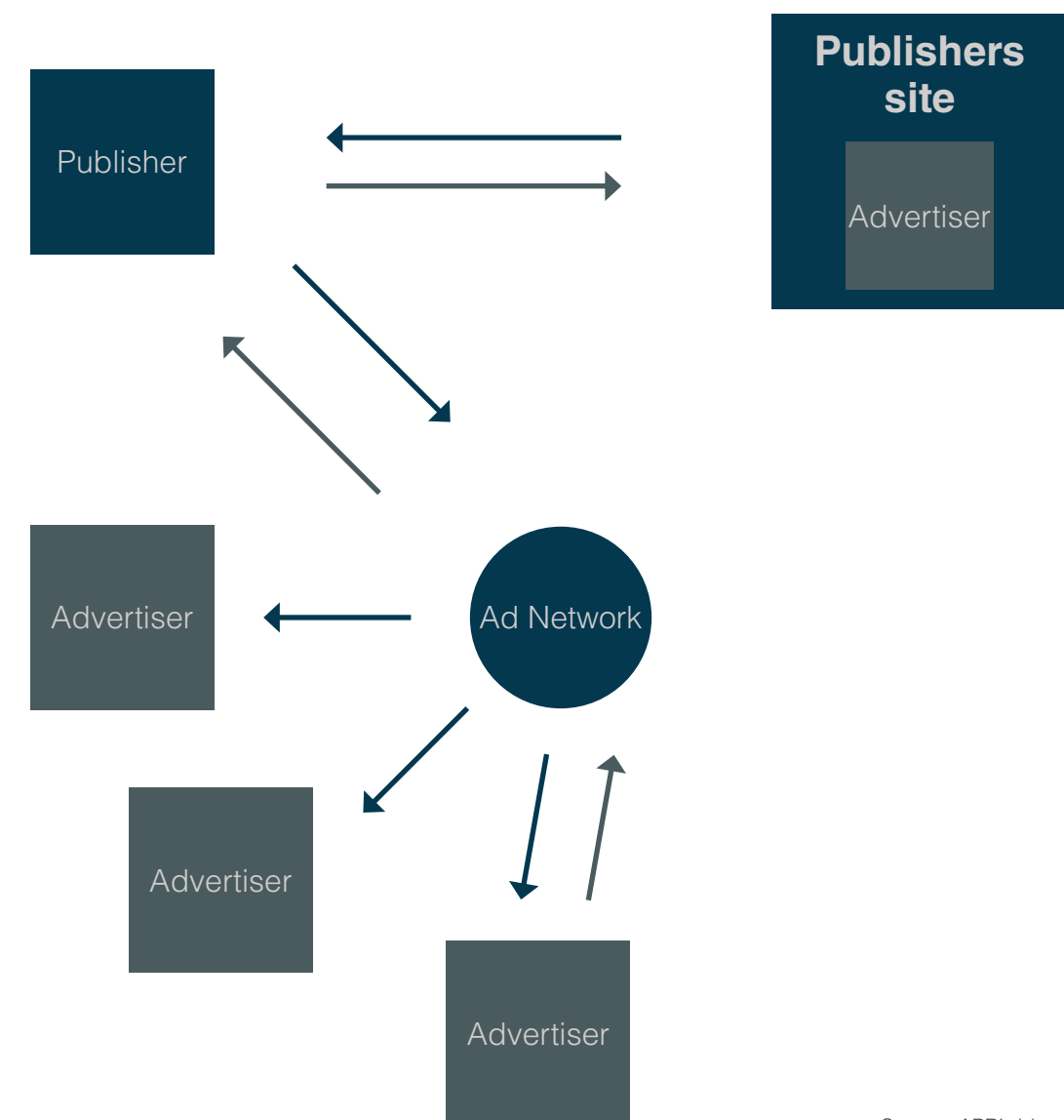
Source: APR's blog

The growth is RTB is driven by several factors, the most obvious being the increase in ROI which RTB brings for both advertisers and publishers. From the publisher point of view, they see an increase in eCPM, since RTB can provide better-targeted advertising space in real time, which is more effective than traditional inventory. From the advertiser point of view, the increase in eCPM means that they have to pay more to advertise in that inventory. However, the use of RTB means that the advertisers have access to much better targeted, relevant and thus effective inventory, which compensates for the increase in eCPM.

From the perspective of personal data use, RTB does not in itself increase the use of personal data. However, it does provide real-time and further automation capabilities within the display-advertising value chain. Thus when used as a tool, RTB is expected to further increase the use of personal data for targeted advertising. Since RTB is also provided as a single interface, this also means potential disintermediation of the middlemen within the value chain, especially those such as ad networks which have traditionally worked in the non-automated environment. Market consolidation may also follow, with increased competition and maturity.

Data monetisation: Internet giants' ARPU low

It should be noted that ARPU (average revenue per user) generated by Internet giants through their Internet services is not particularly high. In particular, Facebook is often referred to as having over a billion monthly active users – an impressive figure of course – but in terms of the ARPU of this massive user base, the calculation turns out to be rather low[4].

As the figure below demonstrates, IDATE estimates Facebook's annual ARPU to have been 8.5 EUR in 2015, or roughly 0.6 EUR in terms of monthly ARPU. Even Google, estimated at 37.8 EUR annual ARPU (or close to 3 EUR monthly ARPU) is low compared to that of telcos, who can at the very least expect double those figures for monthly ARPU. This pattern of low ARPU may not come as a total surprise, however, when considering the mindsets of Internet companies, which tend to be 'get users in first, then think about revenue generation after', especially for start-ups.

In the case of Apple, it should be noted that the revenues are for their Internet=related services only (such as those through iTunes and the App Store), and does not include their device sales (mainly iPhone, iPad and iMac) which are their core source of

_____
4. ARPU is calculated by dividing the number of active monthly users into Internet service revenues

revenue. The fact that their ARPU is declining can be explained by the fact that there are a growing number of Apple users who do not access their paid Internet-related services; to put it differently, there are now more Apple users from the general mass who are unwilling to pay, as opposed to before, when Apple users tended to be tech savvy and heavy users of the mobile Internet.

Figure 14: Estimated annual per-user revenue for Internet services worldwide, 2011-2015 (EUR)
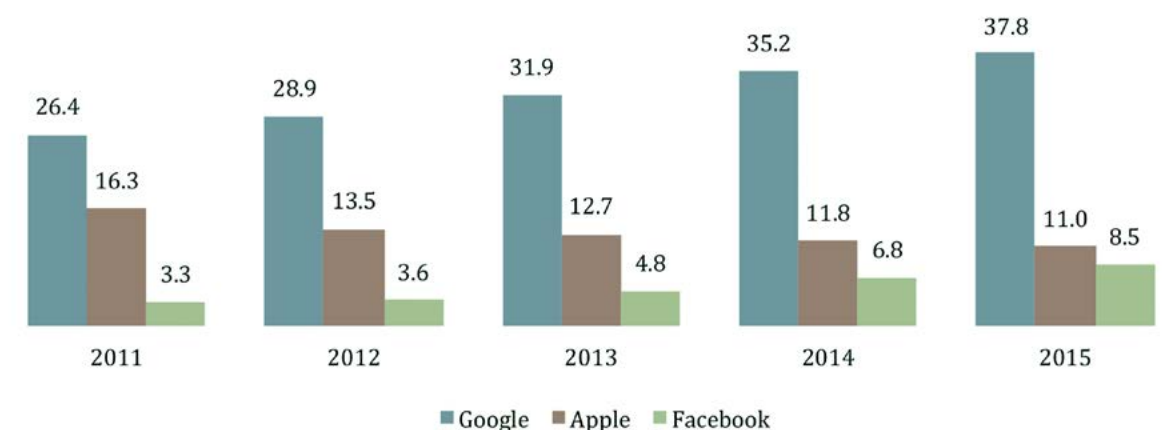
Source: IDATE, World Internet markets, 2016

Indeed, revenues generated by personal data per user are quite low, even for very large players across plenty of services.

The role of device manufacturers: direct revenues from personal data are secondary

When talking about the Internet giants, the term GAFA is occasionally used, derived from the initials of Facebook, Apple, Google and Amazon. It is interesting to note that out of these four, Apple is actually a hardware (device) manufacturer in terms of core business and main business revenue, whereas the other three are indeed 'Internet giants' in that their main business and revenue is based entirely on the Internet and personal data.

According to Gartner, Apple has around 12% of global smartphones market shares, second to Samsung who leads with over 30%. All others are roughly 5% or below. Thus these two manufacturers have a large role to play in terms of the provision of

smartphone devices. It is also interesting to note that these two players also have their own OS. Apple of course has their own iOS and provides only iOS phones, whereas Samsung has their own Bada OS but also provides many Google Android OS phones.

Their strategies are clear. Apple has a closed model, whereby everything is controlled by Apple; the device, OS, payment (iTunes), applications (App Store) and so on. Samsung has a much more open approach, providing their own OS-based smartphones but also those with Android or various other OS. In particular Samsung provides a wide range of devices to cater for various needs, high-end and low-end, suited to the various markets.

Whilst it is hard to argue against Apple playing a major part in making mobile applications, app stores and the 70 and 30 revenue sharing model mainstream, these represent only a minor – and diminishing – share of Apple's overall sales – dropping from 9% in 2009 to 5% in 2012.

Figure 15: Apple sales breakdown, 2011-2015
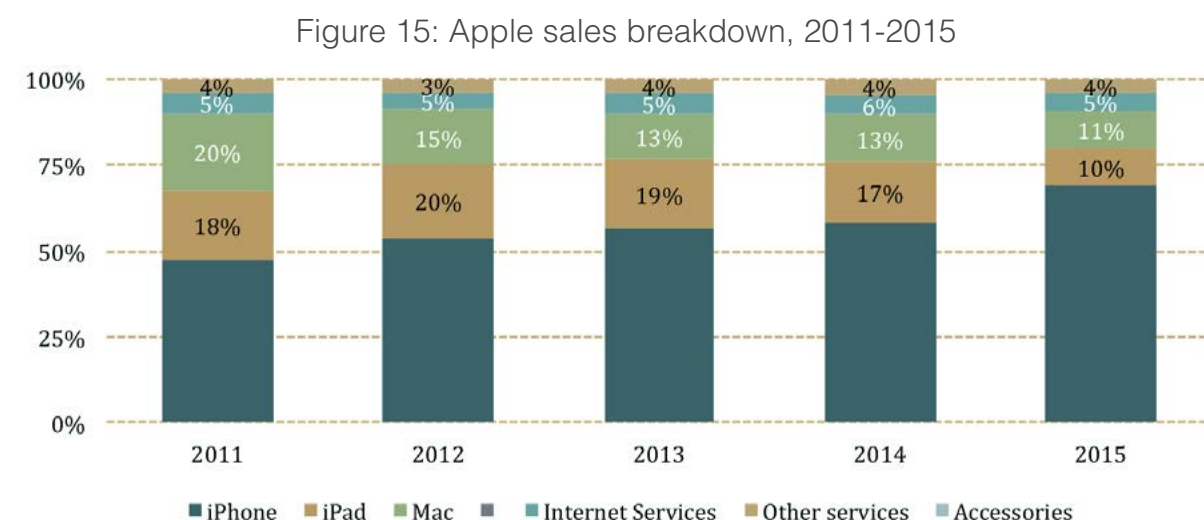
Note: includes sales from the iTunes Store, AppStore and iPodstore, but also iPod services and Apple-branded and third-party iPod accessories. Source: IDATE, World Internet markets, 2016

It is also worth noting that when considering all mobile phones, so not just smartphones, Nokia used to come in second in terms of shares, in between Samsung and Apple. However, they have killed their OS, Symbian, and their device business has been acquired by Microsoft. Microsoft is trying to become the third smartphone ecosystem behind Apple and Google, but as yet they remain far behind.

Players betting on hardware revenues from, for example, electronics or wearables use Internet services, even from third parties, mainly to increase their device sales rather than generate new data to monetise it. They may therefore adopt a very different approach towards personal data compared to other Internet giants.

1.3.2. Two-sided markets and Platforms

Two-sided concepts

A typical approach of OTT players is the platform approach, around two-sided markets, with OTT players acting as intermediaries. Indeed, most OTT players are often new intermediates (even though they disintermediate traditional players). Large OTTs generally go for a two-sided business model connecting the users and other third parties.

There are three main 'others' identified here – developers, advertisers and merchants. Firstly, there can be collaboration with application developers. Large OTTs collaborate with developers to provide users with various applications. In this case, the OTTs receive a share of the revenue paid by the user for the application, independent of the payment model, whether freemium, subscription or one-time. OTTs offer SDKs and APIs for the developers to develop their apps, and this can also be a source of revenue. Other models also exist, for example in the case of Apple, whereby by providing apps through their App Store they increase the appeal of Apple devices.

Second is collaboration with advertisers. Many services available on the Internet are free (and users have come to expect them to be free), and in many cases this is funded by advertising. The obvious reference here is Google, who offer various free services to users in exchange for their data, which is used for advertising. In addition to various advertising models such as CPM, CPA and CPC, OTTs can also offer analytics of the data.

Thirdly, there can be collaboration with merchants. Collaboration with merchants is also possible, where the OTT acts as an intermediary to deliver physical goods or services to the users, such as in the case of Amazon. In this case, OTTs can receive a part of the fee paid by the user in the form of transaction fees.

The main impact for telcos here is that, actually, telcos can offer similar 'copycat' services to the OTTs to generate some additional revenue as a platform. It is true that

telcos have been offering such platform services for many years, but they have largely been unsuccessful due to complicated and cumbersome tools and unattractive revenue deals. With the arrival of the large OTTs, however, the landscape has changed and telcos are competing with such players.

DEVELOPERS	• Revenue share • Freemium • SDK fees • other (device)	• Paids apps or in-app purchase
ADVERTISERS	• CPM • CPC • Analytics	• Free ad-based services
MERCHANTS	• Transaction fees	• Physical goods or services
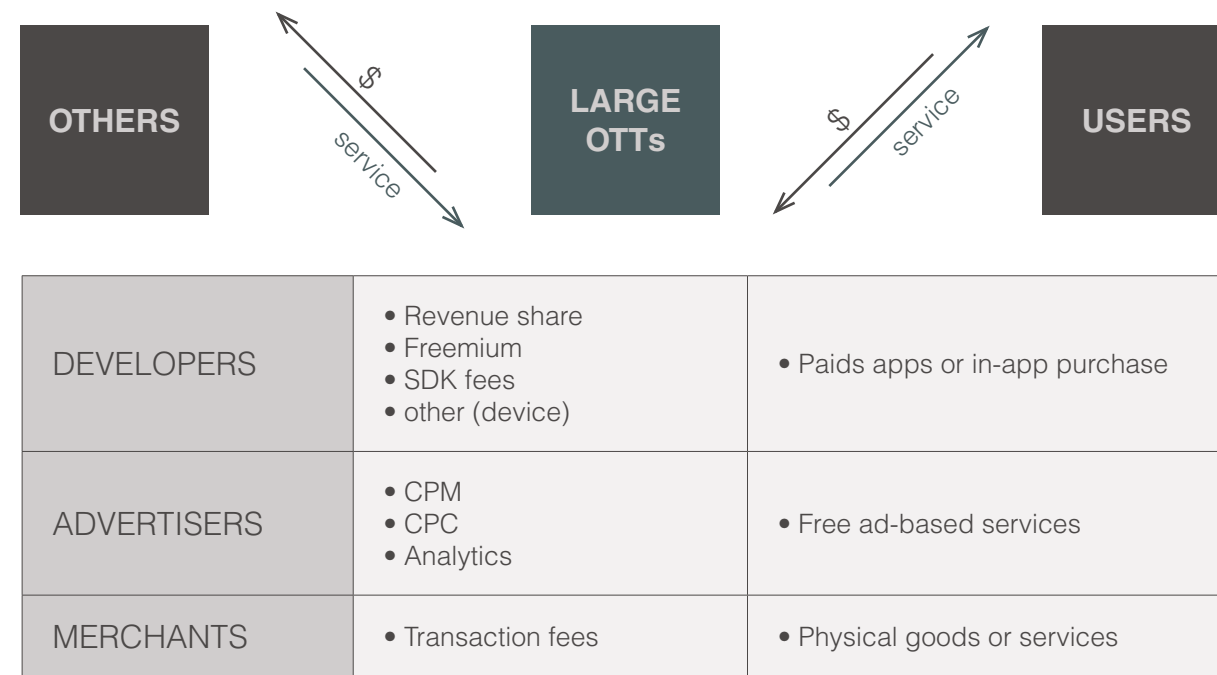
Different types of two-sided markets among OTT players

The many players that populate the online services universe take different approaches to their business, with different forms of intermediation, which can be measured by two criteria in particular: how much they use personal data (raising concerns around privacy and security) and how diverse their product line is (and therefore how much they bundle their services with other services, which may imply some cross subsidies, raising concerns around competition).

Some Internet services content themselves with serving as an intermediary between different types of player, or with supplementing the user experience on a device. Personal data is therefore used internally and only to a moderate degree, as a way to optimise QoE. This is true of vendors offering transaction-based services (paid content, e-commerce, cloud computing) within a relatively small range of products, such as Netflix or BlaBlaCar, and even Apple – albeit to a lesser extent as the company earns the bulk of its revenue on device sales. The success of these services therefore depends chiefly on their ability to innovate in terms of pricing and/or user experience.

Other services are based on exchanging data. Having access to this plethora of data allows them to develop a business model around monetising personal information, either through advertising or recommendations and paid products, as is the case with Google, Amazon and Facebook which have managed to dominate the markets in terms of both volume and value thanks to this approach. These three together generated 60% of the globe's online advertising in 2015. But these models could be challenged by growing concerns over data security and privacy even if, despite low trust levels, usage remains high.
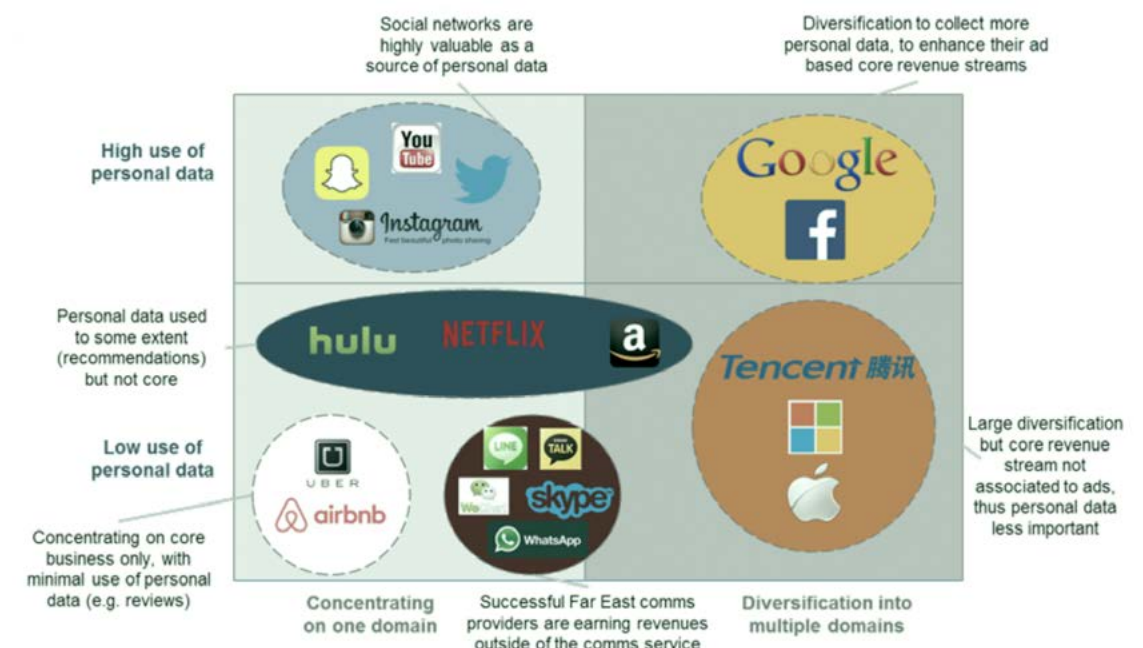
Source: IDATE DigiWorld, State of OTT markets worldwide, July 2016

From marketplace to software platform

Each of these services is typically designed as a marketplace, possibly financed by a single group of players. Its value increases as it networks with other services and other data. It makes especially good sense to adopt a service portfolio approach within an optimized software environment.

Of course, an open innovation model that draws on standards such as HTML5 is also possible. It was in fact the core model in the early days of the Internet, until the Web came to fruition. But a great many proprietary environments have also developed, particularly

because of mobile devices and the Internet of Things, and they are the foundations for developing a software platform-based approach. This makes it clearly harder to regulate, when moving from vertical regulation (retail) from a software regulation.

Strategies of large OTT players

The top Internet companies and their local equivalents in Asia (like Tencent) dominate the key OTT markets. They have all adopted a diversification strategy for their business, built around the most attractive services. Their only real rivals in the consumer segment are a handful of occasionally powerful specialised players (Netflix, eBay/PayPal, Twitter, Dropbox, Uber/AirBnB), and more software and retail industry titans in enterprise markets.

In the Internet services field, there is often a dominant player in that market. Google, for example, dominates the search market, Facebook the social networking market, Apple the mobile devices market (certainly in terms of profits if not shares) and Amazon the e-commerce market. Microsoft can also be considered a giant with their Bing portal.

Increasingly, the major competitors for these players in their respective markets are becoming the other major Internet players. Put differently, these major players are diversifying into other areas of the Internet market, and armed with their established brand, are providing relevant competition. They generally do that through cross subsidies and bundles, building from their existing services and adding features around it. Sometimes, they go for a large acquisition to position themselves as seen with Google and YouTube, Facebook and WhatsApp, Microsoft and Nokia and Amazon and LOVEFiLM.

As an example, Google has launched its own social networking service, Google+, in competition with Facebook. Google also competes with Apple on several fronts, particularly in the mobile space (OS, mapping application, devices and application stores). Amazon has built an application store on top of Google's Android OS, and has launched tablets in the shape of the Kindle. The list continues.

These Internet giants are thus expanding out of their core markets, in an attempt to establish themselves in other major markets. In doing so, they are providing a platform for third-party developers, inviting them to build new and innovative services on top of it. Here, the aim of the Internet giants is to ultimately become the main or even the sole gateway for all Internet users to the core Internet markets. In this way, the Internet giants can gain control over their users, and of their personal data. Indeed, personal data is one of the most powerful and desirable tools for Internet giants. Firstly, it allows them to better understand the Internet users and hence they can provide further improved services, helping them to further consolidate their dominance. In addition, the personal data can be used as a revenue stream, most notably from advertising, which is particularly important for the likes of Google and Facebook whose majority of income relies on advertising.

Even if an Internet giant is dominant in their core market, they are a challenger in the others. They tend, therefore, to change the baseline offerings in those markets by, for example, lowering the tariff or providing more for the same price, or free. Since the challenger is making profits in their own core market, and their priority in diversifying is to gain more user data as opposed to making profits, the challenger can afford to provide services art break-even or even for a little loss. This makes it difficult for start-ups and new entrants, since they cannot go on forever without making any profits, and ultimately the best case scenario for them becomes being acquired by one of the big players.

Figure 16: Top Internet players all over the board in 2015


Source: IDATE DigiWorld, State of OTT markets worldwide, July 2016

A policy of diversification is not only implemented only through internal developments, but also acquisitions. The Internet giants, which have huge amounts of cash on hand, rarely hesitate to spend big to add to their arsenal of vital services and technologies, including those that enable them to roll out new services quickly. However, their strategy goes beyond just diversification which, in the case of traditional industries, often took the form of holdings in other companies with which they had few synergies. Their investments today are aimed more at adding vital technical features and apps to their existing service, to strengthen their platform's potential as a key Internet destination and intermediary.

Powerful platforms have thus been built around fixed services, be it Amazon with its e-commerce sites that have been opened up to outside vendors through the Marketplace, or Facebook with its social network that has incorporated a host of gaming and photo applications. Whenever possible, the strategy also involves offering a plethora of apps on each level of the platform, not only to maximise the amount of time users spend on it, but also to enhance the masses of data they generate.

The capacity of platforms to bundle services can have some huge impacts, as seen with Google Maps being impacted by the release of Apple map solution (directly integrated on the iPhone).
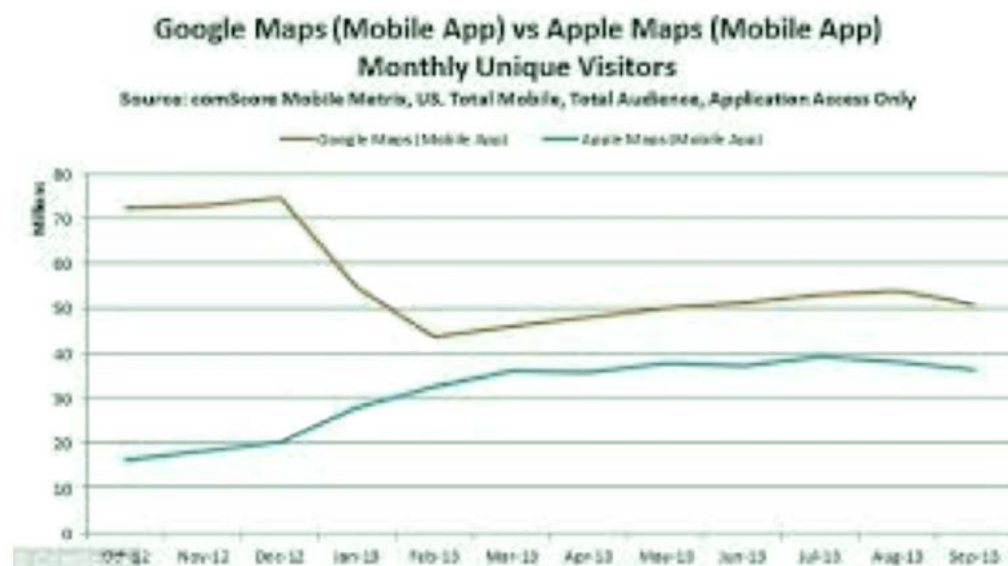
Source: Comscore

Geographical and vertical platforms

The top four Internet companies in the United States (GAFA) dominate their domestic market and, to an even greater extent, European markets where home-grown heavyweights are few and far between. But several major countries do have their own Internet ecosystem, notably South Korea, China and Russia.

The Internet leaders in these countries are also positioned as platforms, taking the same approach of steadily expanding the range of services they offer, to cover all of the Web's key segments thanks to acquisitions (UCWeb and Youku Tudou from Alibaba), and diversifying into most services. The software chops of America's foreign rivals are far less developed, however. Most of Asia's key heavyweights started out in gaming or e-commerce rather than in software and analytics, before going on to build up strong positions in related segments such as payment, social media and communication. It is nevertheless worth noting how China's Internet leaders have evolved: albeit in a marginal fashion, Alibaba has been taking a software-centric approach since 2012, with Aliyun OS, AliCloud and indirectly with Meizu devices, while Tencent rolled out its own operating system in 2015, aimed largely at connected objects.

The platform approach is also being taken by some of the Internet's vertical segments, such as online travel. Here too, market leaders such as Expedia or The Priceline Group have expanded beyond classic hotel and airline bookings, and have developed their own meta search engines (Trivago and Kayak) and expanded into travel-adjacent sectors such as restaurant bookings (OpenTable).

There are therefore similar concerns in some traditional vertical markets and/or geographical markets, but with a more focused approach.

1.4. Value Chain

At least two different angles should be taken when looking at the value chain of OTT services. The analysis should indeed look at data, both in terms of packet data (IP traffic) and in terms of information data (sometimes personal) being exchanged.

1.4.1.Trends in the ecosystem

Natural monopolies?

Internet services can mean significant economies of scale, just as with the software industry. They are, in fact, of the same essence as software and thus replicate their main characteristics in terms of market structure. The fixed-cost nature of software development tends to favour the emergence of dominant players and even *de facto* monopolies. The initial investment required is indeed a high hurdle to entry for new entrants, except for fully open or standardised technologies. The fixed software costs are nonetheless significant only for the most demanding services – search is one such. Only a few players in such a service can remain competitive. There are, though, plentiful markets with low upfront costs, and with potential disruptors.

Easier diversification

The Internet market has evolved from one of focused providers to one of multi-market players. Traditional models meant limited diversification and a focus on specific products and services, specific customer groups and specific geographies, mainly with local distribution. Thanks to technology modularity, players can now easily go beyond their natural footprint and offer a more diversified raft of products, including third-party ones. Such moves are likely to lead to accelerated commoditisation.

Disintermediation and reintermediation

Traditional intermediaries are disappearing as digital forces and the Internet allow for direct exchanges and sales with customers. Value is therefore increasingly concentrated around asset holders engaged in service production and retailers with regular access to users and customers.

Due to commoditisation along the value chain, the focus is moving to two areas: the control of exclusive assets in the form of patents, network infrastructure, premium content and some vertical products and, second, the battle for users' personal data.

Intermediaries are re-appearing in the Internet value chain, this time as aggregators of these assets of production or customer relationship. A great many marketplaces are being established, taking significant commissions but giving rapid access to a large market. Likewise, players are emerging with the capacity able to build catalogues of information spread over numerous asset owners.

Figure 17: Distermediation and Reintermediation
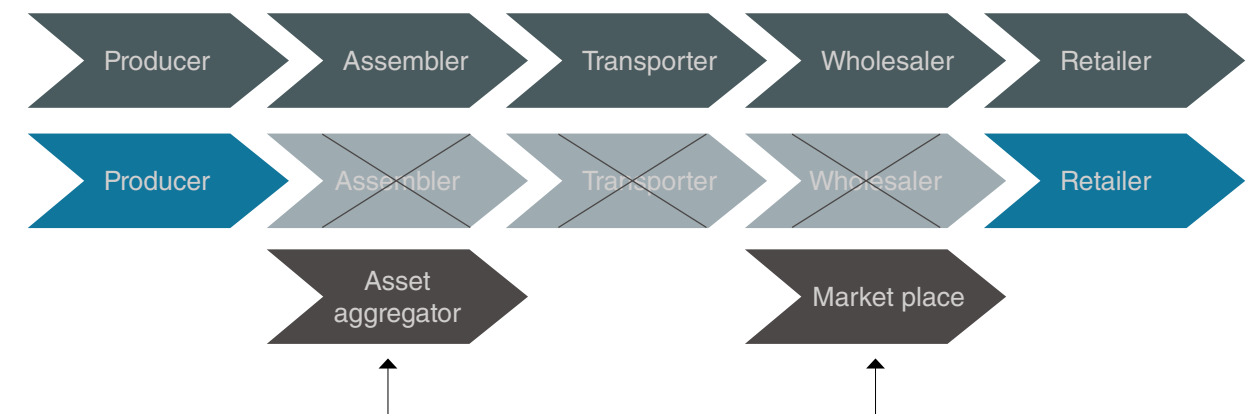
Source: IDATE, The Future Internet in 2025, November 2014

Lower revenue, stable margins?

Fundamentally, Internet is a disruption in which service providers (ICT and non-ICT) need to learn to operate with lower revenues per unit, due to increased competition. The pricing of the Internet is indeed increasingly based on low revenue per user from advertising or even from paid services. As the cost structure adapts, however, the margin per user may remain quite high anyway – and even higher in terms of percentage of EBITDA – due to fewer intermediaries, low-cost resources and a software-based cost model. Finally, with more users (as the market potential is often bigger) and fewer stakeholders in the value chain, the total margins are often higher than in the offline world.

Commoditisation

Because of the software nature of many services and given the availability of cheap third-party infrastructure, technological innovations are generally quite easy to duplicate or copy. This will lead to rapid commoditisation, encouraging players to differentiate by focusing on non-technology aspects. As mentioned above, a few assets can be exploited, but the major asset is indeed the customer him- or herself and his/her personal data, as acquisition and retention costs are quite high.

1.4.2. Typical value chain for delivery of Internet services

Theoretically, the value chain for online content delivery is made up chiefly of the following links:

- service providers (online content or service)
- various IP transit providers. The IP transit link in the chain is dominated by specialised operators which are often distinct from access providers (ISPs), as a result of which ISPs do not benefit from the revenue generated by the distribution of content on the Web.
- CDN operators only replace IP transport network operators to some degree, by optimising video distribution algorithms, acquiring wholesale transit solutions and by installing servers on the edge of access networks. The value added of the transit service is therefore tending to diminish, which means that prices are dropping even though traffic is increasing.
- device providers (but playing generally a transparent role for traffic delivery)
- access providers.

This is a quite detailed value chain. BEREC uses in its November 2015 report a simplified version with just CAP (Content and application provider), ISP (Internet Service Provider) and end-user.

Service Content provider → Hosting CDN → Telco 1 → Telco... → Telco n → ISP → Device → End-user

So content and service providers have several options for distributing their traffic. Depending on how big the content or service provider is, the traffic distribution model will involve more or less direct delivery to access providers.

- Smaller content and service providers will rely on a single hosting service that will invoice them for a portion of network aspects, generally based on volume. The hosting company then pays one or several operators for transit (by bitrate).
- Medium size content and service providers, and even smaller ones wanting to ensure a certain level of quality of service, generally employ CDN solutions like Akamai. So they will still pay their hosting company but this covers only a portion of their bandwidth. The rest of their bandwidth costs are handled by the CDN players and based on volume of traffic.

- The larger content and service providers, along with some specialised new entrants, often deploy their own infrastructure, including their own data centre and an autonomous system (or AS, which is a virtual routing unit) and are involved in running the network, so handle their own hosting. Like web hosting services, they may occasionally use IP transit providers or CDN, and so recreate the configuration described above. But they can also take advantage of their size in terms of traffic and/or their infrastructure to develop peering agreements directly and distribute a portion of their traffic directly.

1.4.3. Typical value chain for distribution of mobile applications

For mobile services, the device and to a lesser extent local connectivity characteristics are much important, leading to a different value chain. Today, mobile ecosystem is made up of several players, each having a different role in the value chain:

- **Device manufacturers** are responsible for making the end-user equipment i.e. devices such as smartphone or tablets. Devices are a set of components assembled to provide several function in one single device. It is the responsibility of each device manufacturer to determine the feature that it wants to provide to the end-user as well as the level of performance required for each of those components. Features include connectivity, storage, display, computing power.

- **Mobile OS vendors**: Components without a software able to access them and make them work together to provide meaningful information that anyone can understand, are useless to the end-users. **Device manufacturers** thus rely on Operating Systems to make the hardware usable and valuable. Those operating systems are very similar to those that can be found on PC devices (e.g. Windows or OS X) but adapted to the requirement that mobile devices have (e.g. smaller screen, touch screen capability, energy efficiency…). **Device manufacturers can decide to rely on third party mobile OS**, such as Android or Windows Phone. This choice can be made because of the convenience of using something already available and because of the cost and competence that would be required to reinvent the wheel and build something new from scratch. **Some other players however have decided to develop their own operating system**. Apple
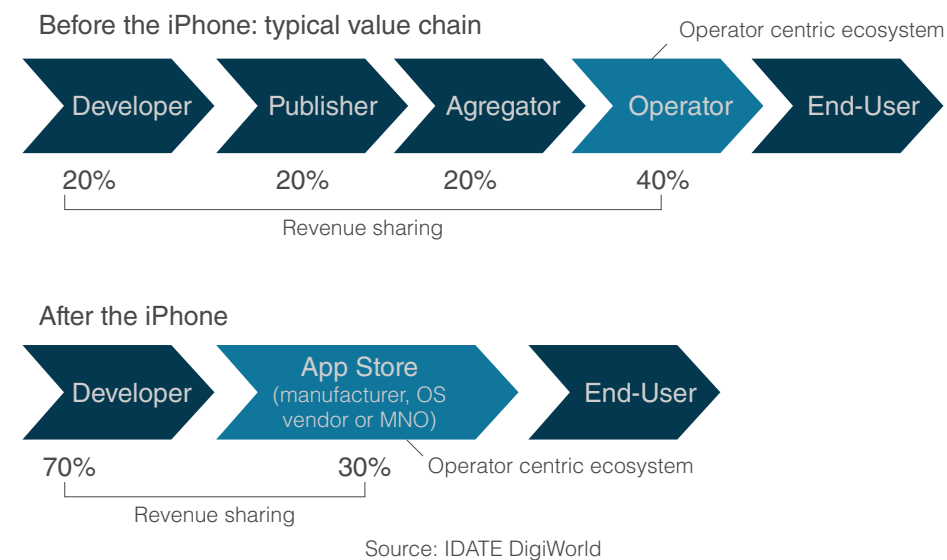
and iOS is a telling example, Blackberry and Blackberry OS is another example. It is to be noted that an **Operating System** is also a block of software components and that no evolved Operating System can boast of having been 100% developed in-house. Truth be told, several software components found in Operating Systems are actually licensed software integrated to the Operating System. Drivers are good example of such often licensed pieces of software. Other technologies such as voice recognition technologies or web rendering engines are also good illustration of this. The amount of internally developed pieces of software in the OS depend on the competences available in-house but also on whether the feature to be provided is critical/strategic in terms of differentiation.

⬥ **Application storefronts,** more commonly called "App Store" are a unified market place where end-users can easily look for applications to install on their devices. **App Stores** host applications submitted by **developers** and provide the infrastructure required for the distribution of those application. It notably handles the payment for paid application before sharing the revenues with developers. **The common revenue sharing pattern is 70% of the price of the paid app goes to the developer and 30% to the app store**. Very often, those app stores are created and managed by OS vendor or device manufacturers because of their capability to integrate them easily in the Operating System. Apple for instance, both a device manufacturer and an OS developer also manage the App Store, which is the single point of entry to distribute/download application on its iPhone. On other OS, third party app stores are possible. Google Play (formerly Android Market) is by far the most used app store but other third party app stores are available. **Samsung for instance has its own app store called Samsung Galaxy Apps. Mobile Network Operators also sometimes propose their own app store in addition to Google play**.

⬥ **Developers** are usually third party players developing applications to be distributed on the app stores, either for free, either for paid or for a mix of both (premium apps). Those applications can be developed by one person or by several persons in the case of software companies. Telecom companies, device manufacturers and OS vendors are developing applications distributed on one or several app store depending on their strategy. **Google, Microsoft and Apple for instance also distribute applications on the app store of their competitor:** e.g.Google Maps is

available on Google Play but also on Apple App Store. Likewise Apple Music is also distributed on Google play. For paid applications, **developers usually earn 70% of the price of their application** distributed on the app store. They are responsible for setting the price of their application and respecting the rules set by each app store. Except for the iPhone or Windows Mobile, where the installed app stores are the only way to install third party applications, **developers can distribute their application on their website and earn 100% of their price but their visibility to end-user is very much reduced as compared to app stores and the process of installing applications is more complicated and offer less security to the end-user.**

⬥ **Telecom operators (MNOs)** provide connectivity to the end-users and are usually the one distributing devices, although the telecom independent handset distributed market has grown importantly in the recent years together with the development of SIM only plans**. Telecom operators can often customize handset they distribute with the applications of their choice (except for the iPhone) pre-installed.** Those application are often linked to services operators are providing (for free or for paid). **E n d - users** are smartphone or tablet users. They can be either consumers or people in companies. **They usually purchase their device from telecom operators with associated plan** (voice + data). Their device is most often subsidized by operators in exchange of a minimum commitment in length (from 12 to 24 months usually) but **more and more users in Europe are paying their device upfron**t at their full-price with no commitment in the length and reduced price on their plan as a result. They can thus more easily switch from one operator to another. **The applications end-users purchase are linked to their device/OS, not to their operators.**

Figure 18: The evolution to a simpler disintermediated value chain

Before the iPhone: typical value chain

Operator centric ecosystem

Developer → Publisher → Agregator → Operator → End-User

20%   20%   20%   40%

Revenue sharing

After the iPhone

Developer → App Store (manufacturer, OS vendor or MNO) → End-User

70%   30%

Operator centric ecosystem

Revenue sharing

Source: IDATE DigiWorld

Before the launch of the iPhone 3G in 2008, the value chain was much more complicated. App stores already existed (they were more seen as simple portal) and were usually provided by telecom operators on a device by device, country by country basis. **Instead of receiving 70% of the price of their application, developers only received around 20%.** The remaining 80% were split between other intermediaries such as publishers, aggregators and **operators, the latter receiving 40% of the revenue as a result of their position as the last entry point for application distribution.** This had several implications:

⬧ **A very fragmented and reduced audience for developers**: they had to propose their applications to each operator with a **very limited device reach**. The many proprietary OS available and the variety of form factors available didn't either play in favor of one application working painlessly on a broad range of device.

⬧ **Higher cost and prices:** a developer had to develop and test an application for several hardware platforms, which resulted in higher developing and testing costs. As a result application prices were significantly higher (rather in the range of 10s of Euros than the mostly seen 0.99 or 1.99 prices commonly seen today. This can also be explained by the fact that developers had to make up for their limited share of revenue because of other intermediaries.

⬧ As can be now understood**, the simpler business model proposed by Apple** with the launch of the App Store in 2008 together with the iPhone 3G was a real enabler for the development of both third party applications and in return the smartphone market itself. **Instead of 20%, developers earned 70% of their app price and most importantly had instantly access to millions of potential buyers all around the world as compared to thousands of subscribers in selected network operators.**

1.4.4. Focus on relationships between telcos and OTT

It is easy to assume that by talking of 'Telco vs OTT', it is a simple question of these two sets of players battling it out to provide the same kind of services to the same set of users, and thus competing for the revenues which come attached to their service use (be it in the form of direct payment, advertising or any other model). However, the real picture is much more complex, often involving other sets of players, and there can even be models where partnerships between the telcos and OTTs exist.

When people hear the words 'Telco vs OTT', they picture this type of environment:
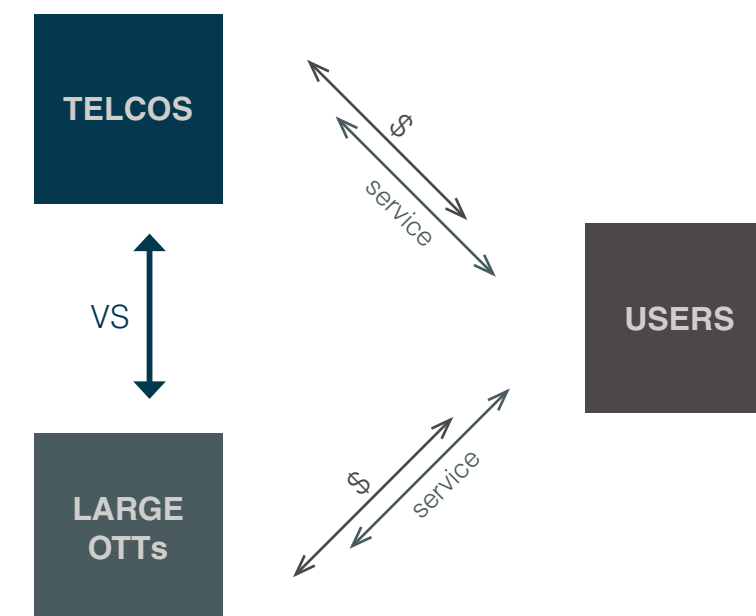
Source: IDATE DigiWorld

In fact, though, it is a three-sided business model; there are many parts to the 'Telco vs OTT' equation, as shown here.
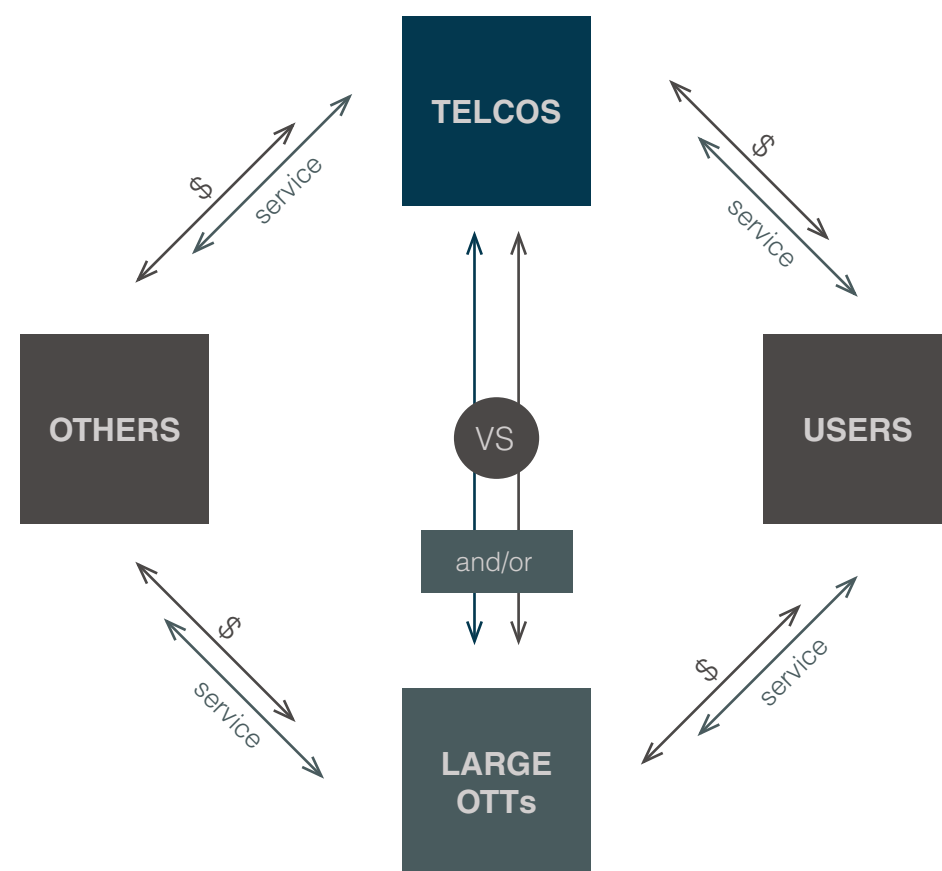
Source: IDATE DigiWorld

The five parts of the Telco vs OTT equation are outlined in the figure below:

Figure 19: The five parts of the Telco vs OTT equation
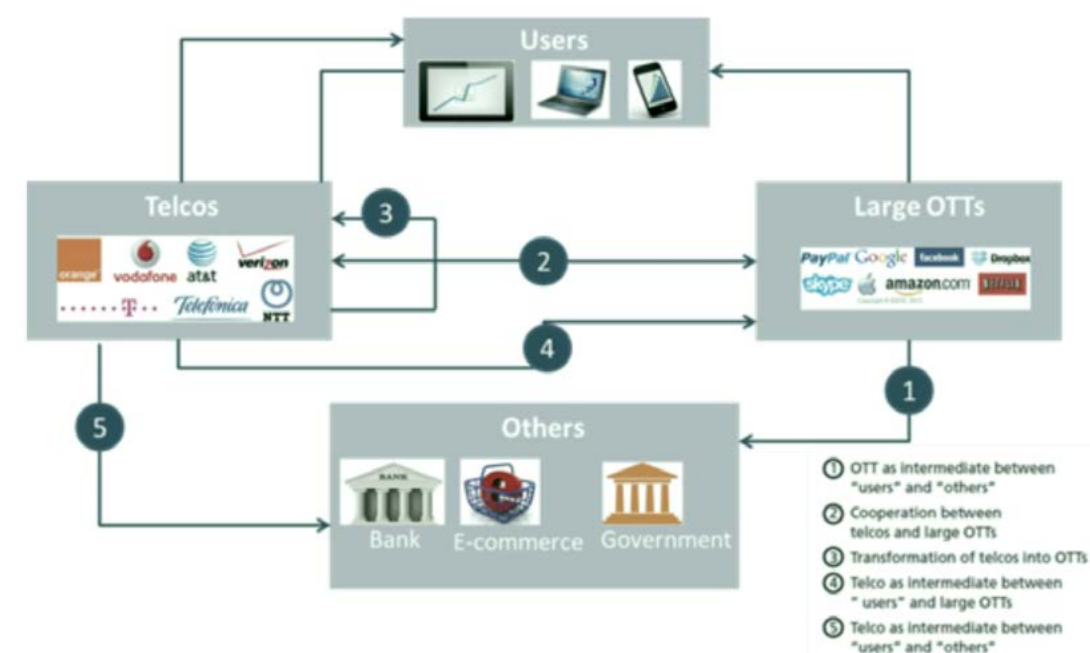
Source: IDATE DigiWorld

The following sections of this report will explain these five parts of the equation.

OTT as intermediate between 'users' and 'others'

Figure 20: OTT as intermediate between 'users' and 'others'

Source: IDATE DigiWorld

The first part in the equation we address is the OTT intermediation, where large OTTs go for a two-sided business model connecting the users and third parties. This is already described in detail above in the two-sided market section.

Cooperation between telcos and large OTTs
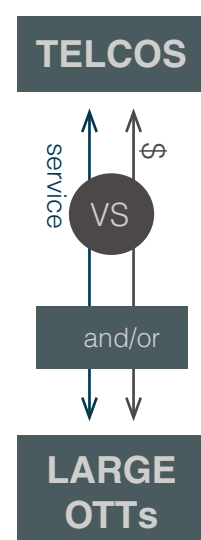
Figure 21: Partnerships between OTTs and telcos

Source: IDATE DigiWorld

Whilst we coin the term 'telco vs OTT', it is not necessarily the case that these players are always fighting against each other. In fact, there are many examples of collaboration between the two parties, as demonstrated above with the communication app example. Skype has partnership deals with Verizon, H3G and au by KDDI; Sprint has a partnership with Google for Google Voice; WhatsApp has partnered with SingTel; and Facebook offers voice calls through Bobsled, a product of T-Mobile. Many telcos also offer premium access to Spotify or Dropbox (for a limited period of time, generally a year) to their customers.

Such partnerships have several implications for telcos. The main advantage is the brand value of the popular OTT, used to attract subscribers to their own network. An increase in data revenue may also be expected. However, this also comes at a risk, since communication through such OTT apps are in direct competition with the traditional CS (circuit-switched) voice and SMS, which still account for the lion's share of revenues for most operators. The risk could also spread to other potential new services by the telcos, such as video, LBS, and application stores to name but few, as the OTT may already be better positioned in terms of both reach and innovation. Finally, whilst partnering with OTTs may increase data revenue, this may not compensate for the added traffic running on the network which the telcos will be required to support.

Among partnerships, a specific category of partnerships has been developed by telcos and OTTs, beyond the agreements mentioned above. Zero-rating (also called *sponsored data*) is the practice of telcos (often MNOs but also ISP) not to charge data used by specific applications/ services network for customers with metered data plans. This approach is often seen in contradiction with Net Neutrality. The issue is not so strong in Europe, with essentially unlimited broadband offerings for wired access and large data packages for wireless access, but is often raising more significant concerns in emerging countries (especially India, with Facebook Zero), but more because of initiatives of OTT players than telcos, or in the USA (T-Mobile USA, Verizon's FreeBeeData). Managed services from telcos can also be considered as zero-rated services and are raising similar concerns.

Transformation of telcos into OTTs

Telco as intermediary between 'users' and large OTTs

Figure 22: Telco OTT initiatives in communications

Source: IDATE DigiWorld

Figure 23: Telco as intermediary between 'users' and large OTTs
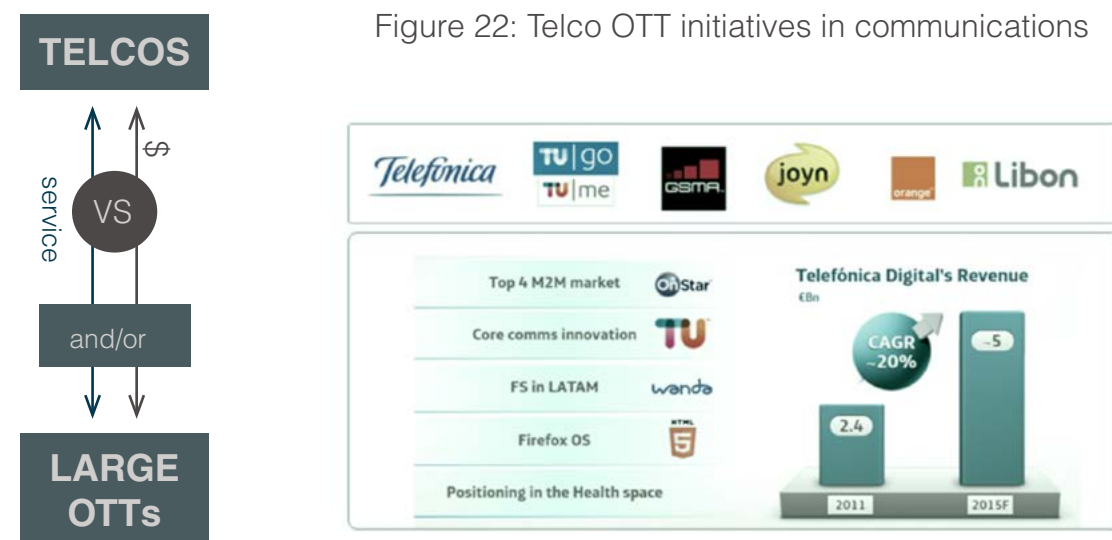
Source: IDATE DigiWorld

The third part of the equation is what could be classed as the of telcos. Here, the telcos provide services which traditionally belong to the OTTs. For example, in the case of communications, as indicated in the figure above, Telefónica has launched TU Go and TU Me which are OTT communication apps (before killing Tu Go); a similar approach holds for Orange with their Libon app. On a broader scale, the GSMA is pushing for joyn, using Rich Communication Suite enhanced (RCSe), which aims to provide for multimedia communication across operators with the same level of ease of use as traditional voice and SMS. But it is not only in communication services where telcos are providing OTT-style services. In the online video-hosting space, Orange has acquired Dailymotion (before selling it to Vivendi); in the payment space, Telefónica is investing in Boku; and NTT DOCOMO is investing in Evernote in the cloud storage space.

Also notable is the way that some telcos have set up a 'digital division', with the specific target of discovering and innovating in new growth areas made possible by the digital age. Such new growth areas are often the segments in which OTTs primarily work, such as cloud, applications, video and media and advertising. Telefónica Digital is one such example.

The fourth part of the equation is where telcos act as the intermediary between the users and large OTTs. This already exists, of course, in the sense that the telcos provide the communications networks for the OTTs to operate on top of. There is, all the same, potentially more that can be done especially in terms of traffic management, although the sensitive issue of net neutrality also needs to be addressed in this case.

Firstly, telcos could control the volume of traffic passing through its network, i.e. using the concept of paid peering or charging for data termination. There have been several high-profile disputes regarding traffic volume control between telco and OTT, for example Comcast in the US with Level 3 (carrying Netflix traffic), demanding payment for what it deemed unduly high recurring fees from Level 3, arguing that Netflix was generating more and more traffic from customers enjoying unlimited consumption of videos (films, TV series) which eat up a great deal of bandwidth. In the end, Level 3 did give in, but not without accusing Comcast of unfairly protecting its own pay-TV and video service, Xfinity.

Secondly, telcos could charge for QoS of traffic. Whilst limited mostly to mobile and cable, users could potentially pay for improved QoS of the network, to receive priority for their data transmission. This leads to the concept of content delivery network (CDN) and, in fact, most incumbent operators deploy their own telco CDN. It should also be noted, however, that some of the larger OTTs also have their own CDNs.

Last but not least, the telcos could provide service, content and/or devices for the OTT. This is actually the case with the Amazon Kindle, where Amazon is effectively working

as an M2M MVNO (from traffic from AT&T and Vodafone) to get their Kindles into users' hands. Users receive the Amazon Kindle bundled with downloading options for eBooks, although they are not particularly interested in the network behind the Kindle for these downloads. Amazon takes on the role of MVNO to provide the complete package of the device (Kindle) plus the eBook downloads. Many M2M applications are going this way with for instance Tesla or GM for connected cars.

This equation of the telco vs OTT picture is still in its early days, and is thus still relatively rare with many complications along the way ahead. There are not so many cases where OTTs are paying telcos for such wholesale services as yet.

Telco as intermediary between 'users' and 'others'

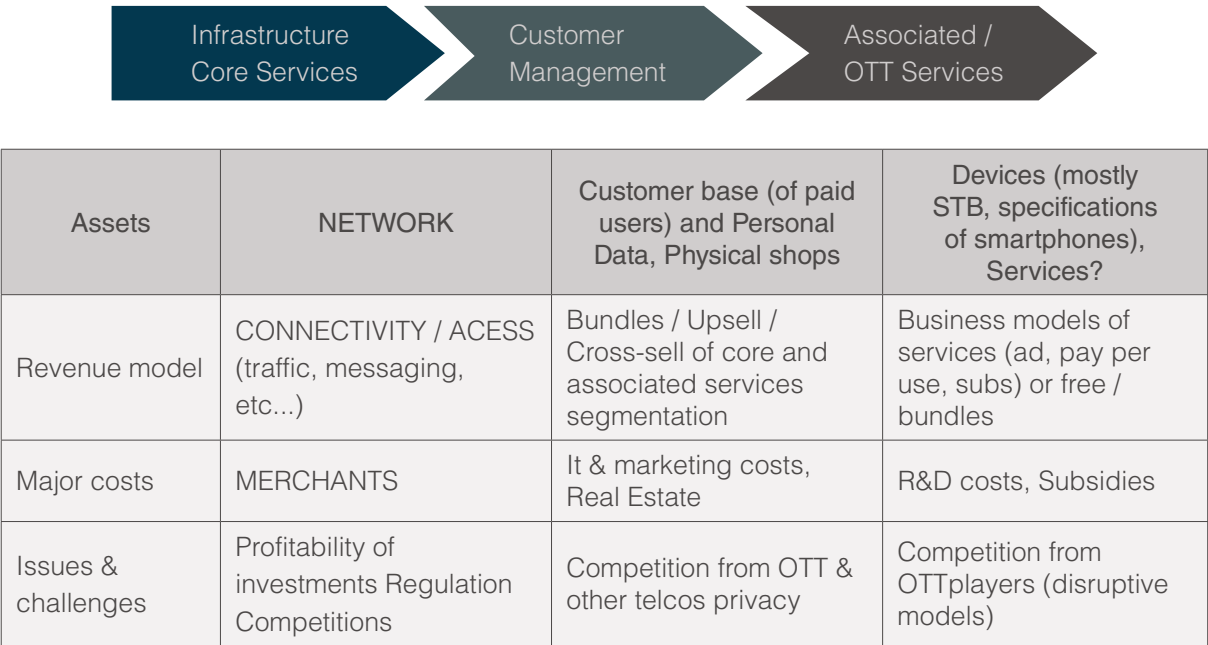Figure 24:Telco as intermediary between 'users' and 'others'

Source: IDATE DigiWorld

The fifth and final equation is where the telco acts as an intermediary between users and others. To better understand this equation, it is first useful to look at the main assets of telcos and their operational views.

Essentially, the operation of a telco can be broken into three core parts: the infrastructure and associated core services; customer management; and associated (or even OTT) services. The assets, revenue model, costs and issues are summarised in the figure below.

Figure 25: Operating profile of a telco

Assets	NETWORK	Customer base (of paid users) and Personal Data, Physical shops	Devices (mostly STB, specifications of smartphones), Services?
Revenue model	CONNECTIVITY / ACESS (traffic, messaging, etc...)	Bundles / Upsell / Cross-sell of core and associated services segmentation	Business models of services (ad, pay per use, subs) or free / bundles
Major costs	MERCHANTS	It & marketing costs, Real Estate	R&D costs, Subsidies
Issues & challenges	Profitability of investments Regulation Competitions	Competition from OTT & other telcos privacy	Competition from OTTplayers (disruptive models)

Source: IDATE DigiWorld

The fifth and final equation, then, is associated with potential new business models which uses these three parts of the telco operational chain, offering more to the users than the simple services we see today.

For example, for the infrastructure, telcos could derive new interconnection models to provide tiered pricing or perhaps bundled packages with OTT services. With regard to customer management, users could receive many more personal and personalised services using the massive, and precious, database of the telco regarding both personal and network user data. For the services, users can provide platforms and APIs in order to develop exciting new services for the users.

In order for such new business models to hit the market, collaboration between telcos and the 'others' needs to take place, and these players are also required to pay telcos for their tools. We see players from banks, commerce and government as examples of sectors who could potentially be interested in such telco tools. Technologies such as SDP, API, SDN and IMS can help to implement this fifth equation, although the major challenge is to attain large scale, which would need much more automation compared to today and also alliances between telcos in order to cover a wider range of users (to have a national scale).

Reminder on diversification of telcos

To position themselves on these new markets, many telcos have established a clear strategy. Telefónica has been at the forefront, creating a specific Telefónica Digital unit (later reintegrated into traditional units), and covering a very large portfolio of services in which seven key markets were identified. Telefónica has even extended its portfolio of digital services towards new communication services, more oriented towards defensive strategy. Orange and Telenor are the only other operators with such a broad approach. A few other telcos have taken a broad but non-exhaustive approach: AT&T (mostly addressing mobile digital markets), Verizon initially before the acquisitions of AOL and Yahoo! (standing out with its Terremark acquisition) and Deutsche Telekom and Vodafone, mostly around enterprise markets for both of them.

On a contrary swing, a few telcos have gone for a more focused approach with only a few markets on their target around very advanced initiatives, as have NTT or SingTel. The former is a champion of digital content and payment while the latter has taken major steps in advertising and analytics with the acquisition of Amobee and the development of DataSparks. Telstra, Vimpelcom or Telecom Italia also have some very specific initiatives, oriented on a few markets. Less advanced markets, of the likes of China or Indonesia are generally focused on B2C services. While NTT seems the most advanced with more than 3 billion EUR around cloud, digital content and payment, the most ambitious telcos are clearly Telefónica, DT, Orange and, to a lesser extent, Telenor which have set significant targets, reaching 5 to 7 billion EUR in 2015. The results are nonetheless mixed, with only a few telcos reaching more than 2 billion EUR of revenues for the targeted markets. While performances around digital content and payment (mostly in emerging countries) are generally good, targets are unlikely to be met around cloud, despite clear growth, and M2M, generating low revenues essentially around connectivity.

Telcos are already generating around 50 billion EUR in 2014 from key digital services, mostly from payment intermediation, leveraging their strong development in emerging countries, and from traditional IT services. This represents 4% of their revenues. IoT and OTT should help to reach 104 billion EUR of revenues in 2018 (with a CAGR of 20%) or 7.7% of their revenues, with most coming from financial services, but also cloud/IT services and M2M (plus device connectivity), while advertising and digital content are likely to remain marginal. Telcos will indeed face strong competition from large OTT on B2C markets, as enablers or service providers with less than 15% of market share. Telcos will be more able to grab some market share on B2B markets, leveraging the

existing customer base, the brand, the network performances (including QoS and security) and a few additional assets such as device access.

Cloud (combined with IT services), M2M (and its associated markets such as energy and healthcare) and financial services are clearly the top opportunities, which justify the current initiatives from telcos. Telcos would capture 14 to 16% of the revenues of the five key digital markets.

Figure 26:Total market opport
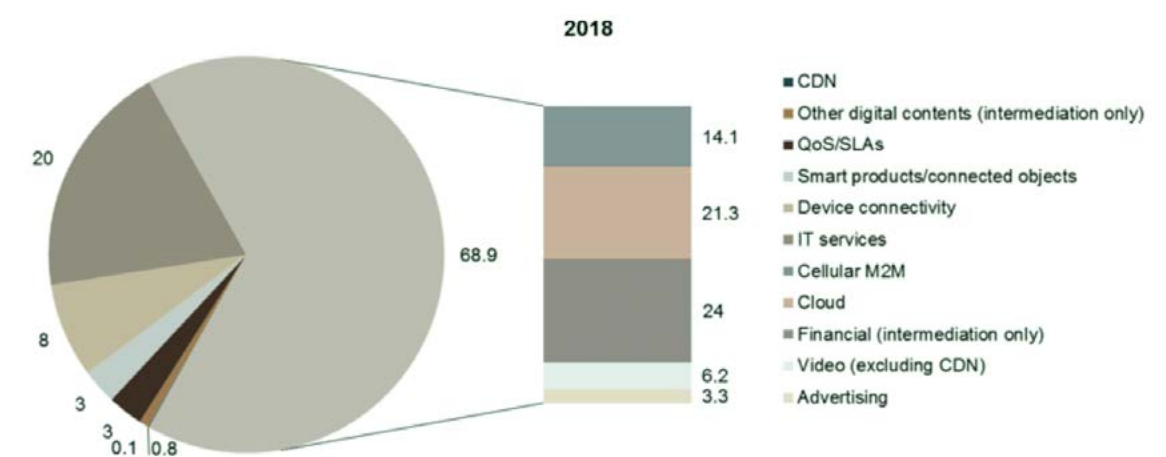
Such revenues represent 4% of telco revenues in 2014 and potentially 7.7% in 2018, a significant contribution, even though it would remain dwarfed by traditional connectivity (voice and data).

1.4.5. Competitive Landscape

As mentioned above, a few markets stand out in terms of contribution to the OTT markets. All of them (except to a lesser extent online games and communications) enjoy growth over 10% per year and represent markets over 25 billion EUR worldwide. The limited degree of competition in many of these markets is naturally raising concerns around potential competition issues (abuse of dominant power, collusion, etc…). In addition, platform strategies built on top of a "cash cow" service bring even more concern to make sure that innovation and competition are not hampered.

Figure 27: Global OTT competitive landscape
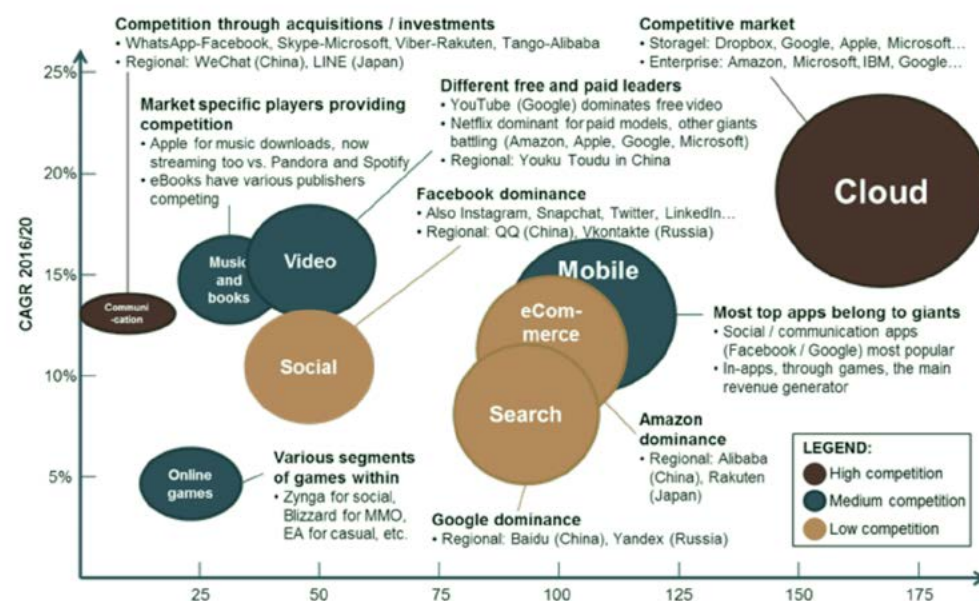
Source: IDATE DigiWorld, State of OTT markets worldwide, July 2016

While telcos often see OTTs as their main competitors, for OTTs, the competition is more internal, with other large OTTs or emerging OTT platforms.

New platforms on the horizon?

Faced with these massive walled gardens and platforms, it can be very hard for specialised companies to hold their own, as their products can be copied and folded into one of the giant ecosystems.

There are three groups of innovative service that have undergone an especially significant expansion over the past few years, essentially with a single-service approach and (for now) making little use of personal data: the collaborative economy, 3D printing and connected things – or the Internet of Things in general. These new services represent anchorage points for potential new platforms, and real disruptions in terms of usage and financial gains, forcing veteran digital industry leaders to rethink their positions (Google with Nest and Waze).

1.5. Economic impacts

1.5.1. Impacts in terms of traffic

Traffic growth

According to Cisco, IP traffic will increase nearly threefold over the 2015-2020 period. (CAGR of 22 percent). Monthly IP traffic will reach 25 GB per capita by 2020, up from 10 GB per capita in 2015.Peak traffic is growing more rapidly than average Internet traffic. Busy-hour (or the busiest 60minute period in a day) Internet traffic increased 51 percent in 2015, compared with 29-percent growth in average traffic. Busy-hour Internet traffic will increase by a factor of 4.6 between 2015 and 2020, and average Internet traffic will increase by a factor of 2.0.

Smartphone traffic will exceed PC traffic by 2020. In 2015, PCs accounted for 53 percent of total IP traffic, but by 2020 PCs will account for only 29 percent of traffic. Smartphones will account for 30 percent of total IP traffic in 2020, up from 8 percent in 2015.

Figure 28: IP traffic growth
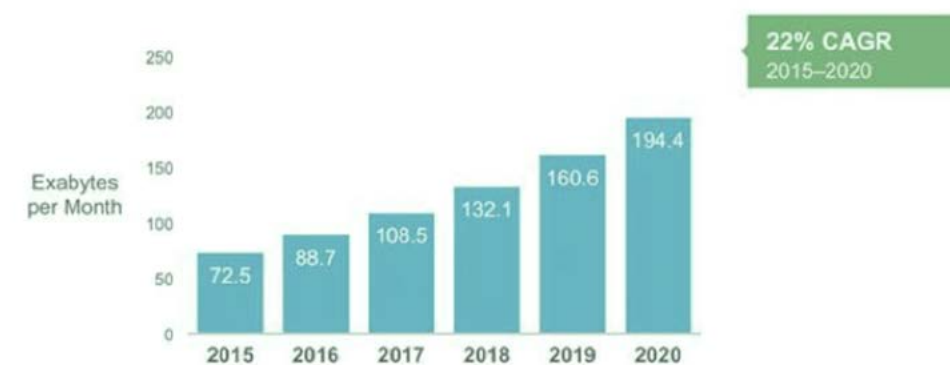
Source: Cisco, 2016

To handle the surge in traffic, and to be able to develop new services, telecom carriers need to spend heavily on building up their networks' capacity, and especially their access networks. Some of the new sources of expenditure derive from the desire to develop new markets or gain increased control of their infrastructure. To fund the infrastructure, telcos are often calling for contribution from OTTs and/or willing to develop specialized services or priority options that can be seen sometimes in contradiction with Net Neutrality.

Video is one of the biggest concern. **Consumer Internet video (OTT)** traffic is growing by more than 26% a year on wireline networks, and by even more on mobile networks. **Video** will account for around 77% of all traffic by 2019, and for even more on mobile.

Reminder on Internet economics

The revenue generated by services and content are relatively independent of traffic volume:

● the price paid for a piece of content is independent of its size and the traffic it generates. A longer movie is not necessarily more expensive to acquire, even though it costs the distributor more to distribute. The price of content generally varies depending on its popularity and release date. The providers of bandwidth-hungry content or services nevertheless set their prices above the minimum threshold to allow them to cover their costs.

● By the same token, the advertising value of a video or a web page has nothing to do with its size. Google search result pages all have more or less the same "weight", but their potential to generate revenue will vary according to keyword.

This potentially significant decoupling of the value of a service or piece of content and transport costs is nothing new, and has already arisen with texting whose per-unit per-Mb revenue was and still is very high compared to other mobile services.

This decoupling necessarily makes the relationship between content/service providers and operators more complicated from a financial perspective. A large volume of traffic may generate only very little income, and vice-versa. Some content/service providers are therefore unable to cover the necessary costs, so seeking alternative solutions to distribute the content themselves. For instance, OTT video accounted for 55% of all Internet traffic in 2015, but for only 6% of Internet services revenue. The situation varies somewhat even depending on the video service, as UGC video traffic represent minimal revenues for still a large volume of traffic.

1.5.2. Impacts in terms of markets

Overall internet markets

World OTT services market is set to surpass 620 billion EUR in 2020. When calculating total Internet services market revenue, it may come as a small surprise that the direct paid revenues occupy a bigger share than advertising revenues, as seen in the figure below. For 2016, IDATE estimates that 65.5% of Internet service revenues were generated through direct paid models (paid services or ecommerce commissions), with advertising accounting for 34.5%. A large factor in this balance is the revenue created by cloud services, a direct paid service, which has the largest share of all Internet services.

Paid services share should also increase with 13.9% CAGR 2016/20 for paid services for only 11% for advertising. Even players such as Google and Facebook that lean heavily on advertising are steadily building up their income from paid solutions, marketing products for small and medium businesses along with paid applications, digital content and even devices. Paid models now account for close to 10% of their annual revenue.

The majority of the most innovative new services are thus rooting their development in this approach, using either a subscription or transaction based model, as is the case with the most successful sharing economy companies (BlaBlaCar, Uber or Airbnb) and subscription-based services (Netflix and Spotify). Some of services that remain entirely free, aside from those supplied by the Internet giants, are struggling: Twitter, for instance, laid off 10% of its staff in October 2015. We are also seeing more and more click-to-buy links on these free services.
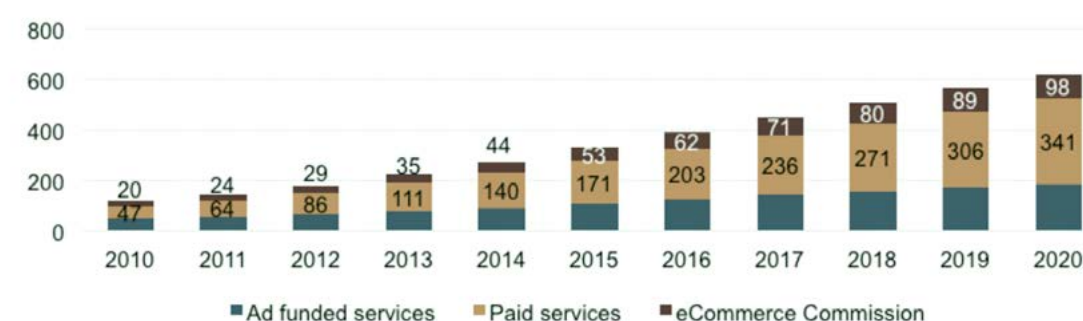
Source: IDATE DigiWorld, State of OTT markets worldwide, July 2016

## Revenue breakdown

The bulk of Internet services revenue comes from four types of application: cloud, search engines, e-commerce (measured here only in terms of value-added, so not factoring in the value of the underlying physical object but only the value of intermediation) and mobile applications. Together, they accounted for two thirds of Internet services revenue worldwide in 2016. These are markets that offer the highest potential for monetisation, through paid services and single transactions carrying high per-unit prices and/or services that use personal data for targeting purposes (ads, recommendations, etc.).

The most dynamic markets aside from cloud computing, subscription-based services and targeted advertising solutions such as real-time bidding (RTB) obey the same logic. E-commerce, however, has reached a certain degree of maturity, especially in Europe, despite the steady development of m-commerce.
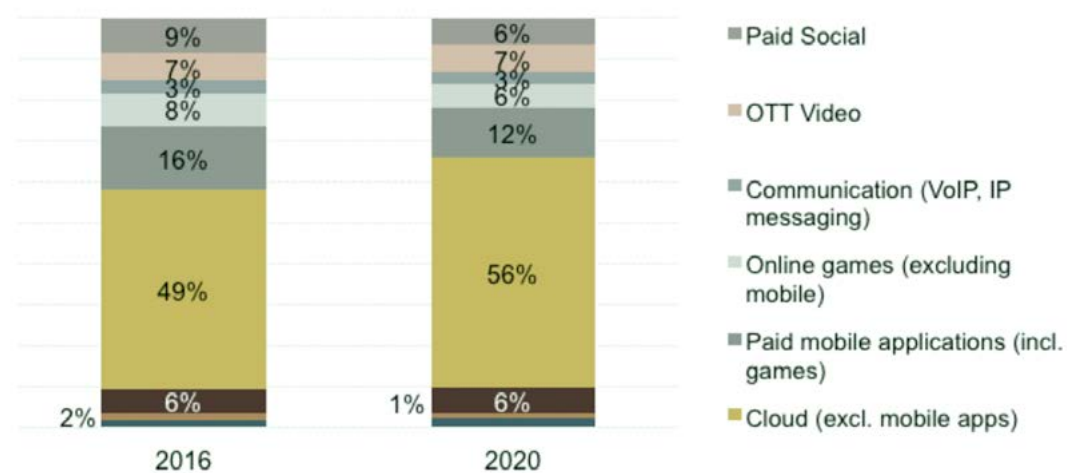
Figure 29: Worldwide revenues of digital content in 2013 (Billion EUR)
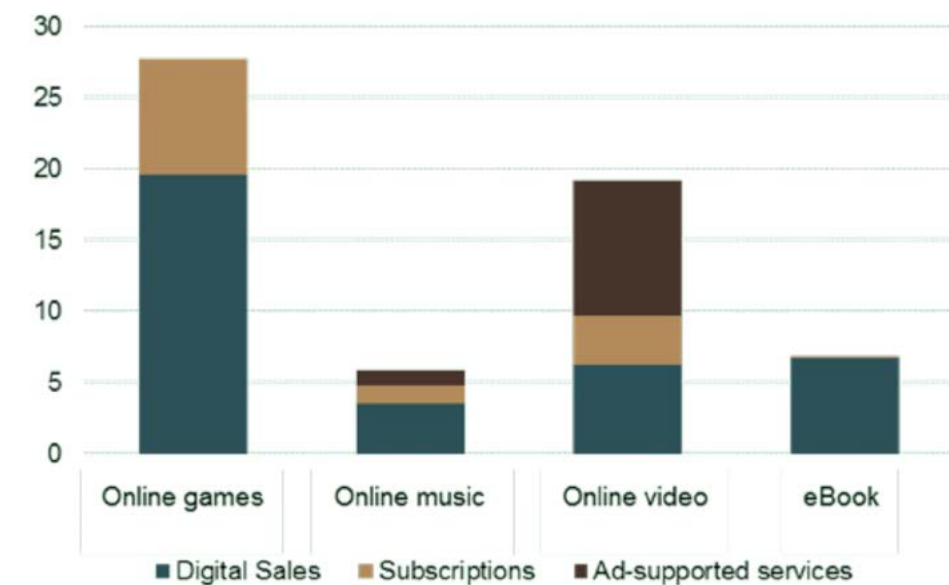
Subscription services remain quite marginal outside of cloud services, but they are growing in popularity. Adoption patterns are also very different from one market to another.

Geographical breakdown

Contrary to expectations, North America is – and expected to remain – number one in terms of revenue generated by Internet services, ahead of Asia/Pacific despite the impact of the region's demographics. There are several phenomena contributing to this reversal, not least fluctuations in exchange rates and the downturn in the Chinese economy.

North America's leadership is rooted chiefly in its very strong monetisation capabilities: it is the most productive region in terms of OTT revenue per Internet user: close to 410 EUR in 2015, versus 120 EUR in Asia/Pacific and 179 EUR per user in Europe. The United States is the clear leader when it comes to the revenue earned from cloud-based services, subscription-based digital content such as SVOD, and targeted advertising – market segments which are all enjoying massive adoption rates.

Asia/Pacific stands out for the revenue earned from paid services (games, mobile apps, online communication services, social networking, etc.), on a comparable footing with North America. The region also has its share of powerful local players (Rakuten, Baidu, Tencent, Alibaba, NHN, Daum…) that are working to expand their footprint, particularly in emerging countries.

Evolution of compared revenues of Telcos and OTT

By 2020, OTT services revenue expected to climb to over 50% of that of telco services. OTT services have constantly grown from 2010, when it only accounted for a mere tenth. Whilst telco growth is stagnating, OTT growth is set to show promising growth (CAGR 2016/20 for telcos: 1.8% while CAGR 2016/20 for OTTs: 14.3%).

Figure 30: Comparison of global telco and OTT service market revenues, 2010-2020 (Billion EUR)
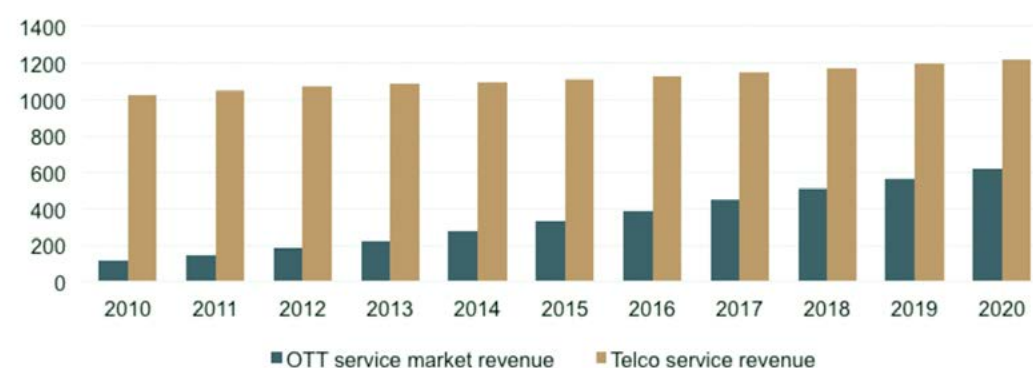
Source: IDATE DigiWorld, State of OTT markets worldwide, July 2016

Broader economic impact: jobs, GDP, etc…

There are various broad economical impacts brought about by the digital economy, such as increase in GDP and creation of new jobs. Here, we look at some figures demonstrating such impacts.

1.5.3. Overall economic impacts

The BCG predicted in 2012 that the Internet Economy in the G20 will grow at an annual rate 8% over the convening five years[5]. This converts to a GDP contribution of 5.7% in the EU and 5.3% in the G20. Overall, the Internet economy of the G20 is expected double between 2010 and 2016, employing 32 million more people than it did in 2012. BCG itself continues to reference these predictions in 2015.

Figure 31: G20 countries' breakdown of Internet economy as a percentage of 2016 GDP
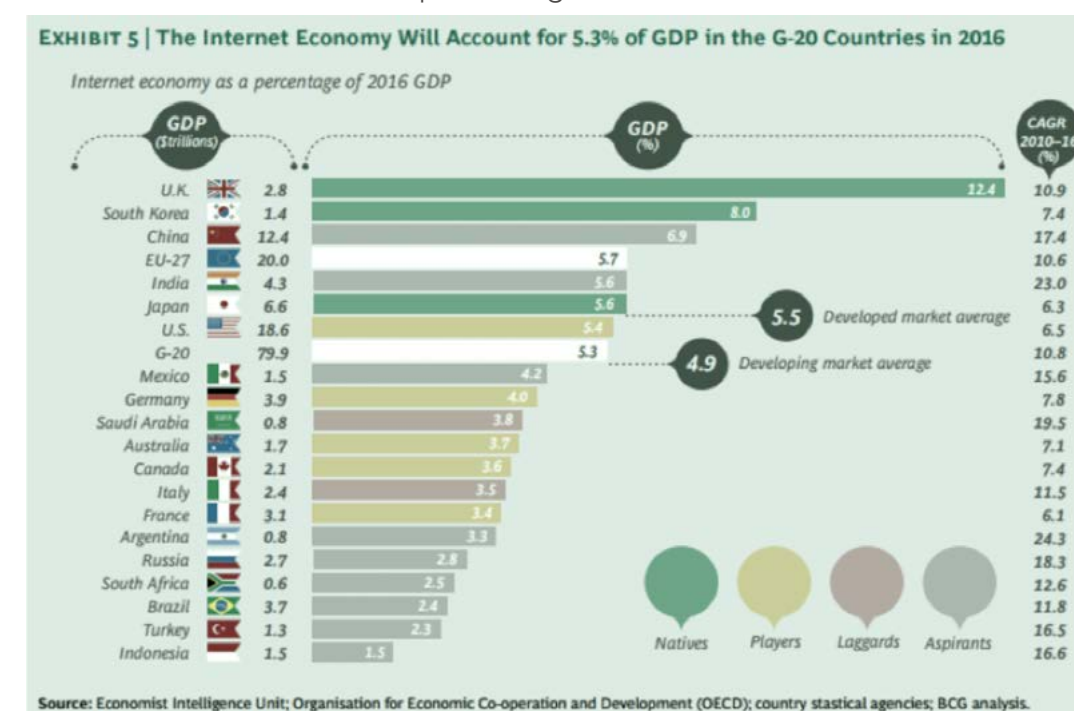
Source: BCG

McKinsey also provide similar growth predictions in a 2016 report[6]. The report concentrates on global flows, including goods and services, both physical and digital. The report finds that over a decade, global flows have raised world GDP by at least 10 percent; this value totaled $7.8 trillion in 2014 alone. Further, 2.8 trillion USD out of this 7.8 trillion USD, thus 36%, was enabled by data flows.

---

5. https://www.bcg.com/documents/file100409.pdf

6. file:///C:/Users/soicnaka/Downloads/MGI-Digital-globalization-Full-report.pdf

Figure 32: In 2014, 2.8 trillion USD GDP increase was enabled by data flows

CROSS-BORDER DATA FLOWS ADDED SOME $2.8 TRILLION TO WORLD GDP IN 2014, SURPASSING THE IMPACT OF THE GLOBAL GOODS TRADE.

Source: McKinsey

1.5.4. Large platforms' impact on the economy

Some large companies provide reports on how their companies are providing benefits to the economy, and this section will look at Google and Facebook. Since these reports are provided to better the images of the companies, the data may need to be read with a pinch of salt, but nevertheless demonstrate the positive effects they have on the economy.

In a blog post in February 2016[7], Google outlined how big of an economic impact their tools are making on four of their markets in Europe: Germany, Italy, Spain and the United Kingdom. Deloitte was chosen to carry out studies, looking at how businesses use Google's Search and advertising products to connect businesses with customers; how content creators leverage their tools to reach large audiences and monetise their content; how app developers use Android and the Play Store to connect to billions of consumers; and how Google's collaboration tools help to make Europeans more productive.

A summary of the results are provided in the table below, showing the economic benefits provided by Google products.

Figure 33: Economic impacts of Google tools and services in Germany, Italy, Spain and UK

	Economic impact of Search and AdWords	Job Supported by Search and AdWords	Economic Impact of Publisher Tool (AdSense)	Economic Impact of YouTube	Productivity Benefits
Germany	£7bn - £30bn	120,000 - 490,000	£480m - £560m	£30m - £80m	£65m - £151m
Italy	£2bn - £10bn	40,000 - 170,000	£207m - £214m	£30m - £40m	£64m - £123m
Spain	£2bn - £7bn	40,000 - 130,000	£105m - £300m	£10m - £30m	£43m - £103m
UK	£13.9bn - £34.7bn	210,000 - 530,000	£301m - £676m	£68m - £131m	£200m - £385m

Source: Google blog

A similar study was carried out for Facebook, again by Deloitte[8]. It estimates that in 2014, Facebook enabled 227 billion USD of economic impact and 4.5 million jobs globally. These effects accrue to third parties that operate in Facebook's ecosystem, and exclude the operations of Facebook itself.

_____
7. http://googlepolicyeurope.blogspot.fr/2016/02/how-big-is-googles-growth-engine.html

_____
8. https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/technology-media-telecommunications/deloitte-uk-global-economic-impact-of-facebook.pdf

Figure 34: Economic imact enabled by Facebook globally in 2014
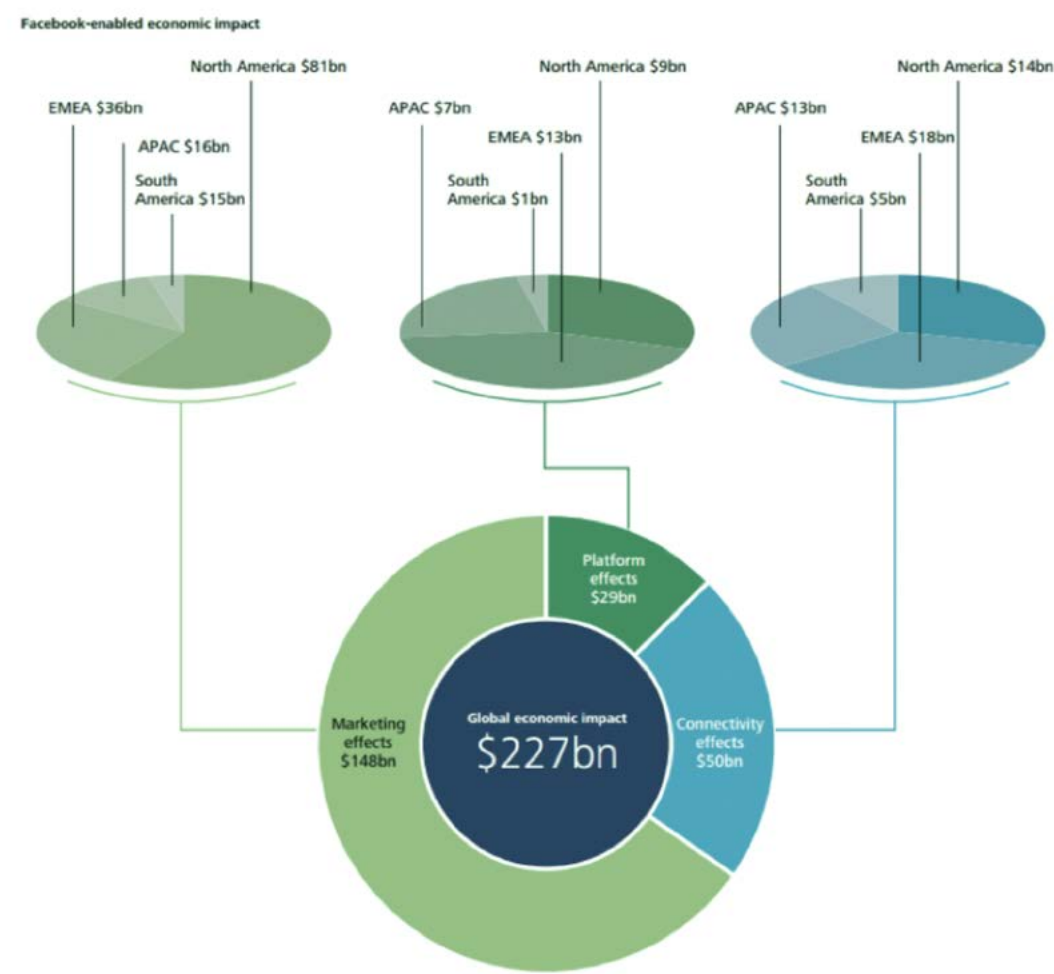
Source: Deloitte

1.5.5. A focus on the Mobile App Economy

The introduction of the App Store by Apple in 2008 has since created what has been coined as the "App Economy". The mobile landscape is often discussed in terms of before the arrival of Apple's AppStore and after, such was the impact of the App Store upon arrival. Indeed, helped by the massive surge in smartphone uptake and the concept of operating systems and its attached application stores, this has had a positive impact in terms of job creation.

According to the Progressive Policy Institute, the European App Economy includes 1.64 million jobs as of January 2016. Companies employing workers with App Economy skills include large and small app developers; software and media companies; financial and retail companies; industrial companies; health and education enterprises; leading European and non-European tech companies; nonprofits and government suppliers; and large accounting and consulting firms.

Figure 35: The European App Economy, January 2016

	Millions os jobs
EU - 28 plus Norway and Switzerland	1.64
EU - 28	1.57

Source: Progressive Policy Institute, Indeed, Public job postings

The same study, using the same methodology, also carried out the same exercise for the United States, and found that Europe has generated App Economy jobs at roughly the same pace as the United States, 1.64 million vs 1.66 million. This suggests a positive role for innovation in producing new jobs and new opportunities around the world.

In other ways, however, Europe still lags behind. The report defines "app intensity" as App Economy jobs as a percentage of all jobs. The United States has an average app intensity of 1.2%. By comparison, the European app intensity is 0.7% (Table 3)

Figure 36: App Economy Matchup: Europe vs the US

	App Economy Jobs (millions)	App Intensity*
Europe**	1.64	0.7%
United States	1.66	1.2%

*App Economy jobs as a share of all jobs.
**EU-28 plus Switzerland and Norway
Source: Progressive Policy Institute, Indeed, Public job postings

Finally, this 1.64 million App Economy jobs corresponds to roughly 547,000 core App Economy jobs[9]. The report estimates this 30-country area has roughly 5.9 million

---

9. An information and communications technology (ICT)-related job that uses App Economy skills—the ability to develop, maintain, or support mobile application is referred to as a "core" App Economy job. Core app economy jobs include app developers; software engineers whose work requires knowledge of mobile applications; security engineers who help keep mobile apps safe from being hacked; and help desk workers who support use of mobile apps.

workers in all ICT occupations (based on OECD Digital Economy Outlook 2015). As a result, roughly 9 percent of ICT jobs in Europe are associated with the App Economy. A similar calculation for the US shows roughly 11 percent of ICT jobs associated with the App Economy. The report claims that based on informal discussions with tech executives, neither of these numbers seem out of line. They suggest that Europe is developing a vibrant App Economy, just at a somewhat slower rate than the United States. Moreover, there is plenty of room for the number of App Economy jobs to continue to rise as apps take a central role in the Internet of Things.

Similar conclusions can be drawn from other reports, such as that of the "European App Economy" report by Vision Mobile, as below. It estimates there were 1.3 million app developers in the EU in Q1 2015, with approximately 150,000 app-related jobs added to the market since the second half of 2014.

Figure 37: Number of app developers in the EU and Worldwide, 2014 and 2015
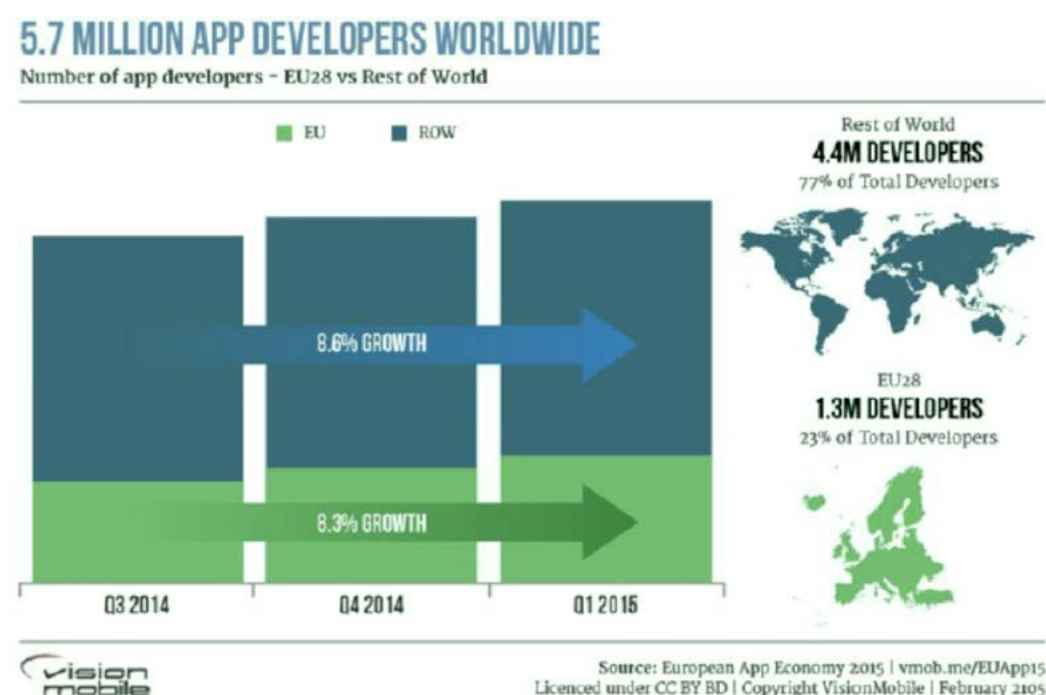
Source: Vision Mobile

2. Other key concepts

Before putting some focus on a few specific regulatory issues (taxation, Net Neutrality, platforms and privacy) getting the most visibility in Europe around OTT players and markets, it is worth reminding a few additional concepts that are generally involved in the discussion. The first major concept is the level playing field promoted by telcos. Indeed, as already mentioned, many of the issues around OTT are discussed vis a vis the traditional telecom players (even though the issues are even broader as seen recently with sharing economy players). Another key element which is more specific to Europe is the current development of new framework for regulation around the Digital Single Market.

2.1. Level Playing field

2.1.1. OTT vs telcos

Traditional telecom operators do not operate in an isolated environment but co-exist in an eco-system with many other players along the value chain. While many of the players' products and services are complementary and contribute to growing the overall size of the market, telecom operators and other players, notably over-the-top service providers also intensely compete with each other in certain segments (cf. sections on OTTs).

Despite offering services that many users perceive as largely substitutable to each other, telecom operators are typically subject to a stricter set of regulations than OTTs or other online platforms.

Whereas OTTs' services usually fall into the category of information society services (ISS), telcos' offers are generally considered to be part of the electronic communications services. As such, the latter are subject to a more detailed set of regulatory provisions such as interoperability between service providers, data protection, universal service obligations etc..

Figure 38: Common rules vs. ECS-specific regulations

Intermediary liability regime
Cross-sector privacy rules
Consumer protection rules

Commom rules

Interoperability
Security and integrity
Emergency calls
E-privacy rules
Legal interception
Portability
USO contributions
Neutrality

ECS-specific rules
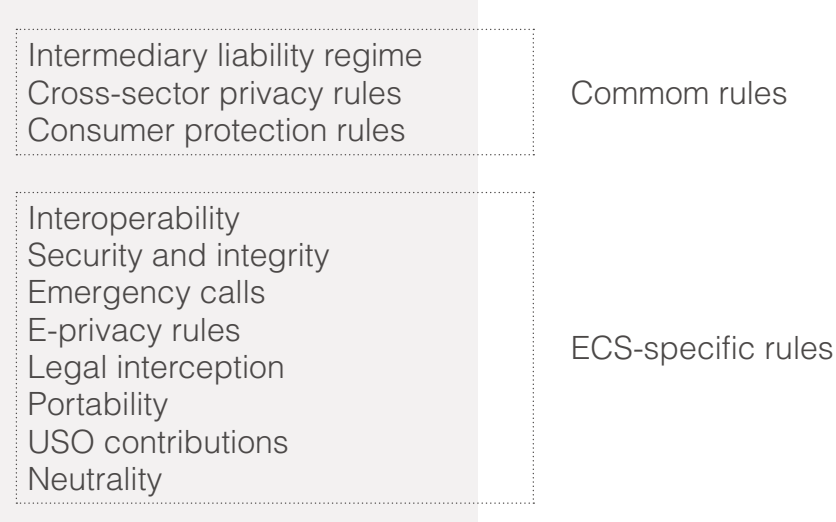
Source: Orange

A well-known example of this is emergency services. PSTN operators have to enable users to make calls to a national emergency number, sometimes with additional obligations such as providing caller location information in the case of the European Union. In the previous revision of the common European framework the ability to locate emergency calls was removed as one of the distinguishing factors between more heavily regulated providers of publicly available telephone services (PATS) and more lightly regulated providers of electronic communications services (ECS). An OTT VoIP player will typically come under the latter category. Whereas this indicates that PATS and ECS providers are both expected to facilitate making emergency calls, recital 40 of the Citizens' Rights Directive 2009/136/EC amending the Universal Service Directive acknowledges that "*for network-independent undertakings, caller location information may not always be technically feasible*" but should be made mandatory as soon as technical solutions to the problem exist. Where VoIP based operators have access to the number range, the question is whether they should be entitled to receive a call termination fee and if so at what level it should be set. In Europe regulators have put a lot of effort into bringing mobile termination rates down and applying symmetric charges between players. It would be highly questionable if OTT VoIP players could charge the same mobile termination rates as mobile network operators, which operate a cost-intensive network infrastructure.

The question of a level playing-field is one of the key aspects of the review of the common telecoms framework (cf. section 3 on platforms).

The notion of ECS is tied to the technical concept of "conveyance of signals" rather than to a broader definition of usages. Therefore, under the current framework regulation will be skewed toward regulating network operators only. Whether this distinction is still appropriate in today's market is challenged not only by telecom operators but also by regulators such as ARCEP in France or BNetzA in Germany.

Figure 39: Deutsche Telekom's approach to platform regulation

DT'S BASIC PROPOSALS IN REGARD TO ONLINE PLATFORMS
Establish a **flexible & holistic framework** for the whole digital market.
Take **end-user centric view.**
Ensure **effective, proportionate & consistent** consumer protection standards across the market.
Service-specific rules only where indispensable.
Apply **consistent regulatory principles** to all infrastructure (evidence-based).
Ensure **fair competition.**

No dedicated regulation of online platforms required, **if updated rules for digital services** are applied & enforced across the market.
An updated horizontal framework for digital services needs to also **address online platforms specific characteristics** (see next slide on newly emerged issues).
Service-specific rules only as a safety net: Swift and proportionate intervention are required to address identified issues. This has to be based on reasonable thresholds.
Effective **self-regulation** & solutions through **commercial agreements have to be considered**.

Source: Deutsche Telekom

Telcos argue that regulation could and probably should be rolled back in areas where services provided by OTTs (VoIP, messaging, videos) demonstrably compete with telcos' services. Sector-specific regulation could thus focus on access-related matters, while telcos' and OTTs' services could compete on equal footing. Telcos are currently also subject to stricter data and consumer protection rules than their OTT counterparts. The logic of a level playing field should also apply in this respect to markets where players compete on the same turf, thus enabling telcos to leverage their proprietary data.

Figure 40: Telefonica's approach to a level playing field in data and consumer protection

WHAT MEASURES ARE REQUIRED?	
1. DATA PROTECTION	repeal the ePrivacy Directive when the GDPR is passed. Allow telco to compete with OTTs in Big Data. Telco have much higher level of trust than OTT over personal data - shouldn't we allow telcos to use that expertise to discipline the OTTs in the market?
2. CONSUMER PROTECTION	Some form of digital neutrality might be required, otherwise net neutrality regulation will look increasingly irrelevant, if consumer harm arises through OTTs rather than ECNs. • Real transparency over customer data capture and use • Outlaw anti-competitive trying • No blocking of competing apps • No paid prioritization in the app store • Portability of digital life - reduce switching costs • Non-discrimination

Source: Telefonica

Even if a light-touch approach regarding sector-specific rules for OTTs and platforms seems sufficient, it should be made sure that online players, regardless of their origin and business model should be subject to horizontal legislation on items such as contract law, taxation, public safety, privacy and the like.

French regulator ARCEP is currently in a dispute with Microsoft over Skype. ARCEP asked Skype to declare itself a provider of electronic communications services, which would make it subject to obligations like the routing of emergency services. However, Microsoft has so far ignored ARCEP's requests and the regulator does not have the power to force a provider of electronic communications services to declare itself as such. This is about to change, though, since the recently adopted 'Macron law' gives ARCEP the possibility of declaring a company as communications services provider. While Skype is very likely the first in line to be targeted by this new competence, other OTT services like Facebook Messenger, or Whatsapp may also come under NRA scrutiny.

In Germany, BNeztA has concluded that Google's Gmail fulfills the criteria of an ECS and Google should therefore notify its activity to the regulator. Google has challenged this decision in court agruing that it was not involved in the activity of conveyance of signals. The Administrative Court in Cologne rejected Google's position saying that from a functional perspective Google's mail service can be assimilated to the conveyance of signals. Google has appealed this decision in a higher instance. The

decision is still pending at the time of writing. Interestingly, the DG CONNECT has been asked for advice on the procedure. The European Commission in its purely consultative position sided with Google rather than the German regulator.

2.1.2. Europe vs International

The level playing field issue goes beyond just the debate between telcos and OTTs. Indeed, the issue of country of jurisdiction (and enforceability) is also very significant. International players (especially US-based OTT leaders) are trying to use as much as possible their domestic regulation, bypassing therefore the local European rules. It is technically feasible to provide online services to European citizens and businesses cross-border within the EU or from outside the EU without the use of specific equipment hosted in or near the end-user. This capability inevitably raises questions as to which country's rules should govern.

Local European players may therefore be at a disadvantage and often voicing concerns on those aspects, especially regarding privacy and taxation rules (see specific sections), for which the country of destination is the preferable choice for consumers and governments but is raising the complexity level and therefore the costs in a context of fragmentation of rules and indirectly stifle the innovation by deterring start-ups. This is obviously calling for harmonization rules as much as possible to limit those issues.

	Europe	International
Online and OTT services	European online and over-the-top services	International online and over-the-top services
Network services	European network services	International network services

2.2. The Digital Single Market initiative

The Digital Single Market (DSM) project was presented jointly by Commission Vice-President Ansip and Commissioner Oettinger in May 2015. The initiative, which is an overall priority for the Juncker Commission aims at overcoming the fragmentation of the digital market place in Europe and turn what has largely remained 28 separate national market into a truly integrated single market in order to unlock a significant potential for value creation and employment.

Figure 41: Commission members Ansip and Oettinger
presenting the Digital Single Market

Source: The Guardian/ Getty Images (15)

Contrary to the TSM package, which was launched by the previous Commission, the DSM has been drafted under the sole responsibility of the present Commission and represents the comprehensive vision of the current policy makers on what Europe needs to achieve to again become a credible player in the global digital economy.

The DSM regroups no less than 16 initiatives classified in three categories. The handwriting of Mr. Ansip and Mr Oettinger was quite clearly visible. With the reforms of copyright and geo-blocking both the Commissioners at the head of the DSM managed to include a pet project on the initial agenda.

These initiatives are quite heterogeneous and not necessarily closely related to each other. The range of items spans from the review of the telecoms framework and the Audiovisual Media Services Directive to adjacent industries like parcel delivery. The complete list of agenda items as presented in 2015 is shown in the table below.

Figure 42: Digital Single Market roadmap

Actions[22]	Timetable
Better access for consumers and businesses to digital goods and services across Europe	
Legislative proposals for simple and effective cross-border contract rules for consumers and businesses	2015
Review the Regulation on Consumer Protection Cooperation	2016
Measures in the area of parcel delivery	2016
A wide ranging review to prepare legislative proposals to tackle unjustified Geo-blocking	2015
Competition sector inquiry into e-commerce, relating to the online trade of goods and the online provision of services	2015
Legislative proposals for a reform of the copyright regime	2015
Review of the Satellite and Cable Directive	2015/2016
Legislative proposals to reduce the administrative burden on businesses arising from different VAT regimes	2016
Creating the right conditions for digital networks and services to flourish	
Legislative proposals to reform the current telecoms rules	2016
Review the Audiovisual Media Services Directive	2016
Comprehensive analysis of the role of platforms in the market including illegal content on the Internet	2015
Review the e-Privacy Directive	2016
Establishment of a Cybersecurity contractual Public-Private Partnership	2016
Maximising the growth potential of the Digital Economy	
Initiatives on data ownership, free flow of data (e.g. between cloud providers) and on a European Cloud	2016
Adoption of a Priority ICT Standards Plan and extending the European Interoperability Framework for public services	2015
New e-Government Action Plan including an initiative on the 'Once-Only' principle and an initiative on building up the interconnection of business registers	2016

Source: European Commission (16)

Since the presentation of the DSM strategy the Commission has launched multiple initiatives and completed a rather impressive number of public consultations, reflecting its ambitious time schedule which planned to produce final outputs or draft proposals, respectively, by late 2016 at the latest.

Figure 43: List of closed DSM consultations

Closed consultations

- DSM Evaluation of Commission Recommendation 2009/396/EU on the Regulatory treatment of fixed and mobile termination rates in the EU
  This consultation ran from 15 March until 7 June 2016.

- Roadmap to the EU-US Memorandum of Understanding on eHealth
  This consultation ran from 22 December until 15 March 2016.

- DSM Public-private partnership on cybersecurity
  This consultation ran from 18 December 2015 until 11 March 2016.

- DSM Review of national wholesale roaming markets, fair use policy and the sustainability mechanism referred to in the Roaming Regulation 531/2012 as amended by Regulation 2015/2120
  This consultation ran from 26 November 2015 until 18 February 2016. The summary report and the synopsis report are now available.

- DSM eGovernment action plan 2016-2020
  This consultation ran from 29 October 2015 until 22 January 2016. The summary report and the synopsis report are now available.

- DSM Online platforms, cloud & data, liability of intermediaries, collaborative economy
  This consultation ran from 24 September to 6 January 2016. The summary report and the synopsis report are now available.

- DSM ICT Standards
  This consultation ran from 23 September to 4 January 2016. The summary report and the synopsis report are now available.

- DSM Tackling unjustified geo-blocking
  This consultation ran from 24 September to 28 December 2015. The summary report and the synopsis report are now available.

- DSM Public Consultation on cross-border parcel delivery
  This consultation ran from 5 May to 6 August 2015. The summary report is available.

- DSM Legislative proposals to reduce the administrative burden on businesses arising from different VAT regimes
  This consultation ran from 28 October on 18 December 2015.

- DSM Evaluation and review of the regulatory framework for electronic communications networks & services
  This consultation ran from 11 September to 7 December 2015. The summary report and the synopsis are now available.

- DSM The needs for Internet speed and quality beyond 2020
  This consultation ran from 11 September to 7 December 2015. The summary report and the synopsis are now available.

- DSM Review of the Satellite and Cable Directive
  This consultation ran from 24 August to 16 November 2015. The summary report and the synopsis report are now available.

- DSM The revision of the Audiovisual Media Services Directive
  This consultation ran from 6 July to 30 September 2015. The summary report is now available.

- DSM Contract rules for online purchases of digital content and tangible goods
  This consultation ran from 12 June to 3 September 2015. The summary report is available.

Source: European Commission[10]

Indeed, the Commission has presented a series of legislative proposals since late 2015. The beginning was made when the EC presented its plans to review contract rules for online sales and digital goods. The Commission considers that significant value can be unlocked by facilitating cross-border transactions for businesses and increasing consumers' trust. Currently only 12% of businesses sell online in other EU member states according to the Commission.

Figure 44: Key elements of digital contract rules proposal

DIGITAL CONTENT:

Supplier's liability for defects: If the digital content is defective, the consumer can ask for a remedy. There will be no time limit to the supplier's liability for such defects, because – unlike goods – digital content is not subject to wear and tear.

Reversal of burden of proof: If the digital content is defective, it will not be up to the consumer to prove that the defect existed at the time of supply, but rather for the supplier to prove that this is not the case. This is important considering the technical nature of digital content where it can be especially difficult for consumers to prove the cause of a problem.

Right to end a contract: Consumers will have the right to terminate long-term contracts, and contracts to which the supplier makes major changes.

Contract established in exchange for data: If the consumer has obtained digital content or a service in exchange for their personal data, the new rules clarify that the supplier should stop using the personal data if the contract is ended.

GOODS:

Reversal of the burden of proof for two years: In the EU, it is already the case that for a certain period of time a consumer asking for a remedy for a defective product does not have to prove that the defect existed at the time of delivery; it is up to the seller to prove the opposite. Currently, the time period during which the seller has this burden of proof varies by Member State; now it will be extended to two years throughout the EU.

No notification duty: Consumers will not lose their rights if they do not inform the seller of a defect within a certain period of time, as is currently the case in some Member States.

Minor defects: If the seller is unable or fails to repair or replace a defective product, consumers will have the right to terminate the contract and be reimbursed also in cases of minor defects.

Second-hand goods: For second-hand goods purchased online, consumers will now have the possibility to exercise their rights within a two-year period, as is the case with new goods, instead of the one-year period that currently applies in some Member States.

Source: European Commission[11]

In spring this year, the EC put a series of key Digital Single Maket items on the table. On May 25 the Commission presented a proposal for a revised AVMS Directive, a package of regulations to boost e-commerce across the Union as well as a communication on online platforms.

The e-commerce package consists of three regulations encompassing complementary aspects to the previously presented revised contract rules. One regulation is aimed

at increasing price competition in cross-border parcel delivery. The regulation does currently not impose price caps but shall increase the transparency of shipping costs. Further steps including price control might be taken following the regulation's review in 2019. The EU's way of proceeding shows similarities with the roaming regulation which led to price caps being introduced in 2007. Furthermore, the package includes an update of the Consumer Protection Cooperation Regulation. The review shall improve national consumer protection authorities' rights to monitor breaches and enforce remedies. In addition, the EC proposes a reinforced coordination mechanism to tackle harmful practices concerning at least 75% of the member states or 75% of the EU's population. In this case, national consumer protection authorities shall elaborate a common position on the basis of which the EU will negotiate with businesses in question. Should the negotiations fail, the national authorities will appoint of their group to take the lead in imposing remedies on their behalf.

The third significant element presented at the same time was the communication on online platforms. The debate about what defines a platform and the impact of these players take on the online and physical economy has been intense over the last years. The investigation into their role in the digital eco-system and the potential need for specific regulation is certainly among the most important elements of the DSM. The DSM strategy presented in 2015 made the following observations:

> Online platforms (e.g. search engines, social media, e-commerce platforms, app stores, price comparison websites) are playing an ever more central role in social and economic life: they enable consumers to find online information and businesses to exploit the advantages of e-commerce. […]

Concerns about competition can arise from several factors. Network effects and economies of scale favour the rise of big platform players with a limited number of competitors. Furthermore, through the existence of network effects users can be locked-in by a platform. The antitrust concerns may also be focused on the neutrality of a dominant platform and the loyalty of its algorithms

> This has led to a number of concerns over the growing market power of some platforms. These include a lack of transparency […], their strong bargaining power […]), promotion of their own services to the disadvantage of competitors, and non-transparent pricing policies, or restrictions on pricing and sale conditions

In the communication published in May this year, the European Commission defines platforms as entities sharing common characteristics *including the use of information and communication technologies to facilitate interactions (including commercial transactions) between users, collection and use of data about these interactions, and network effects*[12]. The Commission makes it clear that it does not want to impose regulation on platforms per se but will only intervene to address very specific issues that cannot be addressed by the provisions of the existing legislation. The Commission will notably ensure that the following items are being ensured:

- level playing field for comparable digital services
- responsible behaviour of online platforms to protect core values,
- transparency and fairness for maintaining user trust and safeguarding innovation,
- open and non-discriminatory markets in a data-driven economy

The question of a level playing field for comparable digital services will also be addressed in the review of the common telecoms framework. These proposals are expected to be published after the summer 2016.

---

12. European Commission, available at http://europa.eu/rapid/press-release_MEMO-16-1895_en.htm

3. Taxation

3.1. Key stakes: Multinational and major companies "avoiding" full payment of various taxation schemes

In a nutshell, it has been found that many major multinational companies (both Internet players and non-Internet) pay a very small amount of corporate tax in their various countries of activity, compared to what they should pay in theory. There are two main methods used:

- "Double Irish and Dutch sandwich", which uses subsidiaries to transfer values
- The Luxembourg tax regime which is highly beneficial to multinational companies

It is noticeable that many of the tech giants are located in Ireland, such as Facebook, Apple and Google, who all have their European head offices located there. There are also others, such as Microsoft, eBay, Dell, and non-tech players such as Starbucks and GE who are located in Ireland. The other common country to base European headquarters is Luxembourg; examples include Amazon, Netflix, Skype and Rakuten.

The reason why these two European nations are home to many global Internet players is simply that, by having their European headquarters in these nations, the Internet players can use a legally legitimate scheme which radically reduces the amount of corporate tax payable otherwise. These schemes are explained in more detail below.

Also on a more boarder level, there remain the issues over an outdated EU VAT system. The European Commission has revealed that the "VAT gap", which is the difference between the expected VAT revenue and VAT actually collected in Member States, was almost EUR 170 billion in 2013, of cross-border fraud is estimated to account for roughly EUR 50 billion. The complications surrounding the current cross-border VAT rulings have come under intense scrutiny, with the European Commission presenting a large scale proposal in April 2016 for a new Single EU VAT area.

The topic is especially hot in Europe. In late August 2016, The European Commission has concluded that Ireland granted undue tax benefits of up to €13 billion to Apple. This is illegal under EU state aid rules, because it allowed Apple to pay substantially less tax than other businesses.

3.1.1. "Double Irish and Dutch sandwich" system to shift value overseas

The case of Ireland is commonly known as the "Double Irish", and is usually combined with the "Dutch sandwich". In short, this scheme uses the advantageous taxation rules in Ireland and the Netherlands to limit the payable tax, by funnelling profits through the Netherlands and an offshore country (such as Bermuda).

A more detailed explanation (but nevertheless still very generalized, as the actual legal proceedings involved are very complicated) on how the scheme works is given below.

Figure 45: The "Double Irish" and "Dutch sandwich" scheme
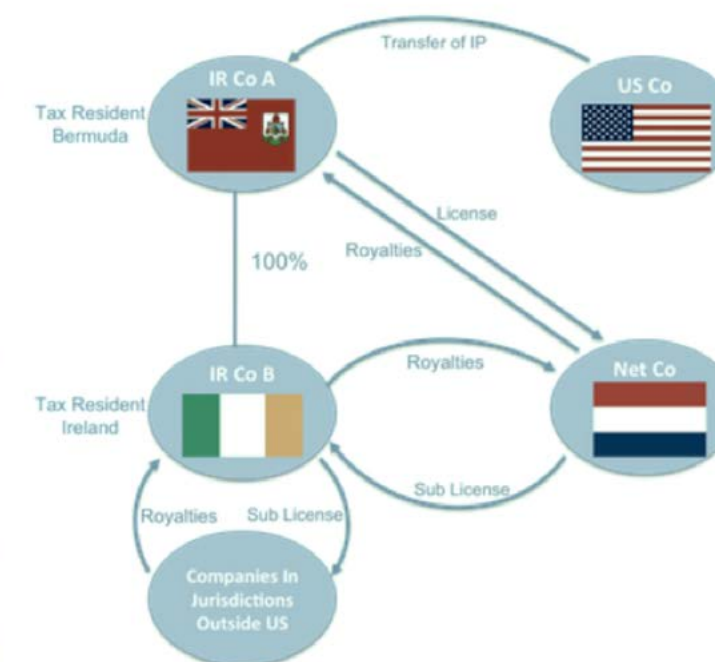
Source: Pearse Trust

This scheme has become increasingly popular with many US companies, and is designed to help many US multinationals reduce their global taxation liabilities through the use of the favourable taxation regimes in both Ireland and the Netherlands.

3.1.2. The Luxembourg tax regime, revealed through LuxLeaks

The other common European nation for US companies' European headquarters is Luxembourg, for similar reasons, i.e. tax reductions.

In late 2014, two reports by a group of investigative journalists (ICIJ: International Consortium of Investigative Journalists) revealed widespread tax avoidance facilitated through Luxembourg. Luxembourg was already known as a tax haven, but these two reports, often referred to as LuxLeaks, revealed the tax avoidance scheme deployed on mass scale. The documents uncovered details of so-called Advance Tax Agreements, which are pre-negotiated deals that set out how companies will be taxed. EU regulators were already investigating whether Luxembourg's such Agreements with US Internet giant Amazon and the financial arm of Italian carmaker Fiat amounted to illegal state aid.

Jean-Claude Juncker, current president of the European Commission since November 2014, was the prime minister of Luxembourg from 1995 to 2013, and the reports revealed how Juncker presided over the tax affairs of Luxembourg for over his two decades in charge, transforming Luxembourg into a prized destination where hundreds of the world's biggest companies channel their affairs.

Figure 46: An overview of the Luxembourg tax scandal
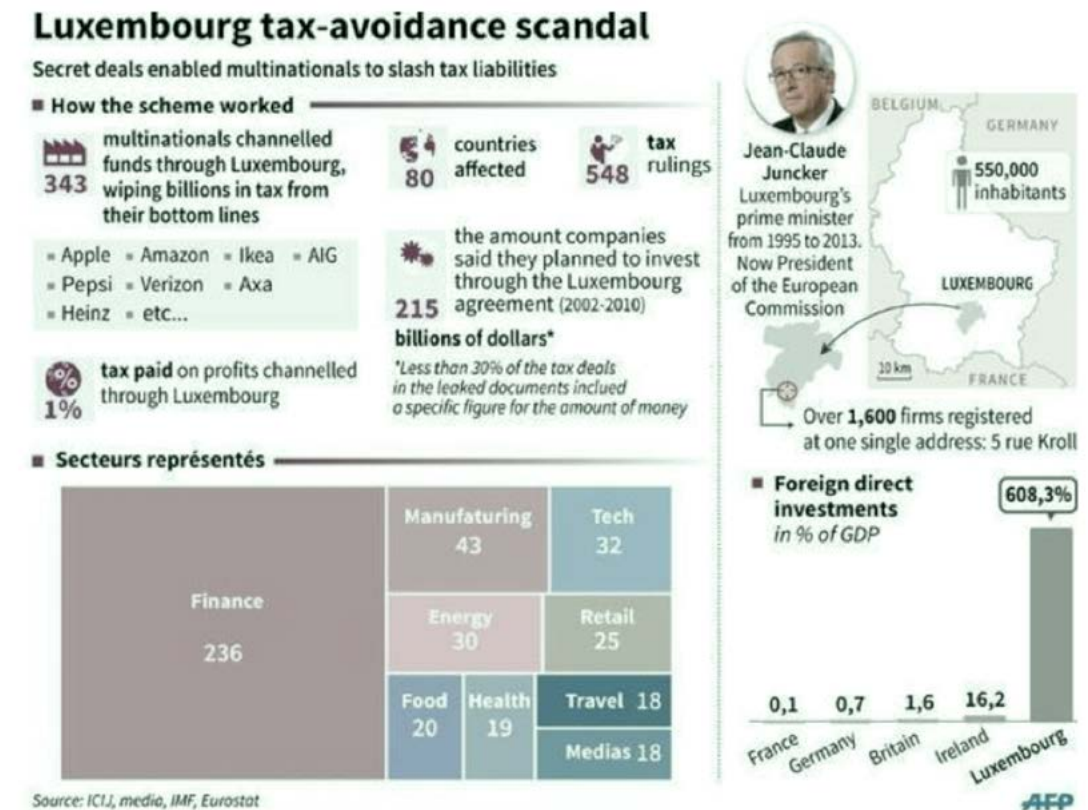
Source: Digital Journal

3.1.3. VAT and other discrepancies also cause for concern

Different taxes throughout Europe

Below is a case study of the VAT system applied to both linear and on-demand audiovisual media services. Out of the selected seven European countries covered, only France and Luxembourg have reduced tax rates for linear services. For on-demand services, the general VAT rate applies for all countries.

Table 1: Comparison of VAT rates on linear and on-demand audiovisual media services

	VAT applied to linear media services	VAT applied to on-demand media services
Germany	19%	19%
Spain	21%	21%
France	10%	20%
Italy	22%	22%
Luxembourg	17% (FTA) / 3% (Pay-TV)	17%
Netherlands	21%	21%
UK	20%	20%

Source: EC "VAT Rates Applied in the Member States of the European Union", as of January 2016

The table above indicates that Luxembourg has the lowest VAT rate for both Pay-TV and on-demand audio-visual services, making it an attractive location for such service providers. Thus perhaps it is not surprising to see that out of the seven countries covered, Luxembourg has the largest amount of on-demand video providers specialising in the distribution of movies, as the figure below demonstrates.

Figure 47: Number of VoD providers situated in selected European countries
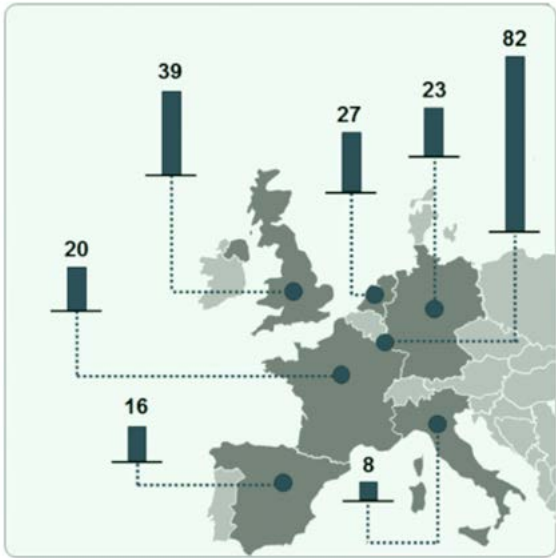
Source: OEA, Iris Plus 2013-4

However, the non US countries are obviously unhappy about the situation; after all, these US companies are making profits in their lands, yet are not liable to pay taxes for their activities.

Low regulatory pressures

In addition to the tax pressure, the regulatory pressures are also of concern. For the same seven countries as above, from a regulatory perspective, IDATE concludes that the Netherlands has the least pressure, followed by the trio of Germany, Luxembourg and the UK who all still have relatively low pressure in comparison to Spain, Italy and France. Thus in conclusion, Luxembourg is in the unique position of having low VAT rates and also low regulatory pressure, making the country an attractive jurisdiction for on-demand audio-visual providers.

Figure 48: Comparison of regulatory and tax pressures on VoD businesses in select European countries (France, Germany, Italy, Luxembourg, Netherlands, Spain, UK)
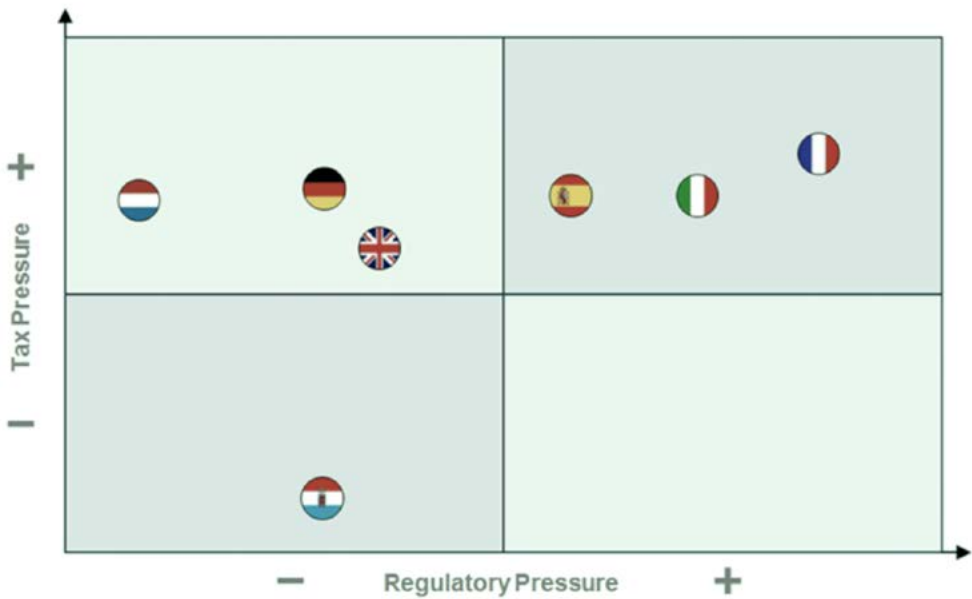
Source: IDATE DigiWorld

3.2. Reactions to tax avoidance schemes

3.2.1. At the European level

The revelations of the LuxLeaks were particularly damaging for the European Union, as its current leader, Jean-Claude Juncker, was the president of Luxembourg at the time when the Tax Agreements were being made. Thus Juncker's position at the EU came under intense scrutiny, with some in the European Parliament calling for his resignation. Juncker has continued to distance himself from the taxation deals made by his government, claiming "It's the tax authorities that develop the specific rules that are applied," during a hearing of the European Parliament in September 2015. However, according to Newsweek, reports emerged in July 2016 through a court case between Amazon and the IRS (Internal Revenue Service), revealing that Juncker had met with four senior Amazon tax officials between September 9 and 12 of 2003.

European Committee set up two special committees to combat corporate tax avoidance

This is not to say, however, that the European Parliament has turned a blind eye. The European Parliament set up two special committees on tax rulings to look into allegations that some EU countries are using special tax regimes to favour large corporations. The first special committee on tax rulings finalised its recommendations[13] in November 2015, calling for a corporate tax makeover to fight aggressive corporate planning, and these recommendations were adopted by MEPs in December 2015, spelling out the legal steps that the EU and the member states should take. Among others, Parliament called for the European Commission to produce a legislative proposal on country-by-country reporting of companies' profits, tax and subsidies. As a result the Commission announced its plans in April 2016, whereby large companies would have to publicly disclose tax and financial data, in an effort to eliminate tax schemes costing European Union states billions of euros in lost tax revenues. MEPs also demanded an EU-wide definition of tax haven and the Commission is currently working on a proposal.

The second special committee, taking over from the first committee above, got its final report approved in July 2016. The report claims, among other things, that tax avoidance by companies cost EU countries between 160 and 190 billion EUR in lost revenue a year. Based on this report, the European Commission has proposed a

directive based on the principle that taxes should be paid where profits are made. The plans contain six key measures (see appendix)[14] to fight aggressive tax planning and also sets out common definitions of terms such as permanent establishment, tax havens and minimum economic substance, as it was deemed that the issue with current legislation is that these terms have been open to interpretation. The directive also responds to the finalisation of the project against Base Erosion and Profit Shifting (BEPS)[15] by the G20 and the OECD (Organisation for Economic Cooperation and Development). The figure below shows the European Parliament's position whereby MEPs are keen to curb internal lending, which is one of the most common ways for companies to show low profits and avoid paying tax. To tackle this MEPs are advocating stricter limits on the deduction of interest payments, which to some extent is the corporate equivalent of the mortgage interest that home owners can deduct from their annual taxable income. The EU wants to limit the amount of interest payments that the taxpayer is entitled to deduct in a tax year in order to increase the amount of paid tax. The Commission proposes that companies should not be allowed to deduct more than 30% of their earnings. MEPs say this should be limited to 20% or 2 million EUR, whichever is higher.

Figure 49: The European Commission's proposal to limit tax avoidance

Source: European Commission

---

13. http://www.europarl.europa.eu/news/en/news-room/20151120IPR03607/Parliament-calls-for-corporate-tax-makeover

14. http://www.europarl.europa.eu/oeil/popups/summary.do?id=1421264&t=e&l=en

15. http://www.oecd.org/tax/beps/
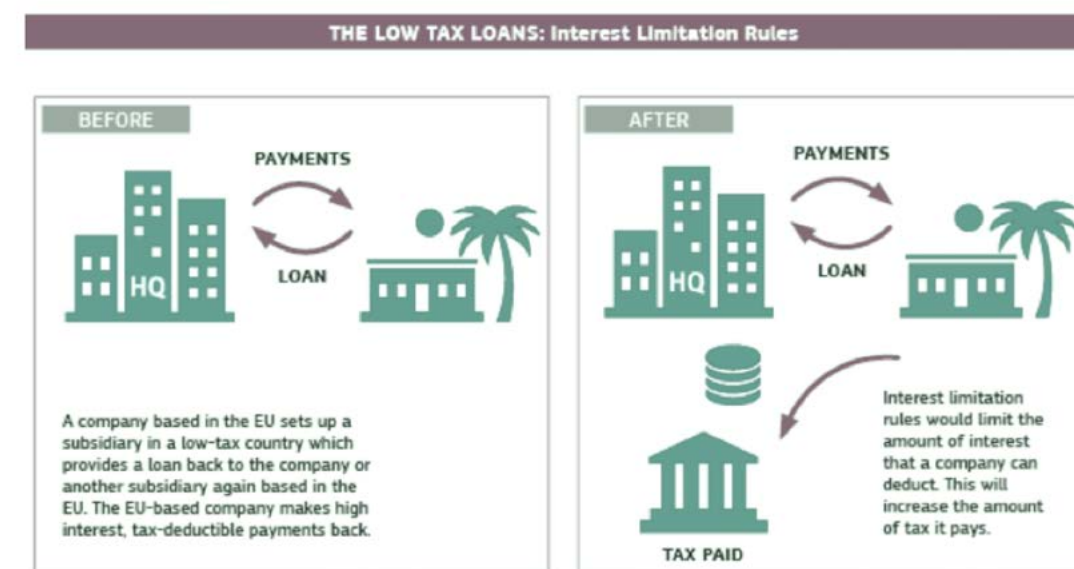
Other European moves on combating corporate tax avoidance

In other European Parliamentary actions, in May 2015, MEPs adopted tougher rules on money laundering. The fourth anti-money laundering directive will oblige member states to keep central registers of information on who owns companies and other legal entities. EU countries have until 26 June 2017 to implement the new legislation. The Panama papers[16] underlined the importance of these new rules.

Also, the European Parliament was also consulted on a proposal on the exchange of information on tax rulings between EU countries. The European Council adopted the directive[17] in December 2015, which will be applied from 1st January 2017. It will require member states to exchange information automatically on advance cross-border tax rulings, as well as advance pricing arrangements. Member states receiving the information will be able to request further information where appropriate. The Commission will be able to develop a secure central directory, where the information exchanged would be stored. The directory will be accessible to all member states and, to the extent that it is required for monitoring the correct implementation of the directive, to the Commission.

Still, the Parliament called the Council's deal a "missed opportunity" as the new rules only apply to cross border rulings but leave out tax deals within member states. MEPs also criticised the fact that the Commission was only given limited access to the information.

Modernisation of VAT in the EU

The VAT system plays an important role in Europe's Single Market, originally put in place to do away with turnover taxes which distorted competition and hindered the free movement of goods and to remove fiscal checks and formalities at internal borders. It is a major and growing source of revenue in the EU, raising almost EUR 1 trillion in 2014, corresponding to 7% of EU GDP. As a consumption tax, it is one of the most growth-friendly forms of taxation.

However, the EC has conceded that the VAT system has been unable to keep pace with the challenges of today's global, digital and mobile economy. By their own accord, the current VAT system, which was intended to be a transitional system, is fragmented, complex for the growing number of businesses operating cross-border and leaves the door open to fraud: domestic and cross-border transactions are treated differently and goods or services can be bought free of VAT within the Single Market. Indeed, the "VAT gap", which is the difference between the expected VAT revenue and VAT actually collected in Member States, was almost EUR 170 billion in 2013. Cross-border fraud itself is estimated to be responsible for a VAT revenue loss of around EUR 50 billion a year in the European Union.

Figure 50: Key VAT facts ; the scale of VAT within the EU

KEY VAT FACTS

€50 billion: The value of cross-border VAT fraud in the EU.

Almost €1 trillion: VAT collected in the EU in 2014 – equivalent to 7% of the EU's total GDP.

The current rules for VAT came into force 23 years ago.

€168 billion: Size of the "VAT Gap", or the difference between VAT revenues expected and VAT actually collected in 2013.

Cross-border VAT fraud could be reduced by 80% for businesses with the future VAT system.

Source: European Commission

It is with this background that in April 2016, the Commission adopted an Action Plan on VAT– Towards a single EU VAT area. The Action Plan sets out immediate and urgent actions to tackle the VAT gap and adapt the VAT system to the digital economy and the needs of SMEs. It also provides clear orientations towards a robust single European VAT area in relation to the definitive VAT system for cross-border supplies and proposes options for a modernised policy on EU rules governing VAT rates.

---

16. The Panama Papers are a leak of 11.5 million files that detail financial and attorney–client information for more than 214,488 offshore entities, taken from the database of the world's fourth biggest offshore law firm, Mossack Fonseca. The documents show the ways in which the rich can exploit secretive offshore tax regimes, including 12 national leaders.

17. http://www.consilium.europa.eu/en/press/press-releases/2015/12/08-ecofin-cross-broder-tax-ruling/

Figure 51: The Action Plan on VAT, presented by the EC

ACTION PLAN ON VAT			
Recent and ongoing policy initiatives	Urgent measures to tackle the VAT gap	Towards a robust single European VAT area	Towards a modernised VAT rates policy
Removing VAT obstacles to e-commerce in the Single Market + SMEs VAT package	Improving cooperation within the EU and with non-EU countries Towards more efficient tax administrations Improving voluntary compliance Tax colletction	Definitive VAT regime for cross-border trade	More freedom for Member States on rates policies

Source: European Commission

(For more details on the Action Plan, see the appendix)

Doing forward, the Commission is currently asking the European Parliament and the Council, supported by the European Economic and Social Committee, to provide clear political guidance on the options put forward in this Action Plan and to confirm their support for the reforms set out in this Communication.

The Commission is expected to present proposals on all issues later in 2016 and in 2017.

3.2.2. France

France has arguably been one of the most vocal European nations in terms of criticising Internet giants and their tax avoidance schemes. According to Greenwich Consulting, in 2011, the 5 main OTT players paid 37.5 million EUR in corporate taxes in France, which calculates to 22 times less than what they would have paid if their production activities were located and taxed in France.

Table 2: Corporate tax paid by 5 leading Internet players in France in 2011, in comparison to what these players would have paid had they been located and taxed in France

	Reported revenues in France	Estimated made revenues in France	Corporate income taxes paid by the OTT in France	Corporate income taxes that OTT players would have paid in France	Average annual growth rate of worldwide income
Google	138 M€	1.4 bn€	5.5 M€	162 M€	42%
Apple Inc.	257 M€	3.2 bn€	6.7 M€	317.5 M€	38%
facebook	ND	140 M€	50 k€	21.2 M€	123%
amazon.com	110 M€	890 M€	3.3 M€	10.9 M€	32%
Microsoft	584 M€	2.5 bn€	22 M€	317 M€	8%
TOTAL	1.09 bn€	8.13 bn€	37.5 M€ — x22	828.7 M€	

Source: Greenwich consulting

The 2012 Collin & Colin Study proposes a new tax systems

In 2012, the French government commissioned Collin & Colin to study the topic of taxation on the digital economy, and the results were released in January 2013. In a nutshell, the report concludes that the current corporation tax system is too easy for international digital corporations to dodge, and therefore it is necessary to find another way to tax these players. The report also suggests that one potential solution would be to introduce tax on the digital data used by these players, going on to provide two suggestions on how the French tax system could be adapted to today's digital economy:

- At the International level: "Regain power to tax profits earned in the country by digital economy companies", by creating a legal status for "permanent virtual establishment", and acknowledge that a percentage of companies' profits come from "free labour" by locals sharing their personal data

◆ At the national level: tax the use of data obtained through regular and systematic monitoring of user activities. Any data collected in France through "free labour" could be taxed, applicable to companies above a certain user number threshold. The tax rate could be determined according to the company's attitude towards privacy laws.

◆ Taking the Collin & Colin report on board, in late 2013 the French government called on the EU to draw up proposals aimed at taxing and regulating the data used by Internet players. The core of the French proposal was to a) establish a European tax regime linking the tax base to the place where the profits are made, and b) regulate the "non-European" giants, i.e. Google, Facebook, Amazon and Apple.

2014: new tax systems introduced for international VoD and SVoD players

◆ In September 2014, The CNC (Centre national du cinéma et de l'image animée) introduced a 2% tax on VoD (Video on Demand) and SVoD (Subscription VoD) operators which operate in France, but are based abroad and have annual revenues of more than 10 million EUR. Starting from January 2015, international online video players such as Netflix and iTunes have had to pay the new tax.

2015: Think tank for the French Prime Minister suggests new tax tools

Further, in March 2015, a report was released by France Strategie, a think tank within the French government that advises the French Prime Minister's office, suggesting new tools and methods that could be implemented to better tax the Internet giants. Three main ideas were proposed, as follows:

◆ Tax based on advertising revenues, which constitute the core revenue for leading Internet giants

◆ Tax based on the Internet giants' platform, measuring either the number of users, number of advertisers or the amount of data transferred

◆ Tax based on personal data storage and use by Internet giants

Various studies and reports show the amount of tax (or lack of it) being paid by Internet giants from a worldwide perspective, with the aforementioned France Strategie one of them. They have produced the table below which compares the leading US Internet giants' tax as a proportion of its profit, and the difference between this payment within the US and outside it, with other leading US companies. It is clear that there is a significant gap between the Internet giants and other recognized large US players.

Table 3: Tax/profit ratio paid by leading US Internet and non-Internet companies
Capitalizations, turnovers, profits and taxes of main American digital
(GAFA) and non-digital companies (2013)

	Market capitalization (Feb. 2015)	Turnover (World)	Profit (World)	Tax/profit (USA)	Tax/profit (Excl. USA)	Tax/profit (USA)	Tax/profit (Excl. USA)
	Billion USD	Billion USD	Billion USD	%	%	%	%
Google	370	59.8	14.5	5.7	2.2	26.4	8.6
Apple	748	170.9	50.2	19.1	1	61	3.7
Facebook	223	7.9	2.8	32.9	1.5	31.2	(losses)
Amazon	175	74.5	0.5	0	0.5	1.6	(losses)
Coca-Cola	183	46.9	11.5	5.8	6.3	47.2	18.8
Pfizer	216	51.6	15.7	10.5	7	(losses)	12.5
GE Company	223	146.0	16.2	-2.8	3.4	-31.9	26.1
Procter & Gamble	203	84.2	14.8	7.7	2	28.1	16.9

Source: France Strategie

2016: French tax authorities raid Google offices as part of tax fraud inquiry

◆ Moving into 2016, in February it was revealed by Reuters that the French tax watchdog is seeking 1.6 billion EUR to cover taxes Google had avoided through the use of controversial cross-border arrangements. Forbes also cites a 2012 report saying France was trying to apply a charge of 1 billion EUR and says this has been increased to reflect "late-payment interest fees". Then in May 2016, Google's Paris headquarters were raided by French authorities including 100 tax investigators, as part of an inquiry into tax fraud and money-laundering. It is not only in France that such activities are takling place; Italian tax authorities are demanding Google make up a tax shortfall of over 200 million EUR covering 2008 to 2013, while in July 2016 this time Google's offices in Madrid were raided by tax investigators.

3.2.3. UK

Talks of introducing "Google Tax: heat up in 2014

In the autumn of 2014, then UK Chancellor of the Exchequer (finance minister) George Osborne announced plans to crack down on multinational technology companies avoiding UK tax. Whilst he did not specifically mention any companies, this plan is widely referred to as the "Google Tax". It is understood that Google made 5.6 billion USD of revenues in 2013, yet paid corporation tax of just 33.6 million USD (0.6% of revenues). More details of this plan were revealed in December 2014. In a nutshell, this scheme will oblige any International firm that moves its profits generated in the UK abroad, to pay a flat 25% tax on these profits. In comparison, the UK corporate tax rate is 21%, and thus the idea is that such International firms will opt not to use schemes such as the Double Irish but to pay tax "normally". Officially named "Diverted Profits Tax", commonly referred to as the "Google Tax" (since such companies are the primary targets), it is scheduled to come into effect from April 2015. "This new Diverted Profits Tax will raise over 1 billion GBP over the next five years" was the stated expectation of the Chancellor of the Exchequer.

2016: Google pays a 130m GBP settlement, although many criticise this as too low

But then in January 2016, Google agreed a 130 million GBP back tax deal with HMRC (Her Majesty's Revenue and Customs; responsible for UK tax collection), covering money owed by Google to the UK since 2005, following a six year inquiry. The aforementioned Chancellor of the Exchequer, George Osbourne, hailed this a victory; however, the Public Accounts Committee (PAC) claimed this 130 million GBP settlement "seems disproportionately small", compared with the size of its UK business. Indeed, considering France is chasing Google for a payment of 1.6 billion EUR, and that France makes kess profits than Great Britain, this 130 million GBP "victory" settlement does seem rather small. Further, HMRC reports that Google was not charged a penalty despite it underpaying tax over a 10 year period

- It is also worth noting that in December 2015, Apple agreed to pay the Italian tax office 318 million euros to settle a dispute and sign an accord early 2016 on how to manage its tax liabilities from 2015 onwards. Italian prosecutors had been investigating allegations that Apple failed to pay corporate taxes of around 880 million euros, covering the period of 2008 to 2013.

3.2.4. Germany

The term "Google Tax" was actually used in Germany in 2012, thus before the UK, but in a slightly different context. It concerned the press, with publishers wanting to receive royalties for search engines (i.e. Google) showing snippets of their articles.

The German Ancillary Copyright Law, aiming to gain royalty "tax" fees

The German Ancillary Copyright for Press Publishers (Leistungsschutzrecht für Presseverleger), also called the Ancillary Copyright Law, aims to extend publishers' copyrights; the law will force search engines such as Google and other news aggregators to pay royalties to publishers for showing extracts of their articles in search results. The bill was submitted to parliament on 14 November 2012. It was passed by the Bundestag on 1 March 2013. The law was pushed by German magazine and newspaper publishers who see the Internet and Google, in particular, as the cause of many of their subscription, readership and revenue challenges.

The original law concerned all types of short snippets, but a compromise was later negotiated to allow search engines and news aggregators to display single words or very small text excerpts at no cost. Anything beyond this would be subject to the publishers' "exclusive right to commercialize" their content. The initial goal was to establish a licensing marketplace for publishers' content with news aggregators. The related fees would be collected by a central clearinghouse.

In reaction, Google decided to remove publisher's snippets and limit their content to headlines in search results contributing to a loss of traffic for publisher's websites. This resulted in German publishers stepping back, requesting that Google News reinstate their snippets and thumbnail without compensation.

In the end in September 2015, after months of deliberations, Germany's national arbitration board on copyright told German copyright collection company VG Media that its proposal for a six per cent "Google Tax" was declined. The board stated that although the ancillary copyright tax law does indeed apply to Google, VG's request for six per cent was far too high; this, despite the collecting agency originally wanting 11 per cent, but then reducing it to six. The board based its decision on a specific word count threshold for snippets, so the ancillary copyright fee can now only be collected on snippets of more than seven words, plus the search term.

A similar story in Spain with the closing of Google News

Inspired by the German Ancillary Copyright Law, and pushed by the Association of Editors of Spanish Dailies (AEDE), the Spanish parliament enacted a major copyright revision law (Article32(2)[18]) that imposes fees for online content aggregators such as Google News in an effort to protect the country's print media industry. The law came into effect on the 1st of January 2015.

Popularly known (again) as the "Google Tax", the law requires services that post links and excerpts of news articles to pay a fee to the Association of Editors of Spanish Dailies. It will also affect other news aggregators such as Yahoo News. Authorities will also have the power to fine websites up to 600 000 EUR for linking to pirated content. This new legislation requires every Spanish publisher to charge services like Google News for showing snippet from their publications, whether they want to or not.

In reaction, Google decided to close Google News in Spain, and to remove all links to Spanish publishers' websites, considering the new approach as unsustainable given that the service is supposed to be based on a non-profit model. As in Germany, local publishers are complaining about the decrease of traffic on their websites caused by the closing of Google news.

3.3. Appendix

3.3.1. The six key measures proposed by the European Commission to fight tax avoidance

Having the aim of combating tax avoidance practices which directly affect the functioning of the internal market, the EC proposal lays down anti- tax avoidance rules in six specific fields:

1. **The deductibility of interest:** multinational groups often finance group entities in high-tax jurisdictions through debt and arrange that these companies pay back 'inflated' interest to subsidiaries resident in low-tax jurisdictions. The aim of the proposed rule is to discourage the above practice by limiting the amount of interest that the taxpayer is entitled to deduct in a tax year. Given that this Directive fixes a minimum level of protection for the internal market, it is envisaged setting the rate for deductibility at the top

_____
18. https://www.boe.es/buscar/act.php?id=BOE-A-1996-8930&tn=1&p=20141105&vd=#a32

of the scale (10 to 30%) recommended by the OECD. Member States may then introduce stricter rules.

2. **Exit taxation:** taxpayers may try to reduce their tax bill by moving their tax residence and/or assets to a low-tax jurisdiction. Exit taxation serves the purpose of preventing tax base erosion in the State of origin when assets which incorporate unrealised underlying gains are transferred, without a change of ownership, out of the taxing jurisdiction of that State. The proposal also addresses the EU law angle of exit taxation by giving taxpayers the option for deferring the payment of the amount of tax over a certain number of years and settling through staggered payments.

3. **A switch-over clause:** given the inherent difficulties in giving credit relief for taxes paid abroad, States tend to increasingly exempt foreign income from taxation. Switch-over clauses are commonly used against such practices. Namely, the taxpayer is subjected to taxation (instead of being exempt) and given a credit for tax paid abroad. In this way, companies are discouraged from shifting profits out of high-tax jurisdictions towards low-tax territories, unless there is sufficient business justification for these transfers.

4. **A general anti-abuse rule:** such a rule is designed to cover gaps that may exist in a country's specific anti-abuse rules against tax avoidance. It would allow authorities the power to deny taxpayers the benefit of abusive tax arrangements. Within the Union, the application of anti-abuse rules should be limited to arrangements that are 'wholly artificial' (non-genuine); otherwise, the taxpayer should have the right to choose the most tax efficient structure for its commercial affairs.

5. **Controlled foreign company (CFC) rules:** taxpayers with controlled subsidiaries in low-tax jurisdictions may engage in tax planning practices whereby they shift large amounts of profits out of the (highly-taxed) parent company towards subsidiaries which are subject to low taxation. The effect is to reduce the overall tax liability of the group. CFC rules re-attribute the income of a low-taxed controlled foreign subsidiary to its parent company. As a result of this, the parent company is charged to tax on this income in its State of residence – usually, this is a high-tax State.

6. **A framework to tackle hybrid mismatches:** these mismatches are the consequence of differences in the legal characterisation of payments (financial instruments) or entities when two legal systems interact. Such mismatches may often lead to double deductions (i.e. deduction on both

sides of the border) or a deduction of the income on one side of the border without its inclusion on the other side. In order to ensure that Member States introduce rules to effectively combat against these mismatches, this Directive prescribes that the legal characterisation given to a hybrid instrument or entity by the Member State where a payment, expense or loss, as the case may be, originates shall be followed by the other Member State which is involved in the mismatch.

3.3.2. Action Plan on VAT– Towards a single EU VAT area

Figure 52: The Action Plan on VAT, presented by the EC

ACTION PLAN ON VAT			
Recent and ongoing policy initiatives	Urgent measures to tackle the VAT gap	Towards a robust single European VAT area	Towards a modernised VAT rates policy
Removing VAT obstacles to e-commerce in the Single Market + SMEs VAT package	Improving cooperation within the EU and with non-EU countries Towards more efficient tax administrations Improving voluntary compliance Tax colletction	Definitive VAT regime for cross-border trade	More freedom for Member States on rates policies

Source: European Commission

Key actions

Recent and ongoing policy initiatives

Removing VAT obstacles to e-commerce in the single Market

The current VAT system for cross-border e-commerce is complex and costly for Member States and business alike. The Commission will, as part of its Digital Single Market strategy, present a legislative proposal by the end of 2016 to modernise and simplify VAT for cross-border e-commerce by:

Extending the current One Stop Shop concept to all cross-border e-commerce, including distance sales,

- Introducing common EU-wide simplifications measures to help small start-up e-commerce businesses,
- Streamlining audits in this sector (home country audits), and
- Removing the VAT exemption for the importation of small consignments from suppliers in third countries.

SMEs VAT package

SMEs bear proportionally higher VAT compliance costs than large businesses due to the complexity and fragmentation of the EU VAT system.

Further to the new Single Market Strategy, the Commission is preparing a comprehensive simplification package for SMEs that will seek to create an environment that is conducive to their growth and favourable to cross-border trade. In particular, the special scheme for small enterprises will be subject to review. This proposal will be presented by the end of 2017.

Urgent measures to tackle the VAT Gap

The 'VAT gap' between expected revenue and revenue actually collected by national authorities is estimated at around EUR 170 billion, which equates to 15.2% of revenue loss. This calls for urgent action on several fronts:

- Improving cooperation within the EU and with non-EU countries
- Towards more efficient tax administrations
- Improving voluntary compliance
- Tax collection

(There are also a further detailed 20 measures to tackle the VAT Gap[19])

---

19. http://ec.europa.eu/taxation_customs/resources/documents/taxation/tax_cooperation/vat_gap/2016-03_20_measures_en.pdf

In 2016, the Commission will present:

- Measures to improve cooperation between tax administrations including from non-EU countries and with customs and law enforcement bodies and to strengthen tax administrations' capacity for a more efficient fight against fraud.

- Evaluation report of the Directive on the mutual assistance for the recovery of tax debts

In 2017, the Commission will present:

- Proposal to enhance VAT administrative cooperation and Eurofisc.pdf Choose translations of the previous link

Towards a robust single European VAT area

The present VAT system, which has been in place since 1993 and was supposed to be transitional, splits every cross-border transaction into an exempted cross-border supply and a taxable cross-border acquisition. It is like a customs system, but lacks equivalent controls and is therefore the root of cross-border fraud. It is also complex for the growing number of businesses operating cross-border and leaves the door open to fraud: domestic and cross-border transactions are treated differently and goods or services can be bought free of VAT within the Single Market.

To this end, the Commission will present in 2017 a legislative proposal for a definitive VAT system for cross-border trade. This definitive VAT system will be based on the principle of taxation in the country of destination of the goods, as agreed by the European Parliament and the Council.

The Commission considers that in the definitive VAT system, the taxation rules according to which the supplier of goods collects VAT from his customer should be extended to cross-border transactions. This will ensure consistent treatment of domestic and cross-border supplies along the entire chain of a production and distribution, and re-establish the basic features of the VAT in cross-border trade i.e. the fractionated payments system with its self-policing character.

Figure 53: How the current EU cross-border VAT system works vs EC's proposed Single EU VAT area
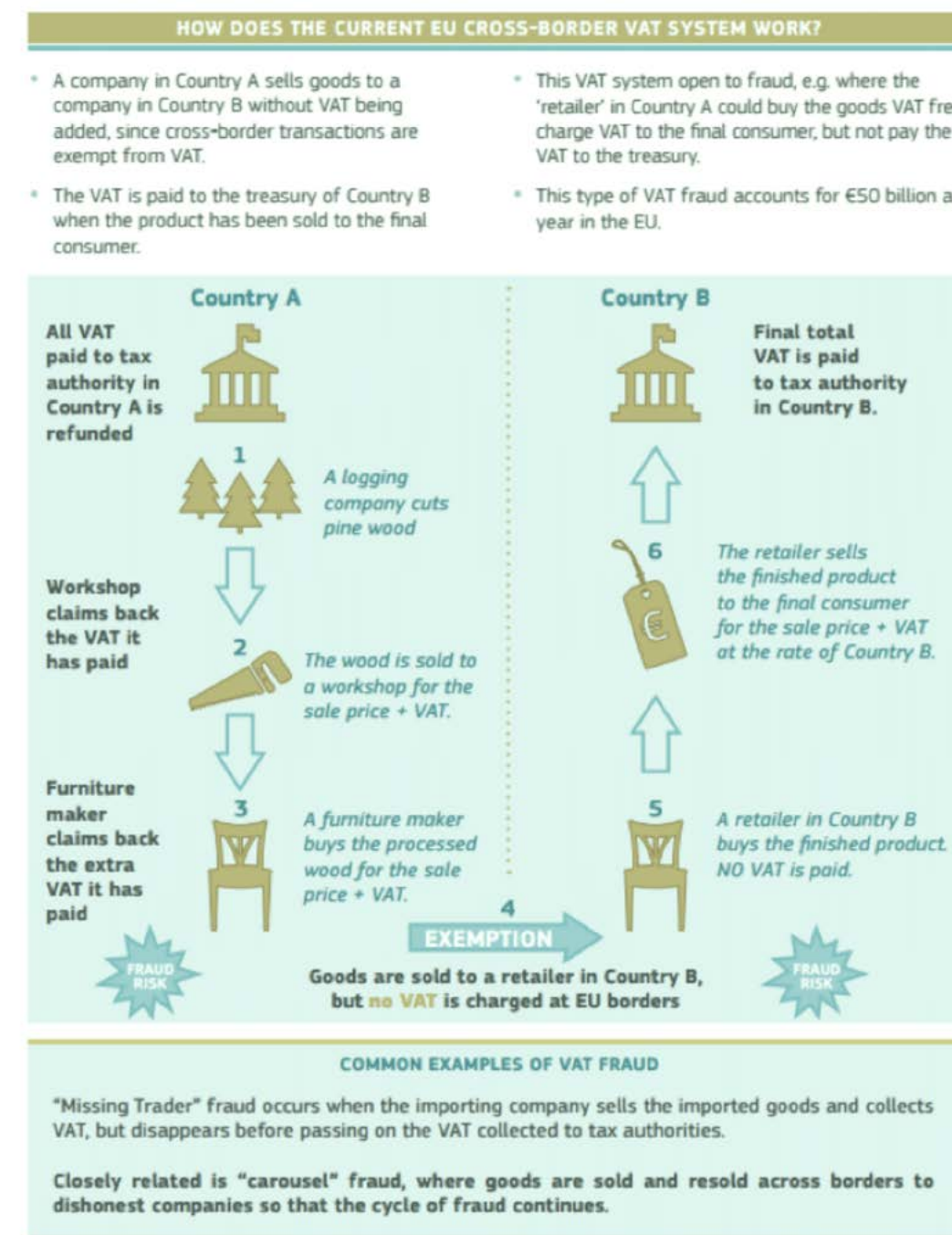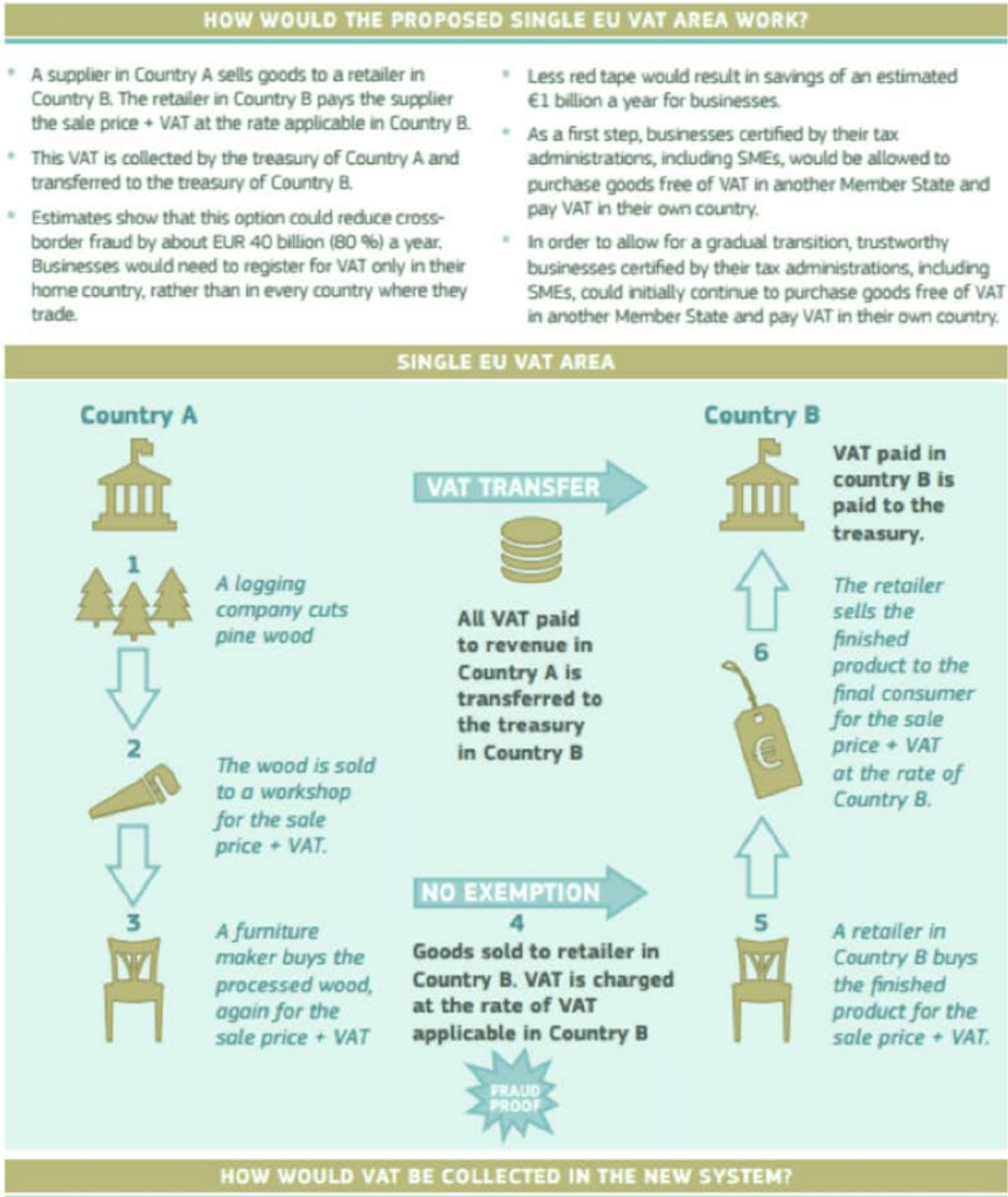
Source: European Commission

Towards a modernised VAT rates policy

The VAT Directive sets out general rules limiting Member States' freedom to set VAT rates. These rules were designed over two decades ago in the context of a definitive VAT system based on the origin principle. They were intended to guarantee, above all, the neutrality, simplicity and workability of the VAT system and featured, notably, lower limits on the levels of the VAT rates and a list of the goods and services which could benefit from reduced rates.

However, the decision to implement a definitive VAT system based on the destination principle requires a reflection about the consequences to be drawn for the rules governing VAT rates. In line with the subsidiarity principle, Member States could be granted greater autonomy on setting VAT rates, subject to appropriate safeguards to prevent excessive complexity and distortion of competition, and to ensure that the operation of the Single Market is not affected.

The Commission has put forward two options for giving Member States more freedom. However, the degree of autonomy on rates to be granted to Member States is not purely a technical matter, but requires political discussion. The Action Plan aims at initiating such political discussion with the Member States in the Council, as well as in the European Parliament to allow the Commission to submit, in 2017, detailed legislative proposals based on a mandate from the Council.

Figure 54: The current EU VAT rates and EC's propsed new VAT rates

The current VAT rules on EU cross-border online sales

The current cross-border online VAT scheme is indeed very complicated, depending on a wide range of criteria, such as whether the sale is B2B or B2C, whether it is sales of goods or services, the distance, special rules, etc. A further complication has been applied since January 2015, with a special category for the supply of telecommunication, broadcasting and electronic services. Below is a screenshot from the European Commission website, which aims to explain how online sellers can comply with VAT obligations.

Figure 55: EC guideline on how VAT applies to EU cross-border online sales

Source: European Commission

4. Privacy

4.1. Key stakes: personal data now available in unprecedented levels, but with it comes various privacy risks

Business models based on personal data are developing rapidly throughout the world. The European ecosystem of infrastructures and services enabling the targeting, collection, storage and processing of personal data is largely dominated by U.S. providers of OTT services, who have succeeded in monetising personal data. The personal data of European consumers are largely processed by these global market players. Indeed, Google and Facebook are the largest gainers from advertising, and IDATE estimates that for 2015, these two giants alone accounted for approximately 60% of global advertising revenues. Their reliance on the use of personal data and thus advertising is evident, with Google and Facebook producing 90% and 95% of their revenues respectively from advertising in 2015. More details can be found in the appendix.

However, the approach on data protection differs across these countries; privacy is considered a property right in the U.S. and can therefore be traded on a market. In the EU, privacy is a fundamental right guaranteed by law and consequently it cannot be traded.

The European authorities are committed to reinforce the application of European law to transatlantic data flows. To ensure that European users' privacy will be protected according to European law, the EU has proposed a new legal framework, the General Data Protection Regulation (GDPR), which has been approved and must be imposed into national law by May 2018. This framework will impose European data protection rules on all foreign companies who handle European consumers' digital information.

Indeed, it seems that every day there are reports of some significant kind of data breach and the leaking of personal data. The monetisation of personal data is a key element especially in the advertising business, and a delicate balance needs to be struck between the invasion of privacy, keeping the data secure and offering 'free' (ad-funded) services.

Figure 56: World's largest security breaches, as of October 2015

Source: Information is Beautiful

4.1.1. A contrasting approach between EU and US on privacy

Data protection and security are considered by some stakeholders to be key areas where the EU approach is substantially more prescriptive than that in the US. Relative to online privacy, Europe considers privacy to be a right of the consumer. As such, it is regulated in an over-arching sector-independent way. At the same time, some aspects of online privacy are subject to detailed regulation (some would say overly detailed, as in the case of online cookies).

By contrast, the United States has no over-arching approach to online privacy; however, sector specific rules (for example, for medical records and for banking) can be intense. At the same time, penalties for privacy infractions were often higher in the US than in Europe.

Big differences in approach emerge from the fact that the United States, while proposing a first-ever federal privacy law with a "Privacy Bill of Rights," still intends to rely on a variety of self-regulation (more precisely, co-regulation, since self-regulatory rules could not be enforced by law enforcement). The U.S. proposed rules do not contemplate a "right to be forgotten," a major feature of the EU proposal and one that First Amendment scholar Professor Jeffrey Rosen has labelled "the biggest threat to free speech on the Internet in the coming decade." Similarly, there is no right to "data portability" in the U.S. proposals as there is in the EU plan. The EU proposal contemplates broad jurisdiction to enforce its law, even extending to U.S. businesses without a physical presence in the EU, under certain circumstances. And even though the EU has borrowed the data breach notification idea from the United States, it proposes a presumptive obligation to provide notice within twenty-four hours of a breach, a time frame widely regarded as wholly unworkable by those who have worked under the U.S. data breach laws. Finally, the EU proposes a schedule of monetary fines of up to 2 percent of an entity's global worldwide turnover for violations of the proposed Regulation – an amount that many stakeholders view as unreasonable due to the discretion given to enforcers in assessing such a fine.

The GDPR addresses the issues relating to international differences in privacy policy by ensuring that European citizens' personal data are protected according to European data protection law regardless of their digital service provider and the location of their personal data.

4.2. EU and US background

4.2.1. Reform of EU data protection rules

In Europe, privacy and security is considered a fundamental right for the consumer, and is governed by a complex set of legislation, with sectoral legislation (such as the e-Privacy Directive) co-existing with horizontal legislation (such as the General Data Protection Regulation).

The initial EU Data Protection Directive 95/46/EC did not consider important aspects like globalization and technological developments such as social networks and cloud computing sufficiently, and thus the European institutions have worked on the General Data Protection Regulation (GDPR), which will replace the Data Protection Directive from 1995. A key aim of the Regulation is to increase harmonisation, since the

instrument of a Regulation has direct applicability and leaves less room for exercise of discretionary powers on the part of Member States, which, in the implementation of the Directive, has led to minor differences among EU Member States.

From the EU Data Protection Directive to the GDPR (General Data Protection Regulation)

The European Commission put forward its EU Data Protection Reform in January 2012 to make Europe fit for the digital age. More than 90% of Europeans say they want the same data protection rights across the EU – and regardless of where their data is processed.

The Regulation is an essential step to strengthen citizens' fundamental rights in the digital age and facilitate business by simplifying rules for companies in the Digital Single Market. A single law will also do away with the current fragmentation and costly administrative burdens, leading to savings for businesses of around €2.3 billion a year. The Directive for the police and criminal justice sector protects citizens' fundamental right to data protection whenever personal data is used by criminal law enforcement authorities. It will in particular ensure that the personal data of victims, witnesses, and suspects of crime are duly protected and will facilitate cross-border cooperation in the fight against crime and terrorism.

On 15 December 2015, the European Parliament, the Council and the Commission reached agreement on the new data protection rules, establishing a modern and harmonised data protection framework across the EU. The European Parliament's Civil Liberties committee and the Permanent Representatives Committee (Coreper) of the Council then approved the agreements with very large majorities. The agreements were also welcomed by the European Council of 17-18 December as a major step forward in the implementation of the Digital Single Market Strategy.

On 8 April 2016 the Council adopted the Regulation and the Directive. And on 14 April 2016 the Regulation and the Directive were adopted by the European Parliament.

- Directive (EU) 2016/680 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data, and repealing Council Framework Decision 2008/977/JHA

The GDPR (General Data Protection Regulation) in detail

By and large, the GDPR aims to give individuals more control over their personal data, while giving businesses the benefits of a single legal framework.

To be transposed into national law by May 2018, the key changes in the legal framework is summarised in the table below.

Table 4: What will change in the European regulations on privacy protection

Key changes in the European legal framework for the GDPR	
Territorial scope	· The obligations apply to all providers operating in Europe. · If they don't have a legal presence, they must have a dedicated and financially sound representative in Europe.
· Responsibility and accountability	. Fines can be imposed, from 2% to 5% of global turnover. · Data processors will now be held responsible for data protection. This puts significant pressure on service providers, especially IT infrastructure and platform providers. These measures are already motivating major players to implement architectures that allow them to be off the hook. · An individual may file a complaint in any country.
Information	· The TOS need to be clearer and more understandable. There is a move towards the concept of 'privacy icons' corresponding to levels of protection, which could subsequently be directly viewable on the sites themselves. · The concept of consent is further strengthened. For example, it is the responsibility of the service provider to demonstrate that the right level of consent was requested, or consent may be invalidated if there is clearly an unequal relationship between the controller and the user.
· Profiling and big data	· Personal data must be collected with a clear initial goal and only for this purpose. · The directive regulates the use and reuse of non-sensitive personal data. · Pseudonymised data is also personal data.
For the user (the 'data subject')	· Implementation of the right to be forgotten has been further reinforced. · User's access to their file, including: – duration of data retention – details of the data recipients outside the EU – details of applicable regulations · Big data: explain the logic, meaning and consequences of the decisions taken by the processing when it is automated (profiling) and its purpose is not obvious. · Data portability: users must be able to request their data and have it provided in a usable format
Legal publicity	· Data breaches must be identified and reported to the local authority (CNIL) within 72 hours and to the end user.

Source: IDATE DigiWorld, *Privacy Business*, December 2015

Also in the works: European electronic identification regulations: eIDAS

The eIDAS regulation is designed to create a unified European directive on electronic identity and trust services. This regulation is crucial for electronic transactions in a broad sense. It defines in detail the roles and obligations of stakeholders in the trust chain, and levels required for authentication ('Levels of Assurance').

With regard to individuals, the regulation aims to provide citizens with the means to authenticate themselves in the country of their choice. For example, a German student living in Spain can enrol at an English university by selecting their chosen identity provider (connected to the civil status of their federal state) and by obtaining proof of residence from their mobile operator...

The directive therefore creates a genuine European identity market for seamless transactions. It clearly defines new roles and responsibilities.

The actual implementation of the Directive is planned for July 2017. All member countries are currently actively involved in adapting their legal framework. It is a good opportunity to rethink infrastructures and to streamline administrative clutter.

4.2.2. The US approach to data protection

In contrast to the European system, the United States does not have a general framework for data protection in the private sector, but rather **sectoral laws.** Significantly, the protection of personal data falls under the Federal Trade Commission's umbrella.

Furthermore, the federal level interacts with local legislation, particularly on issues such as identity theft, data loss and medical data. Some states have local regulations, such as the California Online Privacy Protection Act (CalOPPA).

These laws are generally set up after data protection issues or scandals (ex-post) and focus mostly on highly sensitive data (HIPAA for health, COPPA around kids, GLBA around financial data, CAN-SPAM around telemarketing, etc…). It is considered to be normal to use other data as part of the freedom of commerce (whereas in Europe, personal data is more seen as a fundamental right). Regarding law enforcement, the judicial culture seems to be based on the "fear of the policeman" (especially the FTC that considers that illegal data use is unfair competition), which has led to many self-regulations or co-regulations initiatives (often adopted for 20 years) with potential strong penalties. In addition, for users, class actions are powerful tools but remain difficult to implement for personal data as the damages are not really quantifiable per se.

Table 5: Major FTC regulations by area

FTC areas	Example acts and organisations
General Privacy	Electronic Communications Privacy Act (1986) FOIA. Privacy Protection Act (1985) (freedom of the press) Controlling the Assault of Non-Solicited Pornography and Marketing (CAN-SPAM) Rule
Data Security	HIPAA. Health Breach Notification Rule (health)
Credit Reporting and Financial Privacy	FCRA. FACTA. Right to Financial Privacy (1978)
US-EU Privacy Shield (replacing Safe Harbour)	International data exchange
Children's privacy	GLBA. COPPA Rule. Requires parental consent for children under the age of 13.
Do-not-Track	The 'Do-not-Track' recommendation from the Federal Trade Commission is designed to allow users to register on a 'red list' to no longer be solicited (opt-out principle).

Source: IDATE DigiWorld, Privacy Business, December 2015

Following the United States' self-regulation tradition, the FTC will negotiate per sector basis (health, etc.) on a relatively unstandardised basis, but by imposing penalties for violations. For example, in November 2015, Lahey Hospital of Tuft's University (Mass.) was fined 850,000 USD for non-compliance with HIPAA rules.

Table 6: FTC's sector regulation

Regulation	Subject
Health Breach Notification Rule	Obligation to report data breaches for certain health sites
Red Flags Rule	Requirement for certain financial services to have identity theft prevention programs
COPPA Rule	Parental consent and protection of children under 13.
GLB Privacy Rule	Car dealers: consumer information obligation and opportunity to opt-out
GLB Safeguards Rule	Obligation for financial institutions to implement strict security policies
Telemarketing Sales Rule	Series of measures for protecting consumers. Red lists.
(CAN-SPAM) Rule	Anti-spam and obligation to implement opt-out
Disposal Rule	Archiving or erasure of personal data by financial institutions
Pre-screen Opt-out Rule	Credit agencies: obligation to provide clear information to opt-out

Source: IDATE DigiWorld, Privacy Business, December 2015

At the federal level, the administration has implemented a comprehensive trust and authorisation framework, FICAM, for its own needs.

4.2.3. Privacy Shield (ex-Safe Harbour)

Until October 2015, before the CJEU ruled the Safe Harbour agreement invalid

In the European market, economic value generated from monetising personal data essentially goes to U.S. providers. These market players process personal data from European consumers without being established or materially based in the EU. Transfers of European personal data to the U.S. were authorized under the Safe Harbour regime. The U.S. OTTs were allowed to move data to the U.S and process it there as long as they certify that they comply with European data protection law. In addition to Safe Harbour, Article 29 Working Party (the Working Group for all EU Data Protection Authorities) issued a framework for Binding Corporate Rules (BCRs) in 2008, ensuring that the transfer of personal data outside the EU takes place in accordance with EU rules on data protection. The BCRs allow for international transfers of personal data within a single corporate group to entities located in countries which do not provide a level of data protection consistent with European law.

The extraterritorial scope of GDPR implies that U.S. providers will have to apply European data protection rules whenever they use European consumers' personal information. In a 2013 Communication on the functioning of Safe Harbour, European authorities claimed that the transparency of Safe Harbour members' privacy policies and the effectiveness with which Safe Harbour's privacy principles are applied by companies in the U.S. needed to be reviewed. The European Commission and the Article 29 Working Party on privacy protection affirmed in a 2014 working paper that Safe Harbour's possibility to provide adequate protection for EU citizens was "*questionable*". The European Parliament adopted a resolution in March 2014 calling for the suspension of Safe Harbour until "*transfers of personal data for commercial purposes from the Union to the US can only take place in compliance with highest EU standards*"[20].

Then in October 2015 came the final judgement; the Court of Justice of the European Union (CJEU) ruled invalid the Safe Harbor data protection agreement between Europe and the United States.

---

20. http://www.europarl.europa.eu/sides/getDoc.do?type=TA&language=EN&reference=P7-TA-2014-0230

The Privacy Shield, replacing the Safe Harbour regime

As already discussed, the US OTTs depended heavily on the now invalid Safe Harbour regime, but similarly many European firms, including online and OTT startups, had also depended on these now invalid Safe Harbour provisions in order to conduct transatlantic operations. Thus, there was an urgent need to put new arrangements in place.

The European Commission reached a political agreement with the U.S. on 2 February 2016 on a new framework for transfers of personal data called "the EU-US Privacy Shield". On 29 February, the European Commission made public a draft decision on the adequacy of this new framework and its seven annexes, including the Privacy Shield principles and written representations and commitments by U.S. officials and authorities.

This Privacy Shield draft was officially adopted by the EC in July 2016, with the legal texts and a citizen's guide[21] published. U.S. companies needing to transfer personal data of European customers across the Atlantic have been able to sign up to the new EU-US Privacy Shield from 1st August. The key principles of this Privacy Shield can be found in the appendix.

Figure 57: The EU-US Privacy Shield Fact Sheet

Source: European Commission

This Privacy Shield is still not without its critics, complaining that the new arrangement has many of the same flaws as the "Safe Harbour" framework it replaces, and EU data protection authorities are in fact yet to comment on the final deal.

In fact, the European regulators have announced that Privacy Shield will not be challenged until its first annual review, which is due in the summer of 2017. This effectively gives the agreement a year-long stay of execution, at least as far as the 28 data protection authorities that cover Europe are concerned. After the year is up, the relevant bodies will either approve the deal wholesale, suggest changes, or file a legal objection. It is unlikely to be smooth sailing come the summer of 2017, however, with players such as the European Data Protection Supervisor (EDPS; an independent institution of the EU) and the Article 29 Working Party (the Working Group for all EU Data Protection Authorities) expressing that while they believe the Privacy Shield is a step in the right direction, it is not yet sufficient to address all of the current issues of data transferring.

It should be noted that the announcement does not rule out the possibility of the Privacy Shield being attacked in the interim; independent organizations may choose to challenge its legality for example.

4.2.4. The privacy paradox

The privacy paradox; more users distrust Internet services, but continue to use them

Various surveys have shown show that the general public is losing confidence in terms of having control over their own personal data. For example, a study by Pew Research at the beginning of 2014 found that 91% of respondents believed they had lost control of their personal data collection and use, and 88% also believed it was very difficult to remove inaccurate data about themselves. However, this does not mean that users abandon the use of Internet; as the figure below shows, there is a massive gap between user trust of and attitude towards Internet services and their actual use of them.

---

21. http://ec.europa.eu/justice/data-protection/document/citizens-guide_en.pdf

Figure 58: Frequently used online services: comparison of their use and trust levels (2015 survey)
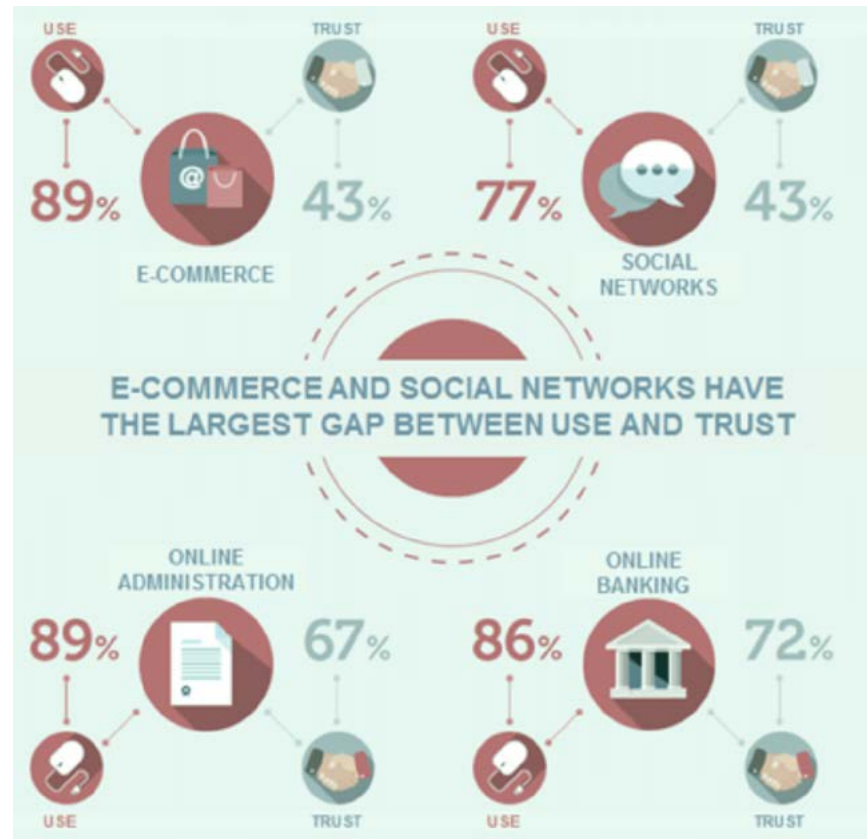
Source: IDATE, for CdD and ANSIL

It is highly unlikely that users will abandon the use of Internet services, yet with such a lack of trust, it remains uncertain how the stakeholders involved will try to address the paradox.

4.3. Country focus

4.3.1. France

The legal framework is evolving rapidly, with the implementation of directives that apply to national rights and by jurisprudence. In general, French legislation (CNIL) is stricter than European legislation.

Table 7: French regulatory principles

	Current framework (November 2015)
What is personal data? (CNIL's definition and European law coincide)	· 'Personal data constitutes any information relating to an identified or identifiable natural individual, either directly or indirectly, by reference to an identification number or to one or more specific elements. To determine whether a person is identifiable, account should be taken of all the means to be used by the person responsible for the processing or any other person to identify the individual.' · 'The individual who is the subject of the personal data being processed is the 'data subject'.
Personal data can only be processed if...	The data subject has unambiguously given his or her consent (opt-in principle). This concept also pertains to cookies (in the broad sense) since the 2009 directive. But the directive does not clearly address the problem of the clickstream (information collected during navigation: IP address, time spent on pages, etc.). · ... it is necessary for the performance of a contract involving the data subject or in order to enter into a contract requested by the data subject. · ... it is required by a legal obligation of the controller. · ... it is necessary to protect an interest that is essential for the data subject's life. · ... it is necessary to perform tasks in the public interest or tasks carried out by official authorities vested in the controller or a third party to whom the data is disclosed. · ... whenever the controller or third party has a legitimate interest in doing so, provided it does not override the interests or fundamental rights of the data subject.
The user should always be able to...	· ... have access to their data without constraint, within a reasonable time frame and without delays or excessive fees. · ... correct, delete or lock non-compliant or incorrect data as needed. This was extended in 2014 by the Google right to be forgotten ruling. According to this ruling, any European citizen can ask that their personal data no longer appears in search engine results online if they are wrong or no longer relevant. The major search engines from Google (Search) and Microsoft (Bing) have added online forms to allow users to request that search engines 'forget them'. · ... request to be notified by the third parties who have collected the data of any amendment, deletion or block, if it is not impossible or does not involve disproportionate effort.
The controller (those processing the data) is solely responsible (at the moment)	· The controller must ensure that the processing was conducted by its service provider, while respecting the law.

Source: IDATE DigiWorld, Privacy Business, December 2015

Through its Digital Bill of 2016, France is anticipating the adoption of the GDPR (to be implemented by 2018), with relatively similar rules, giving it more power to intervene (and fine) before the adoption of the text.

Past debates on data protection and privacy

UFC QueChoisir has done an analysis of major social networks contracts and has shown that they do not comply with French rules (3 of them have received warnings from UFC). The legal framework had been seen as **inadequate** in France and in Europe by US Internet platforms that based their data protection rules on the Anglo-Saxon legal framework (and applied them after globally), and not on the European framework.

In France, the legal framework seems to require modification in order to set up more binding rules regarding personal data gathering and processing. For instance, the user's consent is currently only mandatory for sensitive data like banking, geolocation, or to use trackers/cookies (including fingerprinting) or for prospection by email or SMS. A general mandatory consent would be required to meet users' claims. CNIL issued a new recommendation around consent in late 2013, beyond the position expressed by G29 in 2011. With those two texts, advertisers have better guidelines to what should be done around consent, especially in the case of cookies. Trackers/cookies require consent whatever the technology before the tracker is installed or read. Both the publisher and the ad network are responsible of the cookie/tracker. The data protection authorities do not have a strong legal power over internet players as they cannot create new laws and can only provide opinions and suggestions for the moment. Penalties are also considered very light by UFC, compared to what exists for instance around competition law, although this is expected to change.

These aspects have indeed been discussed at the European level, and have been taken into account within the GDPR as explained earlier. Stakeholders such as Orange had pointed out the key changes expected to be implemented around customer consent, as below.

Figure 59: Evolution of consent
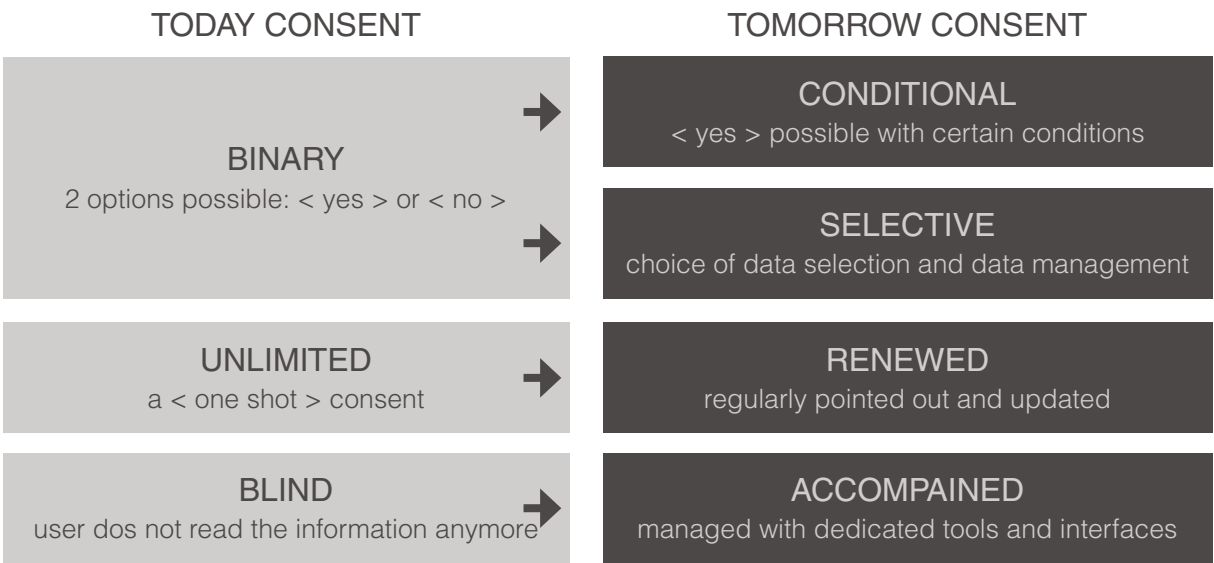
Source: Orange

Google peanalised 150,000 EUR in 2012 by CNIL

Also, in 2012, the Article 29 Working Party expressed concerns that Google's privacy policy was not consistent with European data protection laws[22]. Six European Data Protection Authorities (the French, Spanish, Italian, German, Dutch and UK data protection authorities) initiated investigations on Google's privacy policies, and in 2014, the French Data Protection Authority (CNIL) issued a penalty of €150 000 to Google because its privacy policy did not comply with the French data Protection Act[23]. This does however, seem a very paltry sum for a company like Google, even if it is the maximum allowed.

2015 terrorist attacks raises new questions

2015 saw France struck by the Charlie Hebdo shootings in January 2015, and then the Paris terrorist attacks in November 2015.

---

22. "Google's new privacy policy raises deep concerns about data protection and the respect of the European law", CNIL, 2012. http://www.cnil.fr/linstitution/actualite/article/article/googles-new-privacy-policy-raises-deep-concerns-about-data-protection-and-the-respect-of-the-euro/

23. "The CNIL's Sanctions Committee issues a 150 000 € monetary penalty to GOOGLE Inc.", CNIL 2014". http://www.cnil.fr/english/news-and-events/news/article/the-cnils-sanctions-committee-issues-a-150-000-EUR-monetary-penalty-to-google-inc/

The Charlie Hebdo killings helped propel a sweeping new surveillance law through the French legislature, which compels Internet service providers to install equipment that lets the authorities look for suspicious patterns in domestic Internet traffic, in real-time. This law was passed in July 2015, although the French government is not believed to have issued the decree to set this surveillance in motion.

Still, this did not prevent the attacks in November 2015. This occurred at a time when the data protection debate was already a delicate issue with the CJEU having just rules the Safe Harbour agreement invalid (see earlier for details) and the GDPR being debated. In addition to the bill passed as explained above, compelling ISPs to install essentially spying equipment, legislation is being forward allowing French officials to tap phones and access emails without judicial review. Still, European data protection advocates and lawmakers say the strong rules that limit how companies can handle information should remain in place, highlighting how Europe has separated how companies handle people's data from the needs of governments to protect national security. As already discussed, Europe's privacy rules are enshrined as a fundamental right, on par with freedom of expression principle in the US.

4.3.2. UK

The primary legislation in the UK that regulates the holding of an individual's personal data by companies, and consequently has an impact on information concerning the private lives of individuals, is the Data Protection Act 1998 (DPA)[24]. The DPA was enacted and implemented to meet the requirements of the European Union's Data Protection Directive 95/46/EC, regulating the processing of personal information of individuals. It is broad and applies to obtaining, holding, using or disclosing this personal information.

Schedule 1 of the DPA contains eight principles that regulate how personal data should be handled, applying to both online and offline data. The principles are as follows:

1. Personal data shall be processed fairly and lawfully and, in particular, shall not be processed unless -
   a. at least one of the conditions in Schedule 2 is met, and
   b. in the case of sensitive personal data, at least one of the conditions in Schedule 3 is also met.

2. Personal data shall be obtained only for one or more specified and lawful purposes, and shall not be further processed in any manner incompatible with that purpose or those purposes.

3. Personal data shall be adequate, relevant and not excessive in relation to the purpose or purposes for which they are processed.

4. Personal data shall be accurate and, where necessary, kept up to date.

5. Personal data processed for any purpose or purposes shall not be kept for longer than is necessary for that purpose or those purposes.

6. Personal data shall be processed in accordance with the rights of data subjects under this Act.

7. Appropriate technical and organisational measures shall be taken against unauthorised or unlawful processing of personal data and against accidental loss or destruction of, or damage to, personal data.

8. Personal data shall not be transferred to a country or territory outside the European Economic Area unless that country or territory ensures an adequate level of protection for the rights and freedoms of data subjects in relation to the processing of personal data.

"Personal data" is defined as data that "relate to a living individual who can be identified -

a. from those data, or

b. from those data and other information which is in the possession of, or is likely to come into the possession of, the data controller"

Google changes privacy policy after investigation by ICO

As mentioned in the France section, in 2012, the Article 29 Working Party expressed concerns that Google's privacy policy was not consistent with European data protection laws, and six European Data Protection Authorities (the French, Spanish, Italian, German, Dutch and UK data protection authorities) initiated investigations on Google's privacy policies.

---

24. http://www.legislation.gov.uk/ukpga/1998/29/contents

In July 2013, the ICO wrote to Google to say Google's privacy policy does not meet with the First and Second Data Protection Principles which are set out in Schedule 1 Part I of the UK Data Protection Act (fair processing; see above). Taking this on board, in December 2013 Google proposed a number of changes to the privacy policy with two phases of implementation, the first on 31 March 2014, and the second on 30 June 2014. The company then made the changes, as proposed, by the respective deadlines whilst engaging in dialogue with the ICO and incorporating feedback on the proposed changes which the ICO had made.

Then in September 2014, Article 29 Working Party wrote to Google setting out a number of recommendations which have been agreed by the European data protection authorities, including the ICO, to which Google responded in December 2014 by setting out a number of improvements aimed at addressing the Working Party's concerns.

Finally, in January 2015, following a period of dialogue and engagement with the ICO, Google agreed to sign an undertaking committing to all the changes suggested by 30 June 2015, with ongoing commitments for the next two years.

4.3.3. Germany

In Germany, data protection is primarily regulated by the Federal Data Protection Act (Bundesdatenschutzgesetz) (BDSG), which implements the Directive 95/46/EC on data protection (Data Protection Directive). There are also state data protection laws providing legal requirements for data processing carried out by state-level public authorities or public bodies.

In addition, there are sector-specific regulations at both state and federal level that provide data protection requirements. Examples include:

- Telemedia Act (Telemediengesetz), which regulates electronic information and communication services.
- Telecommunications Act (Telekommunikationsgesetz), which addresses the processing of personal data relating to subscribers and users of telecommunications services.

- Criminal Code (Strafgesetzbuch), which includes special rules on professional/business confidentiality and secrecy of telecommunications.
- Social Security Codes (Sozialgesetzbücher), which include provisions for processing of medical, social and other personal data.
- State press laws (Landespressegesetze), which include specific provisions for data processing in the context of journalistic activity and address the tension between data protection and freedom of the press.

The Federal Data Protection Act (BDSG) applies to the processing of personal data. Personal data is defined as "any information concerning the personal or material circumstances of an identified or identifiable individual". Anonymised data is not regulated by German data protection law, whereas pseudonymised data falls under the BDSG.

The BDSG applies to any collection, use or processing of personal data:

- "Collection" means the acquisition of data on the data subject.
- "Processing" means the storage, modification, transfer, blocking and erasure of personal data.
- "Use" means any utilisation of personal data other than processing.

Finally, data controllers (any person or body collecting, processing or using personal data on his or its own behalf, or commissioning others to do so) must ensure compliance with the following eight data protection principles:

1. **Legal permission/consent.** Processing personal data is prohibited unless the data subject has given consent or the processing is permitted by law.
2. **Direct collection.** Personal data must be collected directly from the data subject.
3. **Data minimisation.** Only data required for the specific operation can be processed. Processing systems must be designed with the aim of collecting, processing and using as little personal data as possible. In particular, personal data is to be aliased or rendered anonymous as far as possible.

4. **Purpose limitation.** Data collected for a specific purpose cannot be used for other purposes. Data must be deleted or anonymised as soon as it is no longer necessary for the purpose for which it was collected or processed.

5. **Transparency.** The data controller must provide comprehensive information about the identity of the data controller, the purpose of the collection/processing/use of the data and the categories of recipients.

6. **Access.** A data subject must be given access to his personal data stored by the data controller.

7. **Accuracy.** Personal data must be accurate. Incorrect data must be corrected.

8. **Data security.** Technical and organisational measures must be taken against unauthorised or unlawful processing of personal data and against accidental loss/destruction/damage of personal data.

Germany investigates Google and Facebook

Germany is well known for its fierce stance on privacy, to the extent that the advertising business model is not as advanced as other leading nations such as the US and UK. It is thus perhaps not all that surprising to see that Germany have had their fair share of quarrels with the likes of Google and Facebook.

As mentioned previously, in 2012, the Article 29 Working Party expressed concerns that Google's privacy policy was not consistent with European data protection laws, and six European Data Protection Authorities (the French, Spanish, Italian, German, Dutch and UK data protection authorities) initiated investigations on Google's privacy policies.

In the case of Germany, in September 2014 the country ordered Google to change its user data processing, which was in violation of the country's laws. Google violates the German Federal Telemedia Act and the Federal Data Protection Act when it collects and combines user data, the Hamburg Commissioner of Data Protection and Freedom of Information (HmbBfDI) concluded. "According to the view of the data protection authority the ongoing practice of user profiling affects the privacy of Google users far beyond the admissible degree," it said.

Further, in October 2015 following the decision by the Court of Justice of the European Union (CJEU) to invalidate the Safe Harbour agreement (see earlier for details), the German data protection authorities announced that they will immediately begin investigating data transfers from the EU to the US by companies such as Facebook and Google, and may issue orders for data flows to be halted.

In March 2016, the German federal cartel office (the Bundeskartellamt) announced it was investigating Facebook for suspected abuse of market power over breaches of data protection laws. See the platforms section for details.

4.4. Appendix: EU-US Privacy Shield

The EU-U.S. Privacy Shield is based on the following principles:

- Strong obligations on companies handling data: under the new arrangement, the U.S. Department of Commerce will conduct regular updates and reviews of participating companies, to ensure that companies follow the rules they submitted themselves to. If companies do not comply in practice they face sanctions and removal from the list. The tightening of conditions for the onward transfers of data to third parties will guarantee the same level of protection in case of a transfer from a Privacy Shield company.

- Clear safeguards and transparency obligations on U.S. government access: The US has given the EU assurance that the access of public authorities for law enforcement and national security is subject to clear limitations, safeguards and oversight mechanisms. Everyone in the EU will, also for the first time, benefit from redress mechanisms in this area. The U.S. has ruled out indiscriminate mass surveillance on personal data transferred to the US under the EU-U.S. Privacy Shield arrangement. The Office of the Director of National Intelligence further clarified that bulk collection of data could only be used under specific preconditions and needs to be as targeted and focused as possible. It details the safeguards in place for the use of data under such exceptional circumstances. The U.S. Secretary of State has established a redress possibility in the area of national intelligence for Europeans through an Ombudsperson mechanism within the Department of State.

🔹 ffective protection of individual rights: Any citizen who considers that their data has been misused under the Privacy Shield scheme will benefit from several accessible and affordable dispute resolution mechanisms. Ideally, the complaint will be resolved by the company itself; or free of charge Alternative Dispute resolution (ADR) solutions will be offered. Individuals can also go to their national Data Protection Authorities, who will work with the Federal Trade Commission to ensure that complaints by EU citizens are investigated and resolved. If a case is not resolved by any of the other means, as a last resort there will be an arbitration mechanism. Redress possibility in the area of national security for EU citizens' will be handled by an Ombudsperson independent from the US intelligence services.

🔹 Annual joint review mechanism: the mechanism will monitor the functioning of the Privacy Shield, including the commitments and assurance as regards access to data for law enforcement and national security purposes. The European Commission and the U.S. Department of Commerce will conduct the review and associate national intelligence experts from the U.S. and European Data Protection Authorities. The Commission will draw on all other sources of information available and will i ssue a public report to the European Parliament and the Council.
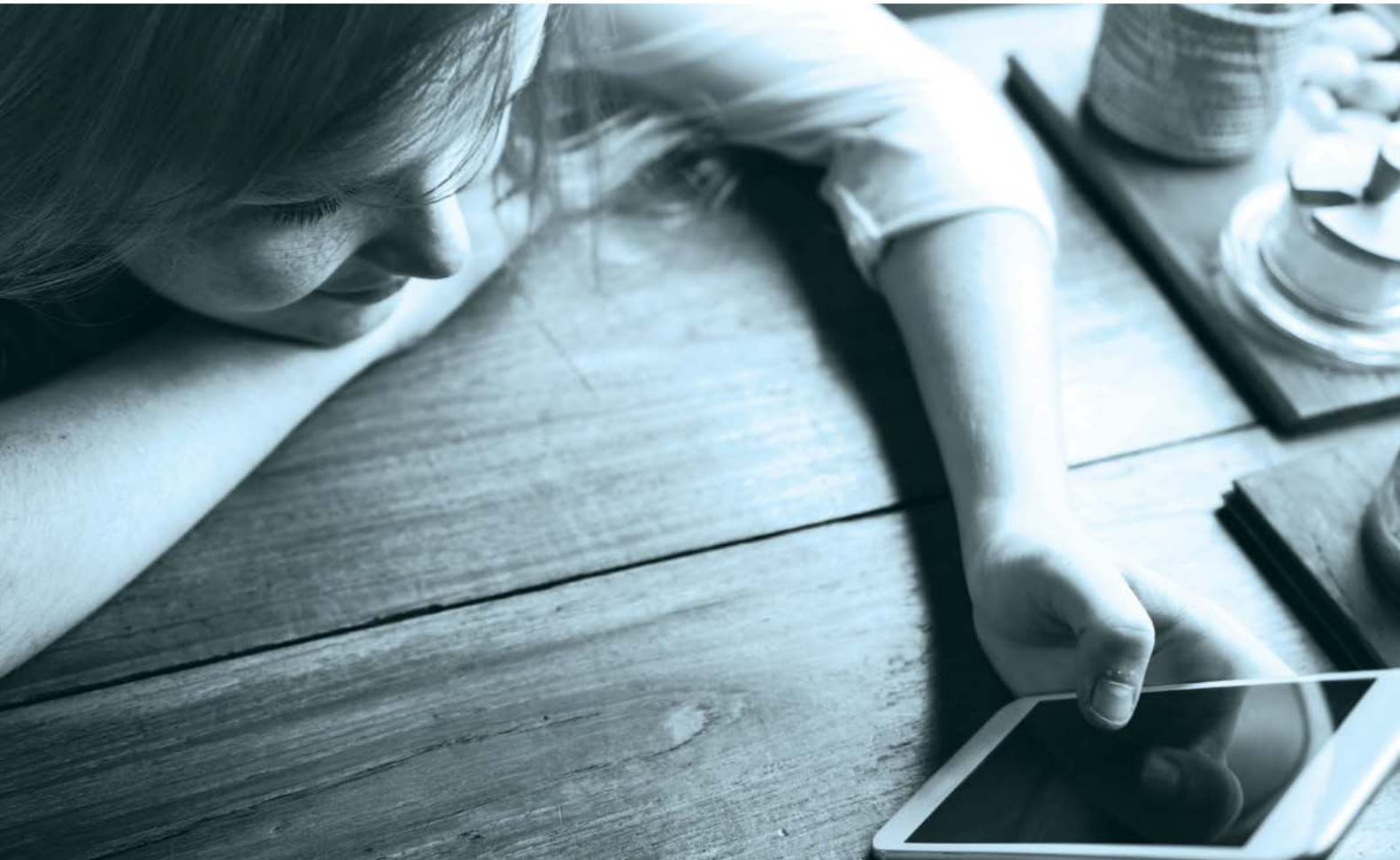
5. Platforms

5.1. Key stakes: platforms are an integral part of the digital economy, but care must be taken to avoid abuse of platform dominance

Online platforms have dramatically changed the digital economy over the last two decades and bring many benefits in today's digital society. They play a prominent role in the creation of 'digital value' that underpins future economic growth in the EU and consequently are seen as having major importance to the effective functioning of the digital single market by the European Commission. Such potential, however, also brings with it new challenges, with the European Commission and Member States scrambling to ensure that adequate regulation is put in place.

Dominant platforms can create competition concerns

The major OTTs of today can be seen diversifying into various fields, as shown in the figure below. Thus in many cases, the biggest competition for large OTTs is increasingly coming from other large OTTs, making it increasingly difficult for the smaller and non-US players to compete.

Table 8: Major OTTs diversifying into various service domains

Source: IDATE DigiWorld, State of OTT markets worldwide, July 2016

In particular, when such a leading OTT is already dominant in its core area (such as search for Google, social networking for Facebook or e-commerce for Amazon), this power can potentially be used for anti-competitive behaviour not only in its core domain but extended to its other domains of activity. This came to a head concerning Google and the European Parliament, as described later in this chapter.

It is not necessarily just the "giants" who are concerned here however. One needs to note that it is not clear that the size of a platform, measured by revenue or number of customers, is necessarily indicative of competition concerns. Success in winning customers is not cause for suspicion or condemnation and size is not equivalent to dominance. Dominance is not necessarily a problem in and of itself; rather, action needs to be taken under competition law only if dominant online service providers abuse their dominance to the ultimate detriment of consumers or breach other rules concerning fair conduct.

The growing importance of online platforms in the digital economy

The EC, in its assessment of online platforms, acknowledges that online platforms have brought a range of important benefits to the digital economy and society. Online platforms facilitate efficiency gains, and act as a magnet for data-driven innovation. They increase consumer choice, thereby contributing to improved competitiveness of industry and enhancing consumer welfare.

Online platforms also offer the potential to enhance citizens' participation in society and democracy, as they facilitate access to information, in particular for younger generations and across borders.

Focusing on Europe, a number of globally competitive platforms originated in Europe; Skyscanner and BlaBlaCar are given as examples by the EC. However, on the whole, the EC have found that the EU currently represents only 4% of the total market capitalisation of the largest online platforms: the vast majority of platforms originate in the US and Asia. That said, the platform economy presents major innovation opportunities for European start-ups, as well as for established market operators to develop new business models, products and services. Europe has a thriving start-up community with dynamic entrepreneurs targeting new opportunities in the collaborative economy, energy, health, banking, creative content and beyond. As an illustration, apps made by European developers account for 30% of global revenue in the leading application distribution platforms[25].

_____
25. Plum (2016), A policy toolkit for the app economy — where online meets offline

Creating the right framework conditions and the right environment is seen as essential to retain, grow and foster the emergence of new online platforms in Europe.

What is a platform?

Online platforms come in various shapes and sizes and continue to evolve at a pace not seen in any other sector of the economy. Presently, as defined by the European Commission, they cover a wide-ranging set of activities including online advertising platforms, marketplaces, search engines, social media and creative content outlets, application distribution platforms, communications services, payment systems, and platforms for the collaborative economy.

Online platforms share some important and specific characteristics. In particular:

- they have the ability to create and shape new markets, to challenge traditional ones, and to organise new forms of participation or conducting business based on collecting, processing, and editing large amounts of data;
- they operate in multisided markets but with varying degrees of control over direct interactions between groups of users;
- they benefit from 'network effects', where, broadly speaking, the value of the service increases with the number of users;
- they often rely on information and communications technologies to reach their users, instantly and effortlessly;
- they play a key role in digital value creation, notably by capturing significant value (including through data accumulation), facilitating new business ventures, and creating new strategic dependencies.

Such online platforms are playing an ever more central role in social and economic life: they enable consumers to find online information and businesses to exploit the advantages of e-commerce. Online platforms share key characteristics including the use of information and communication technologies to facilitate interactions (including commercial transactions) between users, collection and use of data about these interactions, and network effects which make the use of the platforms with most users most valuable to other users. Platforms have proven to be innovators in the digital economy. But they are also raising concerns. Some platforms can control access to online markets and can exercise significant influence over how various players are remunerated.

In the end, different platform characteristics will give rise to different issues, and regulation must remain case-specific if we are to minimize the risk of applying the wrong rule to a novel situation. By way of example: if a platform is processing consumer data, you may be concerned that the company adheres to privacy obligations regarding the processing of that data. At the same time, there might be a need to keep a watch on whether it acquires an unmatchable advantage over rivals through its exclusive control over such data. However, not all platforms process consumer data; and most of those that do, are unlikely to have market power. To the extent that some do, an even smaller group may have the ability and incentive to abuse that power. As a result, the analysis must be situation-specific.

Given the significant differences between the business models of the main digital platforms, one must be skeptical a priori about the extent to which any type of broad-brush legislation or economic regulation could provide satisfactory outcomes across such a wide variety of different situations.

Finally, there are no definitive pros or cons concerning whether platforms are better off open or closed. In 2014, the French Competition Authority and the UK Competition and Markets Authority published a study showing that closed digital ecosystems were not necessarily more harmful to consumers than open ecosystems. The study found that both systems can lead to both pro-competitive and anti-competitive behaviour, and lock-in effects are not systematic enough to justify specific platform regulation.

5.2. Local focus

5.2.1. The European Approach

The European Parliament's 6 years and still running battle with Google

In November 2014, a significant vote was held in the European Parliament; the European Parliament voted in favour of breaking up Google, by separating its search business from its other businesses, as a solution to anti-competitive behaviour whereby Google favours its own services over others in its search results. It should be noted here that the European Parliament does not have the power to enforce such a break-up; it does, however, put pressure on the European regulators and the European Commission to look seriously into the situation. The ultimate decision-making is in the hands of European Commissioner for Competition, Margrethe Vestager, who took up this position in November 2014.

The European Commission has indded since reacted, sending various Statements of Objections; however, as of August 2016, no settlemant has been reached.

The debate has been going on since 2010

The case against Google has actually been going on since back in 2010, with Google having controlled roughly 90% share of the search market in Europe; this dominance is notably higher than in the US, where Google has roughly two-thirds share (which is impressive nonetheless). The case brought before Joaquin Almunia, who was the European Commissioner for Competition at the time, accused Google of abusing its dominance in search to favour its own services over that of its rivals from search results, even if the rivals' services were a better match. In May 2012, following investigations which started in November 2010, Almunia concluded four concerns regarding Google and competition as follows:

- That Google gives links to its own "vertical search services," like Google Shopping, restaurant reviews, news, or YouTube, in preference over rival links
- That it takes content from competing companies (such as travel sites and restaurant reviews from Yelp) and uses it in its own services
- That it shuts out search advertising competitors on websites where it delivers search advertisements
- That it makes it difficult for advertisers to move their advertising away from its own system, AdWords

February 2014 saw the Google antitrust case reach a settlement…

In February 2014, Google and the EU regulators reached a settlement, whereby Google agreed to provide more exposure to its rivals through its search results, and make it easier for advertisers to compete with Google and change from AdWords. This was perceived by many as a win for Google, as in the end the Commission found no wrongdoings in Google's business, no fines were charged, no major changes were required on Google's behalf regarding their products and business, and most importantly Google was not required to reveal the algorithms used in the search mechanism.

Below are the main aspects included in Google's settlement with the European commission:

🌢 Google will display results from at least three competitors every time it shows its own results for specialized searches related to things like products, restaurants and travel.

🌢 Competitors will pay Google each time someone clicks on certain types of results shown next to Google's own results. The process will be overseen by an independent monitor paid for by Google.

🌢 Content providers like Yelp will be given the option of not having their content included in Google's specialized search services. Those that opt out will not be penalized in Google's normal search rankings.

🌢 Google will remove conditions that have made it difficult for advertisers to move campaigns to rival sites, and allow sites that use Google's search tool to show ads from other services.

🌢 The deal lasts for five years and affects any search and promoted-product services that Google introduces in Europe.

…only for the case to be reopened in September

Still, the critics remained, such as Yelp who has been one of the main critics of Google since the initial complaints in 2010. In May 2014, Yelp's CEO Jeremy Stoppelman wrote a letter to José Manuel Barroso, the then president of the European Commission and thus Almunia's boss, about the antitrust proceedings as follows (source: New York Times):

"I truly fear the landscape for innovation in Europe is infertile, and this is a direct result of the abuses Google has undertaken with its dominant position."

Further, in July 2014 documents prepared by Yelp executives emerged which attempt to show how Google is using its dominance in search in an anti-competitive manner. For example, the figure below taken from this document shows that despite a Google search specifically looking for Yelp results, the top result is pulled from Google+, Google's social networking service.

Figure 60: Yelp document showing how Google abuses its dominant search position

Source: Business insider

It is not clear how much such complaints played a part, but in September 2014 the antitrust case for Google was reopened, with Joaquin Almunia explaining that "some complainants have introduced new arguments, new data, new considerations," and thus "We now need to analyze this and see if we can find solutions, Google can find solutions, to some of these concerns that we find justified." Further, Almunia also hinted that the case could expand to Sndroid, the mobile OS of Google, which has roughly three-quarters of the share of the European mobile OS market.

Thus, Google continues to be investigated by the European Commission, with opposition still strong. The settlement of February 2014 appears to have solved points three and four of the four concerns mentioned in 2010 (allowing rivals to advertise on sites using Google ads, and portability from AdWorks), but the first two points remain largely unanswered from the opposition perspective.

2015 and 2016 sees the battle continue

In May 2015, the European Commission sent a Statement of Objections to Google alleging the company has abused its dominant position by systematically favouring its own comparison shopping product in its general search results pages. To this, Google officially responded in August 2015 with a 100 page document and strong words from Google's General Counsel Kent Walker: "We believe that the Statement of Objection's preliminary conclusions are wrong as a matter of fact, law, and economics".

In the latest turn of events, in July 2016, the EC sent a further two Statements of Objections. The Commission has reinforced, in a supplementary Statement of Objections, its preliminary conclusion that Google has abused its dominant position by systematically favouring its comparison shopping service in its search result pages. Also separately, the Commission has also informed Google in a Statement of Objections of its preliminary view that the company has abused its dominant position by artificially restricting the possibility of third party websites to display search advertisements from Google's competitors.

Separate to these two Statements, the European Commission also informed Google in April 2016 through a Statement of Objections of its preliminary view that the company has, in breach of EU antitrust rules, abused its dominant position by imposing restrictions on Android device manufacturers and mobile network operators. This investigation was actually originally initiated in April 2015.

The assessment of online platforms as part of DSM (Digital Single Market) strategy

On a broader scale, as part of the Digital Single Market Strategy, the European Commission conducted in 2015 a comprehensive assessment of the role of online platforms. This assessment was based on a broad public consultation, and a series of workshops and studies. The results of the assessment are set out in a "Staff Working Document on Online Platforms[26]" (published in May 2016) that also underpins the "Platforms Communication" which:

- formulates the Commission's policy approach to online platforms; and

- identifies areas where action or further assessment may be necessary.

The assessment of online platforms concludes that they play a key role in supporting innovation and growth in the Digital Single Market. Both, businesses and consumers in the EU stand to benefit from an environment that attracts, retains and grows new online platform innovators. Market fragmentation due to differing national or even local rules is identified as an obstacle to the sustainable development and scaling-up of online platforms (both for established market players as well as for new entrants).

The Commission's plan for a Digital Single Market and initiatives such as Digitising European Industry, the Single Market Strategy and the Capital Markets Union, as well as investment through Horizon 2020 and EFSI will help create better conditions for online platforms in the EU to thrive.

The Commission, as of August 2016, it at the stage of further assessing the necessity of targeted policy measures (regulatory, self- or co-regulatory) on the basis of clearly identified problems relating to a specific type or activity of online platforms, and in-depth evaluation of the sufficiency and adequacy of existing regulatory framework.

In formulating its policy response to online platforms, the Commission has stated it will be guided by the following four principles:

1. A level playing field for comparable digital services;

2. Ensuring that online platforms behave responsibly to protect core values;

3. Fostering trust, transparency and ensuring fairness;

4. Keeping markets open and non-discriminatory to foster a data-driven economy.

Implementing main principles for platform development in the EU

Following the four principles as outlined above, the Commission has also illustrated how it intends to translate these principles into policy. Its intentions of how to implement the main principles for platform development in the EU are as follows[27]. **Ensuring a level playing field for comparable digital services**

As a general principle, comparable digital services should be subject to the same or similar rules, duly considering opportunities for reducing the scope and extent of

26. https://ec.europa.eu/digital-single-market/en/news/commission-staff-working-document-online-platforms

27. http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1466514160026&uri=CELEX:52016DC0288

existing regulation. As part of its review of EU telecoms rules to be completed still in 2016, the Commission is assessing the possibility of proposing a targeted mix of proposals involving a degree of deregulation (taking into account certain rules that are at present only applicable to traditional electronic communications services such as for example some universal service obligations), together with the application, where necessary, of a more limited set of communications-specific rules to all relevant and comparable services including when provided by OTT players.

As part of the review of the ePrivacy Directive in 2016, the Commission will consider simplification and adjustment of its scope and potential application of some of its rules, for example those relating to confidentiality, also to OTT online communications services.

Ensuring that online platforms act responsibly

The Commission will maintain the existing intermediary liability regime while implementing a sectorial, problem-driven approach to regulation:

- with its proposal for an updated Audio-visual Media Services Directive to be presented alongside this Communication, the Commission will propose that video sharing platforms put in place measures to protect minors from harmful content and to protect everyone from incitement to hatred.

- in the next copyright package, to be adopted in the autumn of 2016, the Commission will aim to achieve a fairer allocation of value generated by the online distribution of copyright-protected content by online platforms providing access to such content.

Starting still in 2016, the Commission will further encourage coordinated EU-wide self-regulatory efforts by online platforms. It will regularly review the effectiveness and comprehensiveness of such voluntary efforts with a view to determining the possible need for additional measures and to ensure that the exercise of users' fundamental rights is not limited.

The Commission will, during the second half of 2016, explore the need for guidance on the liability of online platforms when putting in place voluntary, good-faith measures to fight illegal content online.

The Commission will review the need for formal notice-and-action procedures, in light of the results of, inter alia, the updated audio-visual media and copyright frameworks and ongoing self-regulatory and co-regulatory initiatives.

Fostering trust, transparency and ensuring fairness

The Commission presents a legislative proposal revising the Regulation on Consumer Protection Cooperation together with this Communication, to facilitate more efficient enforcement of EU consumer law in cross-border situations.

The Commission has reviewed the guidance on the Unfair Commercial Practices Directive to be adopted together with this Communication. The Commission will further assess any additional need to update existing consumer protection rules in relation to platforms as part of the regulatory fitness check of EU consumer and marketing law in 2017. It will also monitor the implementation of the principles for comparison tools that were drawn up by the multi-stakeholder dialogue on comparison tools that the Commission instigated.

In order to empower consumers and to safeguard principles of competition, consumer protection and data protection, the Commission will further promote interoperability actions, including through issuing principles and guidance on eID interoperability at the latest by 2017. The aim will be to encourage online platforms to recognise other eID means — in particular those notified under the eIDAS Regulation — that offer the same reassurance as their own.

In the context of the continued dialogue with all stakeholders, the Commission encourages industry to step up voluntary efforts, which the Commission will undertake to assist in framing, to prevent trust-diminishing practices, in particular — but not limited — to tackle fake or misleading online reviews.

Further, the Commission will carry out a targeted fact-finding exercise on B2B practices in the online platforms environment. This will examine more closely the issues raised in the public consultation as well as the potential means of redress beyond the application of competition law, e.g. (voluntary) dispute resolution mechanisms, transparency and better information measures or guidance. In particular, the Commission will engage closely with stakeholders and public authorities. By spring 2017, the Commission will determine whether additional EU action is needed.

Keeping markets open and non-discriminatory to foster a data-driven economy

As part of the 'free flow of data' initiative scheduled for the end of 2016, the Commission will consider options for effective approaches, including technical standards, to facilitate switching and portability of data among different online platform and cloud computing services, both for business and private users.

In this context, the Commission will also examine the potential barriers to a single EU data market that may arise from legal uncertainties regarding the ownership and usability of — or access to — data, including issues related to application programming interfaces.

5.2.2. France

France wants to expand current telecommunication regulation into the OTT domain

In February 2015, France's telecommunications regulator, ARCEP, voiced support for imposing a duty of fairness on digital platforms, with additional regulatory obligations to be imposed on so-called "major" platforms. This opinion[28] was expressed in the context of a public consultation launched by the National Digital Council on reform of French law applicable to the digital economy.

ARCEP's opinion can be summarized in the following three points:

1. Ensure a framework that is fair for all of the stakeholders providing an equivalent service
2. Guarantee that all platforms treat their users fairly
3. Strengthen the supervision of major players that are key agents in the digital economy

Several French institutions had already called for a new regulatory framework to regulate the behavior of the so-called "platforms", although what platforms are exactly remained a point open to debate. The National Digital Council had called for a rule imposing neutrality on platforms[29], and a Senate report in March 2013 suggested that certain platforms be considered as "essential facilities" with guaranteed access

rights. Further, the French Council of State issued a report in September 2014[30] calling for a new law that would impose a duty of fairness on digital platforms.

Taking all such movements on board, ARCEP voiced its support not only for a duty of fairness to be imposed on all platforms, but for enhanced regulatory obligations to apply to "major" platforms.

Then in January 2016, ARCEP announced its "January 2016 strategic review", within which it has defined a detailed roadmap of 21 topics, some points of which some have impacts on platforms.

One such point is applying the concept of "open digital devices and platforms" to ensure an open Internet. In short ARCEP wants to intervene in the debate about online platforms. There are two opposing views regarding regulation of terminals and digital platforms: in ARCEP's view, there is a need to anticipate potential problems created by these devices and platforms before they actually materialize; the other view is to wait before regulating, and to intervene only if existing legislation (e.g. on consumer protection and competition) proves insufficient. According to the 'wait and see' view, the creation of new regulation targeting digital markets should be considered only as a last resort.

Another point expressed in this ARCEP review is extending the concept of "electronic communication services" to "digital communications", particularly with regard to OTT providers. ARCEP will participate in the EC review of the EU regulatory framework to determine whether the inclusion of OTT services is justified. In its contribution to the EC's consultation on the regulatory framework, ARCEP introduced the concept of "digital communications", which would be broader than the current notion of "electronic communications services". This would include many OTT services that are not currently regulated under EU telecoms legislation.

It is worth noting that France appears to support extension of existing telecoms regulation to digital activities (as can be seen from the review above), while other countries such as the UK and the Nordic countries seem more against this idea of expansion (see UK section). Needless to say, such a change would be far from trivial and could have a significant impact on the digital ecosystem, given that OTT message and voice services are currently exempt from any sector-specific

---

28. http://www.arcep.fr/fileadmin/reprise/communiques/communiques/2015/2015-02_CNNum_ARCEP_loyaute_VA.pdf
29. http://cnnumerique.fr/wp-content/uploads/2014/06/PlatformNeutrality_VA.pdf

---

30. http://www.conseil-etat.fr/Decisions-Avis-Publications/Etudes-Publications/Rapports-Etudes/Etude-annuelle-2014-Le-numerique-et-les-droits-fondamentaux (in French)

regulation, and would include juggernauts such as Apple, Google, Facebook, WhatsApp, Microsoft (Skype), and so on.

Examples of actions against online platforms

Apple with their marker power

In September 2013, it was revealed that French investigators are probing the terms of Apple's contracts with mobile operators in France, part of a broader investigation into the overall relationship between makers of devices like Apple's iPhone and the mobile-phone operators that subsidize their sales to win customers. Apple has been a particular point of concern, where the popularity of its iPhone could allow the company to dictate terms both for the sale of devices, and for the mobile applications that run on them.

Earlier that summer, the French competition authority had raided some Apple offices as part of an investigation into whether Apple had engaged in unfair competition against distributors in France that resell Apple gear. The authority also opened a preliminary investigation of online mobile-app stores, such as those run by Apple and Google, to decide whether to open antitrust proceedings against a particular company or push for an industrywide policy.

5.2.3 UK

UK warns of over-regulating online platforms (along with 10 other Member States)

In April 2016, Ministers from 11 EU member states (UK, Czech Republic, Poland, Luxembourg, Finland, Sweden, Denmark, Estonia, Latvia, Lithuania and Bulgaria) sent a joint letter[31] to warn European Commission off over-regulating use of online platforms during the creation of the Digital Single Market. In a nutshell, the group advises the EC to only consider rolling out new regulations governing the use of these platforms where there is "clear and compelling evidence of need". The four main points of the letter are as follows:

- **Platforms should be primarily seen as an opportunity, not a threat.** It is thus important that platforms are allowed to continue to be the drivers of innovation and to meet customer demand.

---

31. https://mc.gov.pl/files/joint_letter_from_the_united_kingdom_the_czech_republic_poland_luxembourg_finland_sweden_ denmark_estonia_latvia_lithuania_and_bulgaria.pdf

- **Platforms are already subject to significant regulation.** In the first instance, we should focus on implementing existing laws effectively and consistently rather than adding to the burden of regulation on businesses.

- **Platforms must not be hampered by cumbersome regulation.** If at all possible, we should avoid introducing legislation that might act as a barrier to the development of new digital business models and create obstacles to entry and growth in the European digital market. Such legislation might have an unintentionally damaging effect on the innovation, competitiveness and economic growth of the European digital industries. It would not be in the interests of European businesses nor of consumers and would put us at a disadvantage in relation to global competition.

- **We can best support the development of European platforms in Europe by providing the right conditions for growth.** This can be achieved by working to complete the Digital Single Market, updating existing regulation to make it fit for a digital age, lightening the burden of regulation for small, innovative businesses and encouraging ease of access to finance through the Capital Markets Union package. This will fulfil the ambition of the Commission's strategy to set free the entrepreneurial potential of European start-ups and foster economic growth and competitiveness in the EU.

Examples of actions against online platforms

Amazon's marketplace

Since October 2012, the Office of Fair Trading (OFT; predecessor of CMA (Competition and Markets Authority)) had been formally investigating Amazon's price parity policy which requires Marketplace platform traders to sell at prices no higher than they sell at other online sales channels. The regulator was prompted to begin an investigation after some businesses complained that Amazon's policy prevented them from setting prices on their own websites or through rival e-commerce platforms. The OFT had been reviewing whether the policy was anti-competitive and would result in consumers paying higher prices for goods.

In August 2013, Amazon decided to put an end to the operation of its price parity policy within the EU, with the move welcomed by the UK's competition regulator. The regulator had not reached a decision as to whether there has been an infringement of competition law, but announced that it would close the investigation on grounds of administrative priority. It is worth noting that the OFT did also mention that although they will drop the case, they will continue to monitor the online retail sector and could use its power to investigate such price parity policies at any time.

Online hotel bookings

In September 2010, the Office of Fair Trading (OFT), the CMA's predecessor, launched an investigation into restrictions contained in contractual agreements between InterContinental Hotels Group and Hotel Inter-Continental London Limited (IHG) and each of Booking.com and Expedia. According to the (then) OFT, Booking.com and Expedia had entered into agreements with IHG that it suspected unduly restricted these OTAs (Online Travel Agents) from offering discounts on IHG rooms displayed for booking on their websites.

In July 2012, the OFT issued a statement of objections on this matter, and in January 2014 it accepted legally binding commitments from IHG, Booking.com and Expedia to end its investigation. These commitments stated that Expedia and Booking.com, together with IHG, could offer discounts on IHG room bookings to certain consumers who had signed up to their respective loyalty programmes, as long as these discounts were not visible to the public at large. However, these formal commitments were appealed on judicial review grounds to the Competition Appeals Tribunal (CAT) by a price comparison site, Skyscanner, who raised concerns about Expedia and Booking.com's ability to publicise these discounts only to closed groups of consumers. In September 2014, the CAT concluded that the CMA's consultation process had not been satisfactory, quashed the commitments decision and remitted the matter to the CMA for reconsideration.

A number of competition authorities in Europe have since launched investigations into certain vertical pricing arrangements between hotels and OTAs, focusing on the rate parity restrictions contained in contracts between hotels and OTAs. In April 2015, the French, Swedish and Italian competition authorities accepted formal commitments from Booking.com to amend its rate, conditions and availability parity clauses,

applicable to bookings offered through OTAs and certain other sales channels at hotels in Europe, effective from 1 July 2015. In line with Booking.com's commitments, effective from 1 August 2015, Expedia waived certain of its rate, conditions and availability parity clauses contained in its agreements with hotels in Europe.

As a result of these developments, in September 2015, the CMA closed its investigation on administrative priority grounds. The CMA has not taken a view as to whether the OTAs' pricing practices did breach competition law. The CMA will continue to closely monitor market developments in the UK and the EU, and will in particular consider the effect of Booking.com and Expedia's recent decisions to remove certain parity clauses from their contracts with hotels.

5.2.4. Germany

Germany has remained relatively quiet on their stance regarding platforms, being less vocal than the likes of France and the UK. Nevertheless, related to privacy issues with which Germany is strict, Germany has opened investigations into Facebook concerning abuse of dominant power.

As also explained in the privacy section, in March 2016, the German federal cartel office (the Bundeskartellamt) announced it was investigating Facebook for suspected abuse of market power over breaches of data protection laws. The German cartel office will examine whether Facebook users were properly informed about the type and extent of personal data collected by the company, and if this was in line with German antitrust rules. It is also interesting to note that EU's Competition Commissioner Vestager, whose antitrust cases include a number of high-profile technology companies such as Google, Amazon and Apple, welcomed the German investigation. "It shouldn't only be the commission doing things that are new in terms of developing competition law," Vestager told reporters according to the Guardian, when asked if the EU was going to act against Facebook or let Germany take the lead. "They are well suited to do it. And since they both do it with the German and European perspective, then basically they do it in a way which is beneficial to all," she said.

6. Net neutrality

6.1. Key stakes

The net neutrality debate deals with multiple facets of traffic management policies implemented by network operators and their potentially discriminatory impact. The debate has eventually spilled over into the European market, but its origins lie in the United States.

It is generally recognised that traffic management tools are indispensable for proper network operation and Internet traffic routing to provide the best user experience. However, traffic management can also be used to limit competition. For example, network operators could be enticed to block or degrade services/applications that compete with their own offers.

In 2005 the first cases became known in the US where ISPs had discriminated against certain applications, for instance Madison River was punished for having blocked Vonage's VoIP services and then-CEO of SBC (now AT&T) Ed Whitacre made a statement indicating some of the tensions between network operators on the one hand and providers of online services and content on the other

> Why should they be allowed to use my pipes? The Internet can't be free in that sense, because we and the cable companies have made an investment and for a Google or Yahoo or Vonage or anybody to expect to use these pipes free is nuts[32]

The net neutrality debate essentially is about drawing the line between traffic management policies that are necessary or which contribute to a better user experience and abusive practices, which do not only affect B2B transactions but which ultimately risk depriving users from accessing legitimate content and applications or using the device of their choice.

6.1.1. Consumer impact

Some of the underlying elements may remain rather abstract for a big number of users. Users of broadband services are nevertheless directly confronted with the impact of traffic management policies in their in their daily lives.

---

32. Cf: http://www.washingtonpost.com/wp-dyn/content/article/2005/11/03/AR2005110302211.html

Some of the policies applied are clearly of restrictive nature, others come in the form of premium offers, but which may have side-effects on other users.

Major forms of traffic management policies impacting directly on end users include

- Throttling
- Blocking
- QoS discrimination
- Zero-rating

Throttling and blocking

Throttling and blocking are the main restrictive traffic management policies that users are subject to.

Throttling

Throttling is the less extreme option of the two, implying most of the time a temporary restrictin of the bandwidth available to an end user. Throttling can be applied to specific users or to certain applications across all users.

The former is typically the case when a user has consumed his/her monthly traffic allowance. In that case, users will often not be cut off entirely from data services but will enjoy only a limited bandwidth until the end of that billing period.

Throttling applied to certain applications or types of applications is often used to manage peak demand and avoid network congestion. In that case only a limited amount of the available bandwidth will be allocated to certain particularly bandwidth-intensive applications (video, P2P…) so that traffic as a whole can flow more freely over the network.

Blocking

To some extent, blocking is comparable to throttling in that it is more severe form of capping users' data consumption or of preventing certain applications from congesting the operator's pipes at peak hours. However, blocking may also be used as a means to prevent users from accessing contents and applications that are in direct competition with the network operator's own offerings. For instance,

many mobile operators have long tried to ban the use of VoIP and messaging services on their networks. Such traffic management policies would certainly seem problematic from a net neutrality perspective.

Throttling and blocking are not mutually exclusive, so operators may apply both of them to different extents and ends. EE's T-Mobile brand in the UK is an example of this. They clearly state that from 8:00 to 2:00, P2P traffic is given a slower connection speed (in order to free up bandwidth for other Internet services). Further, VoIP is blocked altogether for some tariffs.

Other forms of traffic management

Quality of Service differentiation

QoS differentiation is a sort of mirror image of the throttling and blocking practices presented above. Instead of having to cope with certain restrictions on their access to the open internet under certain circumstances, QoS differentiation allows users to subscribe to an option making them receive preferential treatment over the users of basic open internet access. Again, such a policy could apply to certain applications, e.g. giving access to better quality video services or relate to all of the users' data traffic for instance for priority routing during peak hours or in congested areas.

There are examples of preferential treatment options in the mobile domain. For instance users can pay to have priority in congested environments or use on-demand services for bandwidth allowing to temporarily increase the bandwidth they have available. For instance Telefonica has also developed a network optimisation API that lets users boost their bandwidth using a "turbo" button. The idea is to let users increase speed when a connection slows down when using an application, for the cost of 0.25 €.

Zero-rating

Contrary to throttling or blocking, zero rating is a form of positive discrimination which favours the service in question over its competitors. Users who are subject to traffic caps therefore have an incentive to use the zero-rated service of the Internet service provider or its partner. In the end however, users may find themselves limited in their freedom to access the content of their choice because they are restricted in their usage of services counting against their traffic cap. As the Internet advocacy European Digital Rights (EDRI) notes, as a consequence this might divide users between those

who are able and willing to pay for extra traffic in order to use their preferred service or application beyond the volume limit and those who cannot afford to pay this premium and who are consequently dependent on the zero-rated services included in their subscription. A similar argument can be made if the Internet service provider runs a sponsored data scheme where the providers of applications and contents are made to pay for the privilege of being zero-rated. Such a scheme would favour large established players that can easily afford to pay a small premium over challengers without the funds and/or the bargaining power to be retained as a zero-rated application or service. Thus, regardless of whether zero rating should be considered a form of undue discrimination, the effect of not banning zero rating in the EU, rather than strengthening the European digital economy by disadvantaging innovative Internet start-ups, may ultimately be to reinforce the dominance of established (mainly US-based) over-the-top providers.

An example of zero-rated offers is Deutsche Telekom's bundle including Spotify (music streaming); streaming and offline synchronization of Spotify music clips do not count towards the data allowance. Thus, in effect, T-Mobile subscribers can enjoy the benefits of Spotify without worrying about their data consumption, whereas other ISP subscribers would see their data allowances being used up by the very same Spotify. Thus, from a net neutrality perspective, this could be seen as discrimination.
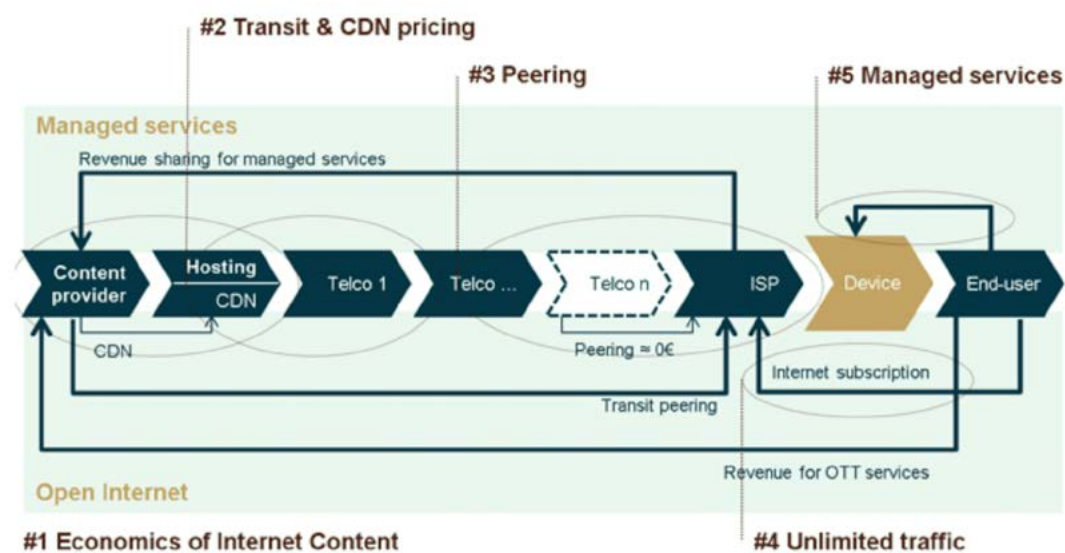
Figure 61: DT Spotify bundle

Source: T-Mobile

6.1.2. Technical-economic issues

The net neutrality issue continues to reveal several major trouble spots in the technical-economic balance needed on the Internet, not only to finance the networks but also to sustain innovation in online services.

There are numerous questions beyond Net Neutrality, but the real underlying issues are essentially business oriented and can be regrouped in 5 key questions that generally can be regrouped into one central question: how to ensure sufficient funding for the network while still maintaining the capacity to innovate in a context of rising traffic and of capture of the value by third parties? The 5 major questions are the following:

- Funding of some of the telecom infrastructure by content providers
- Pressure on ISPs from transit and CDN providers
- Peering allowing the exchange of traffic for free in a context of rising asymmetry
- Impacts of unlimited flat rates bundles
- Development of managed services from telcos, which can be seen as zero-rated services
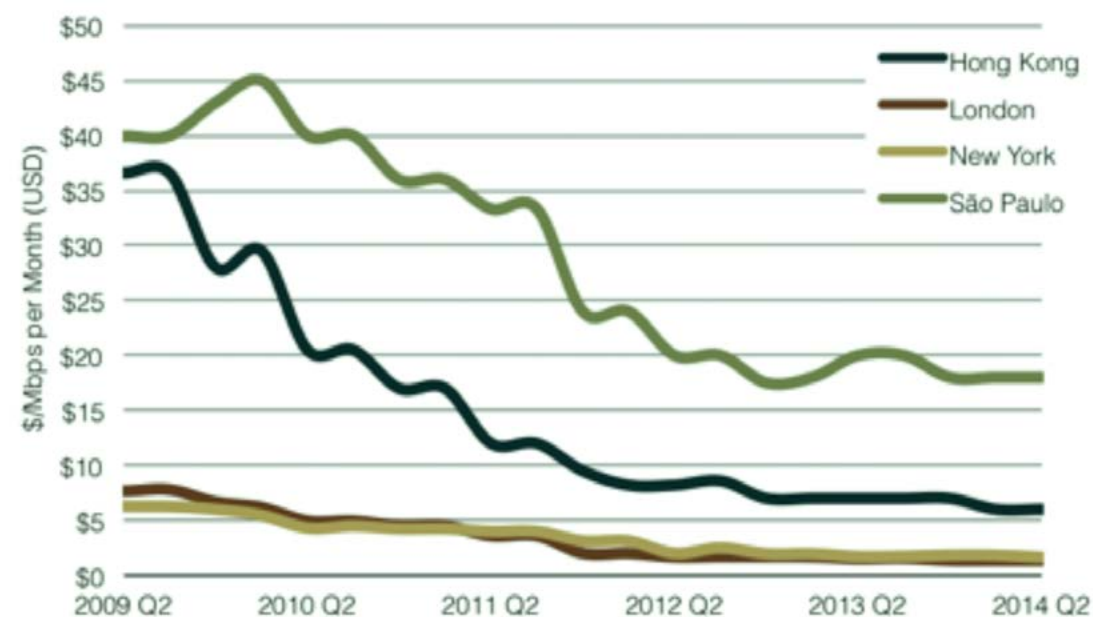

Source: IDATE DigiWorld

The different approaches to Net neutrality that have been implemented in Europe and in the United States have made it possible to achieve a certain consensus on the need for transparency (over traffic management measures), non-discrimination and open access.

Beyond considerations rooted purely in principle (concerning pluralism, freedom of expression and non-discrimination), Net neutrality debates continue to reveal several major trouble spots in the technical-economic balance needed on the Internet, not only to finance the networks but also to sustain innovation in online services.

- **The precarious economics of certain types of content and service, especially video and cloud,** (sometimes only temporarily at the outset) necessarily limits the resources that can be allocated to financing the network and bandwidth. In any event, content and service providers' income has no relation to the traffic they generate. Margins of Netflix or Amazon are really small, encouraging them to put more pressure on all types of costs, even if their main issues are IP delivery (but more rights and physical delivery).

- Content and service providers may pay for the traffic they generate through **the purchase of IP transit, or CDN services** whose purpose is to improve the quality of service. But these are very competitive markets, which means ever shrinking prices. So the revenue generated is often meagre compared to the amount of traffic being handled and **transit costs are declining**, but not offsetting traffic growth; CDN pricing following a similar path. The players are also taking advantage of local surpluses and/or technological innovations to push prices down. The existence of CDN formulas also results indirectly in a form of differentiation. **In addition, Content providers** and **Internet giants** pay bandwidth, not to ISPs but to CDN and transit players. **Pure backbone** and **CDN players** are under pressure and thus trying to maintain the old peering model, while positioning themselves in the realm of CDN for value-added services. **Internet players like Google or Amazon** have major incentives to deploy their own infrastructure and CDN to obtain cheap transit (Hence they are investing in the Internet network but not in access networks, except for Google Fiber)..
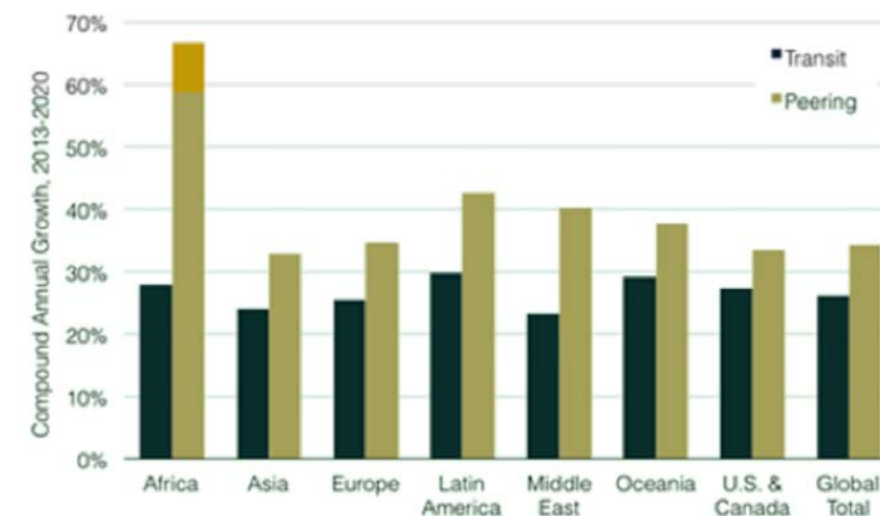
Figure 62: Evolution of transit prices

Transit vs. Peering Volume Growth by Region, 2013-2020

Source: TeleGeography   © 2014 PriMetrica, Inc.

♦ **Peering** allows parties to exchange traffic for free, especially if they have equal amounts of traffic. Tier 1 operators have access to the entire Internet via peering, and so with all other players, including ISPs. Although peering enabled the Web's swift development, the growing use of video (and other highly asymmetrical services) is calling into question this founding principle that allowed all the players to manage their costs thanks to settlement-free agreements. **New players are positioning themselves in peering** – some with very asymmetrical peering ratios due to video, which is leading to disputes (with for instance Cogent). There is even some p**otential of congestion** around points of peering (due to high concentration). Peering is therefore expected to gain market shares compared to transit despite the rise of video traffic.

♦ **New interconnection models for asymmetrical traffic are being developed** to entice content providers to be more efficient with their traffic (with respect to compression, signalling and other issues). The most important one is paid peering, a "cheaper" hybrid between transit and peering, deployed by some telcos, and being pushed by many ISPs. Numerous bilateral negotiations are underway, with players like Google.

♦ · The development of ISPs' **flat rate plans for unlimited use** naturally drove consumption up, which made it hard to sustain an economic balance as traffic began to surge. Many **content providers** consider that telcos are indeed already being paid... by end-users. **Unlimited flat rates** have spurred Internet adoption but are not sustainable, especially in situations of scarce or limited resources (such as spectrum for mobile). To **handle the traffic**, the only solutions are additional investment in the network, additional alternative technologies (including offloading) or traffic management (generally DPI-based). Another option, implemented in some countries like the USA, is to revert back to metered broadband solutions.

⬧ The **existence of managed services,** which help finance the networks in part but which carriers are using more and more to deliver services equivalent to those available on the open Web (or OTT), but of higher quality. So there is always the risk of unfair competition, especially if ISPs apply traffic management policies to the OTT equivalent of these services. Such concerns have been numerous in the past around voice/messaging services and are still under questions for video/music streaming services. Indeed, those services are often subject to traffic management (or even blocking), despite similar services being offered by the telco at the same time, which can be seen as anti-competititve. The case of communications services has roughly gone away in Europe. Indeed, this was not a question of traffic size or symmetry, but of revenues destruction of telcos, often from telcos themselves. It still perceived as large threat, but it can be handled with a shift of business model towards data. The jury is still out for video services.

Because of the colossal investments that new generation networks require, carriers no longer want to manage traffic issues by equipping themselves with excess capacity. So network financing is in peril to some degree, even when the issues extend beyond the matter of Net neutrality, especially when it comes to new fibre and LTE networks.

6.2. European Union

6.2.1. Legacy

Net neutrality was rather slow to gain traction as a key regulatory topic in Europe. This is mainly due to the fundamentally different competitive situation in Europe. Wholesale access as a regulatory remedy and therefore intra-modal competition are a core feature of the EU's common regulatory framework.

These obligations are meant to allow European consumers to switch ISPs relatively easily, unlike the United States where the user's choice is often limited to one carrier and one cable company. Because of this competition, ISPs in Europe have less incentive to discriminate against certain content which is popular with their customers. This led to a widespread perception that there was no need for further specific guidelines, as illustrated by the figure below showing slides from a 2006 Ofcom presentation:

Figure 63: Ofcom presentation on Net neutrality (2006)
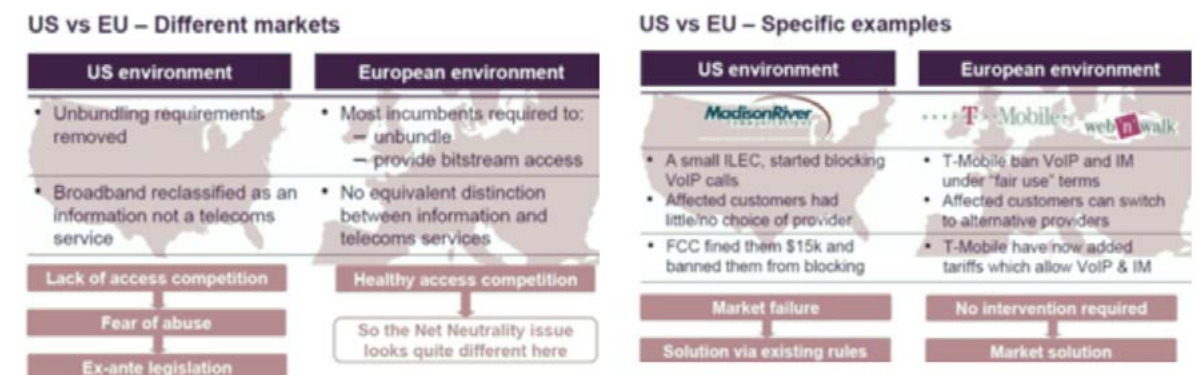
Source: Ofcom

It was not until the review of the framework in 2009 that European regulation actually addressed net neutrality because of trends like the huge rise in traffic and the introduction of mobile VoIP. Directive 2009/136/EC, amending Directives 2002/22/EC (universal access) and 2002/58/EC (privacy protection), set the terms and conditions for traffic management.

6.2.2. Net neutrality in the 2009 framework

As mentioned before, the 2009 framework does not include a dedicated article for net neutrality, but several relevant terms have been added to Europe's common set of rules during the review.

Traffic management and transparency with users

The European regulatory framework on electronic communications, called the Telecoms Package, sets the conditions under which ISPs may employ traffic management measures to avoid network congestion.

Network operators are required to be entirely transparent about the policies they apply. The amended version of Articles 20 and 21 of the universal service directive stipulate that operators must inform users of any restrictions on usage and all of the traffic management measures taken, and how they might affect the quality of their service. This information must also be included in subscription contracts between users and ISPs (Article 20 of the universal service directive). Plus, Article 8.4.g) of the amended framework directive gives national regulatory authorities the task of encouraging network neutrality.

This allows users to have comprehensive information when choosing their access provider. Should an ISP change their policy, users are free to cancel their contract and switch providers without penalty.

Minimum quality of service regulation

The 2009 European regulation also contains clauses on minimum quality of service requirements. To prevent decreased QoS in traffic, national regulatory authorities (NRAs) are authorised to set a minimum quality of service threshold for access providers. The definition of the indicators used to measure the quality of the Internet access service is left up to the NRA.

According to Article 22 of the amended universal service directive, introducing this type of regulation will require the NRA to coordinate with the Body of European Regulators for Electronic Communications (BEREC) and the European Commission. The directive stipulates that NRAs must take the utmost account of the European Commission's remarks.

Dispute settlement

The framework directive now gives NRAs the power to settle disputes involving a network operator subject to interconnection obligations and a service provider

IP interconnection is not directly referred to in the framework, nor does the list of relevant markets include the concept of IP data termination. National regulators are nevertheless free to regulate IP traffic interconnection if they can justify the need to do so with BEREC and the European Commission.

Debates nevertheless continued beyond this point, with various proposals being put on the table, including a proposal to prohibit blocking Skype (cf. Commissioner for the Digital Agenda Neelie Kroes, April 2011[33]). The conclusions of the Commission consultation on Net neutrality[34] did not include any truly novel elements, although it did recommend stronger wireless and wireline technological neutrality than in the United States at that time, and a desire to eventually factor in the issues surrounding CDN should the situation evolve.

33. EC, available at: http://europa.eu/rapid/press-release_SPEECH-11-285_en.htm, web site accessed July 2016
34. EC, available at http://ec.europa.eu/information_society/policy/ecomm/doc/library/public_consult/net_neutrality/report.pdf; web site accessed July 2016

With the Commission and BEREC, the Union's two most prominent institutions in the domain continued working on the topic. In May 2012, BEREC published the results of an inquiry into traffic management policies applied by fixed and mobile operators in Europe. The study showed that most operators do not apply any specific restrictions. If such restrictions are implemented, they typically concern voice over IP and P2P traffic. As can be expected, these restrictions are most often implemented by mobile operators rather than fixed operators. In all, nearly 20% of European users have been subject to restrictions.

Figure 64: Restrictions applied within the European Union
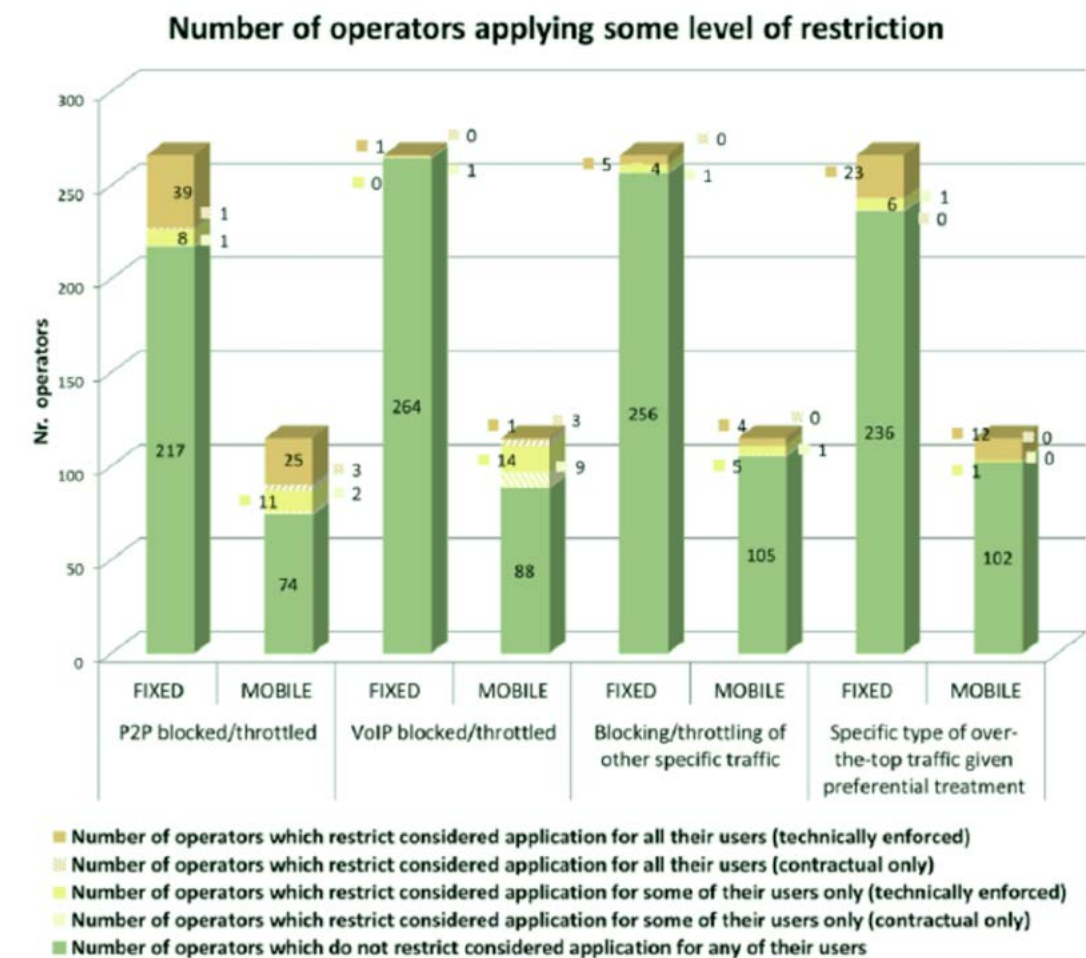
Source: BEREC (2012)

BEREC published two more documents on the topic at the end of that year. A summary of BEREC's position on net neutrality[35] reiterates the body's previous conclusion that the key factors for resolving the net neutrality issue- are intra- and intermodal competition, transparency for users, as well as ease of changing access providers.

The second document concludes that the group of regulators did not consider it useful to issue a closed list of "approved" reasonable traffic management policies at that time. Instead BEREC provided a list of criteria that should help NRAs in evaluating whether a traffic management practice can be deemed "reasonable" or not, depending on:

- *"Whether the practice discriminates against any particular content and application provider(s)*

- *Whether the practice is applied on the request of (and can be controlled by) the end-user*

- *Whether the practice is proportionate to the objective (whether it is the least intrusive, and least intense (e.g. in terms of frequency and reach) measure available)*

- *Whether they are application-agnostic (in which case they are less likely to raise concerns)"[36]*

Under the influence of this work, the Commission has sought to strengthen net neutrality provisions in the "Connected Continent" package presented in autumn 2013.

6.2.3 Net neutrality in the TSM

The Connected Continent draft regulation ruled out discriminatory practices such as throttling or blocking on both fixed and mobile networks. Next to this pro-net neutrality stance, the package left the door open for telcos to provide differentiated services as long as this practice would not negatively affect the best effort Internet. The Connected Continent proposal refers to these specialised services as *"an electronic communications service or any other service that provides the capability to access specific content, applications or services"*. The Commission argues that service differentiation is a common commercial practice which not only increases users' choice but also generates much-needed additional revenues for further pushing ahead with infrastructure upgrades: companies would however be allowed to differentiate their

offers (for example by speed) and compete on enhanced quality of service. There is nothing unusual about this – postal services (express mail) and airlines (economy/business class) have done this for decades.

- To meet end-users' demand for better service quality, content providers could have agreed on deals with Internet providers to assure a certain quality of service level. Such offers put telecom operators in a position to generate additional revenue streams from OTT actors, content providers as well as from consumers who are willing to pay for better or faster services. These revenues in turn, enable operators to finance investments into network upgrades and expansio[37]

The European Parliament on the contrary supported an approach that was much stricter on telecom operators than the Commission's proposal. When the EP voted on the package in early 2014, it had inserted a number of amendments aimed at reinforcing net neutrality. One such amendment concerned article 2 two of the regulation and referred to the term of net neutrality itself and the definition of it, which had so far not been explicitly mentioned in articles of the Connected Continent package:

The principle of "net neutrality" means that traffic should be treated equally, without discrimination, restriction or interference, independent of the sender, receiver, type, content, device, service or application. [38]

Another important element was the European Parliament's take on specialised services. The Commission's definition of specialised services was quite broad and especially the inclusion of "any other service" was perceived as vague and potentially opening the doors for ISPs to label virtually any service as 'speicalised service' and introduce paid priorisation. The EP adopted a more restrictive approach to specialised services. The EP defines a specialised service as a service…

…optimised for specific content, applications or services, or a combination thereof, provided over logically distinct capacity, relying on strict admission control, offering functionality requiring enhanced quality from end to end and that is not marketed or usable as a substitute for Internet access services[39]

---

35. BEREC, available at http://berec.europa.eu/eng/document_register/subject_matter/berec/opinions/1128-summary-of-berec-positions-on-net-neutrality; web site accessed July 2016

36. BEREC, available at http://berec.europa.eu/eng/document_register/subject_matter/berec/opinions/1129-overview-of-berec8217s-approach-to-net-neutrality; web site accessed July 2016

37. EC, available at 9 https://ec.europa.eu/digital-agenda/en/connected-continent-legislative-package; web site accessed July 2016

38. EP, available at: http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+AMD+A7-2014-0190+237-244+DOC+WORD+V0//EN web site accessed July 2016

39. Ibid.

The EP additionally added the safeguard that specialised services should only be provided subject to the conditions that there is sufficient capacity available to provide these services on top of open Internet access services and that the latter's quality should not be materially deteriorated. It is also worth noting that EP insisted on the fact that ISPs must *not discriminate between functionally equivalent services or applications*.

The European Council, as representative of the Member States and third stakeholder in the legislative process did not follow the direction the EP had indicated. The above-mentioned leaked note of the Italian presidency of the Council had again suggested removing some of the amendments made by the Parliament and elaborating on net neutrality in the recitals instead. Apparently there was indeed a consensus in the Council on such a light-handed approach to net neutrality as shown by a later leaked non-paper from the recent Latvian presidency. In the Council's proposal most of the amendments made by the Parliament had effectively been removed. For instance, not only the definition of net neutrality introduced in article 2 but also all other direct references to the term "net neutrality" had vanished from the document.

Figure 65: Leaked Council 'non-paper' (May 2015)

Source: La Quadrature du Net

Instead of enshrining detailed provisions on net neutrality in a regulation, the Council has made clear its preference for a principles-based approach leaving regulators with more flexibility to adapt guidelines to market situations.

What has been agreed upon

Despite the apparent deadlock in the debate, or trialogue meetings between European stakeholders, net neutrality was part of the Telecoms Single Market agreement reached after long hours of negotiations at the end of June 2015.

Looking at some details of the final text seems to suggest that it is further from the Parliament's positions than those of the Council and the view of Commissioner Oettinger, who had made it fairly clear that he is not in favour of a strict net neutrality regulation when comparing German pro net neutrality activists to the Taliban in a recent speech. The table below summarises how the definitions of some of the key concepts have evolved between the initial publication of the Commission's regulation and the adoption of the final draft, as the Parliament and Council have formulated their inputs.

Table 9: Evolution of definitions, article 2 of the draft Directive (relevant items for net neutrality only)

Commission proposal (2013)	EP vote (2014)	Council (2015)	Final draft (2015)
-	"net neutrality" means the principle that all Internet traffic is treated equally, without discrimination, restriction or interference, independent of its sender, receiver, type, content, device, service or application;	Deleted	-

-"Internet access service" means a publicly available electronic communications service that provides connectivity to the Internet, and thereby connectivity between virtually all endpoints connected to the Internet, irrespective of the network technology used	"Internet access service" means a publicly available electronic communications service that provides connectivity to the Internet in accordance with the principle of net neutrality, and thereby connectivity between virtually all endpoints of the Internet, irrespective of the network technologies or terminal equipment used	"Internet access service" means a publicly available electronic communications service that provides access to the Internet, and thereby connectivity to virtually all endpoints of the Internet, irrespective of the network technology and terminal equipment used	"Internet access service" means a publicly available electronic communications service that provides access to the Internet, and thereby connectivity to virtually all endpoints of the Internet, irrespective of the network technology and terminal equipment used
'specialised service' means an electronic communications service or any other service that provides the capability to access specific content, applications or services, or a combination thereof, and whose technical characteristics are controlled from end-to-end or provides the capability to send or receive data to or from a determined number of parties or endpoints; and that is not marketed or widely used as a substitute for Internet access service;	specialised service" means an electronic communications service optimised for specific content, applications or services, or a combination thereof, provided over logically distinct capacity, relying on strict admission control, offering functionality requiring enhanced quality from end to end and that is not marketed or usable as a substitute for Internet access service	Deleted	-

Source: IDATE, based on Commission, Parliament, Council documents, Single Market Initiatives, August 2015

However, the key provisions of the articles and recitals, which were published a couple of days after the agreement was hammered out in the trialogue, seem to indicate that overall a workable compromise has been found and that net neutrality has not simply been "killed off"' as some of its defenders had feared during the trialogue process.

Figure 66: The end of net neutrality? Not quite…

Source: Twitter

The text aims at striking a balance between users' legitimate demand for choice and the industry's need to implement innovative services and business models. The EU is often criticised as being too focused on end-users in its regulatory approach; the final draft here explicitly states in the first recital that the *regulation aims not only to protect end-users but simultaneously to guarantee the continued functioning of the Internet ecosystem as an engine of innovation.*

The text clearly states that discriminatory treatment of traffic on the open Internet is not acceptable under this regulation. According to article 3 users of open Internet services

> shall have the right to access and distribute information and content, use and provide applications and services and use terminal equipment of their choice, irrespective of the end-user's or provider's location or the location, origin or destination of the service, information or content.[40]

This formulation more or less corresponds to a classic definition of the concept of net neutrality. Recital 8 further elaborates on traffic management. To avoid conflict with the regulation, traffic management measures shall not be applied for periods longer than necessary and furthermore they must be *transparent, proportionate, non-discriminatory and should not be based on commercial considerations*.

---

40. EU Regulation 2015/2120, availbale at: http://eur-lex.europa.eu/legal-content/EN/TXT PDF/?uri=CELEX:32015R2120&from=EN; web site accessed July 2015

Figure 67: EU net neutrality: no blocking or throttling says EC
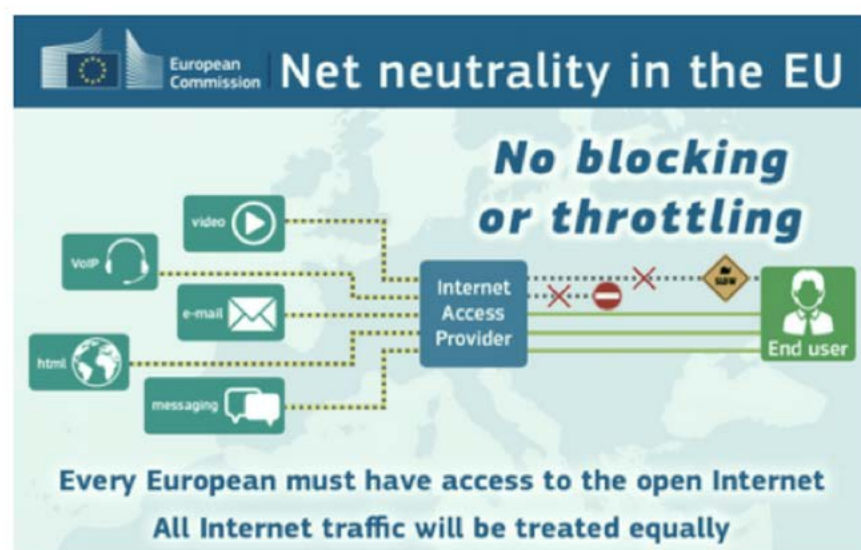
Source: European Commission

Thus, with respect to net neutrality and end-user protection considerations, the final draft of the Telecoms Single Market package certainly contains some credible elements. And while the above rules out paid prioritisation deals, the regulation does allow for specialised services subject to certain conditions, thereby reflecting the innovation aspect.

Without ever using the term 'specialised services', the regulation paves the way for operators to provide services other than access to the open Internet for applications and services that necessitate specific quality of service levels beyond those of Internet services. Recital 11 of the draft regulation mentions services of public interest or M2M applications as examples. Article 3 contains a number of safeguards aimed at preventing operators from implementing specialised services in an abusive manner. Accordingly, they may only be put in place

> if the network capacity is sufficient to provide them in addition to any Internet access services provided. Such services shall not be usable or offered as a replacement for Internet access services, and shall not be to the detriment of the availability or general quality of Internet access services[41]

Since this is strictly speaking only possible if there is unlimited network capacity, there may be a need for further clarification regarding what level of impact on Internet services is deemed negligible or sufficiently small to be acceptable for specialised services to be implemented.

Remaining issues

Whereas the draft regulation so far seems to be carefully worded to take into account potentially conflicting interests between consumer protection and innovative business models, the text also contains a number of elements are likely to give rise to further debate.

Another issue related to specialised services is the fact that is ultimately up to regulators at the national level whether a particular optimisation is actually required for a given service or application. Given the objective of creating a truly integrated market for telecoms across the Union, a certain degree of harmonisation would seem desirable. Specialised services are supposed to be a main lever for driving innovation, therefore it is important to avoid a situation whereby the EU runs the risk of ending up with a patchwork of 28 different national sets of rules and fails to create a market with the critical scale for such new services and applications.

The biggest issue with the compromise found in the trialogue is not even mentioned in the text: zero rating. Zero rating is a practice where a provider of Internet access allows a user to access a given service or application without charging for it or discounting the corresponding traffic volume from the user's monthly data allowance. The text does not rule zero rating: instead, recital 7 of the text grants users and providers of Internet access the commercial freedom to agree *on tariffs with specific data volumes and speeds*, provided this does not lead to a reduction in choice for users. The European Commission is convinced that zero rating has a positive impact on the market and will favour the take-up of services

> Zero rating does not block competing content and can promote a wider variety of offers for price-sensitive users, give them interesting deals, and encourage them to use digital services[42]

Other voices are far more critical of zero rating, though. Zero rating is perceived as a violation of the net neutrality principle because it discriminates between the services that are included in the operator's scheme and those that are not.

---

41. EU Regulation 2015/2120, availbale at: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015R2120&from=EN; web site accessed July 2015

---

42. EC press release, available at http://europa.eu/rapid/press-release_MEMO-15-5275_fr.htm; web site accessed July 2016

BEREC draft guidelines

The TSM package's provisions on net neutrality leave significant scope for interpretation. Therefore BEREC was put in charge to develop guidelines for the actual implementation of the adopted regulation. In June 2016 BEREC came forward with draft guidelines which were then made subject to a public consultation.

Zero-rating

The guidelines define zero-rating as a practice *where an ISP appliesa price of zero to the data traffic associated with a particular application or category ofapplications[43]*. BEREC states that a situation where all applications except the zero-rated one or blocked or slowed down once the data cap is reached represents an infringement of the regulation. Furthermore, zero-rating applied to all applications of a particular category of services rather than to one application in particular will be less likely to violate net neutrality than the latter case. However, with respect to how NRAs should assess if a given zero-rating offer violates the net neutrality rules, BEREC provides a long list of items to be checked:

- the goals of the regulation
- the market position of ISPs and content and application providers (CAP)
- the effect on consumer and business customer end-user rights
- the effect on CAP end-user rights
- the scale of the practice and the presence of alternatives
- freedom of expression and media pluralism

Going through these criteria (and their different sub-items) may prove to be rather lengthy and burdensome process for regulators.

Specialized services

A similar approach is suggested for the assessment of so-called specialized services. NRAs will have to evaluate specialized services on a case-by-case basis. In doing so, they *should apply the approach set out in paragraphs 104-111[44]* of the guidelines. NRAs shall collect information about the service in question and assess whether it

indeed requires specific QoS levels, which cannot be attained with open Internet access services and whether the safeguards for the use of open Internet services are being respected. The guidelines make it very clear that specialized services should neither be offered as a substitute for open internet access services nor should they lead to a deterioration of the quality of service of open internet services.

Again, BEREC does not provide a definitive list of services that qualify as specialized services but the body mentions a number of examples such as Voice over LTE, linear broadcasting IPTV as well as real-time health services.

Transparency

The draft guidelines devote significant attention to the question of transparency. Transparency considerations concern notably the aspects of network performance, notably in terms of available speeds, and the traffic management policies a user's subscription might be subject to. In general, the information provided should be easily accessible, identifiable, understandable and meaningful to users. The information should be presented in two different levels of detail: once in a concise, high-level way and in a second time in a detailed, in-depth way.

With respect to traffic management ISPs shall indicate under which conditions they will revert to interfering with the traffic flow as well *as how the measures might affect the end-user experience in general and with regard to specific applications[45]*. When managing traffic involving personal data, users shall be informed about the type of personal data uses and how privacy is being protected.

Regarding speeds the body of regulators proposes to define several types of threshold values for fixed and mobile networks. Fixed ISPs shall define three different speed levels

- minimum speed: the subscribed line should be capable of delivering the indicated minimum speed at any time. According to BEREC, NRAs should have the possibility to link the minimum speed level to the indicated maximum speed
- maximum speed: the indicated maximum speed level should be available to users at least some of the time. NRAs may define the number of times a maximum speed should be attainable over a given period of time

43. BEREC draft guidelines, available at: http://berec.europa.eu/eng/document_register/subject_matter/berec/download/0/6075-draft-berec-guidelines-on-implementation_0.pdf ,web site accessed July 2016
44. Ibid.
45. Ibid.

⬦ normally available speed: the speed a user can normally expect when accessing the internet service. ISP shall define the level of speed as well as the period when this performance can be expected, e.g. X Mbps during 90% of peak hours etc…

BEREC also notes that where speeds are being referred to in commercial communications, national regulators could require that the advertised speeds do not exceed maximum speeds.

Mobile network operators are subject to transparency obligations regarding internet speeds, too. These obligations are lighter than those of their fixed network peers. Nevertherless, MNOs shall provide their subscribers with information on the maximum speeds they can realistically expect under different usage conditions. For instance, BEREC suggests that this information could be provided

in a geographical manner providing mobile IAS coverage maps with estimated/measured speed values of network coverage in all locations, including both indoor and outdoor coverage[46]

The draft guidelines also provide indications on the scope of the applicability of the regulation. Not surprisingly, private networks and public Wifi accesses provided for instance by cafés to their patrons are not subject to the provisions of the net neutrality regulation. Interconnection issues, which are to a non-negligible extent at the origin of the net neutrality disputes do not fall under the scope of the regulation either, unless its actual implementation "seeks to circumvent the Regulation"[47].

The final version of the guidelines is expected to be published by BEREC on 30 August, 2016.

6.3. France

6.3.1. Regulator (ARCEP)

As in most other countries across Europe, the topic of Net neutrality did not really reach the forefront of regulatory talks in France until 2010. Up until then French electronic

---

46. Ibid.
47. Ibid.

communications regulator ARCEP had focused chiefly on developing inter-modal competition through the development of unbundling, to prevent ISPs from engaging in discriminatory practices.

In 2010, ARCEP held a public consultation whose conclusions were made public in September of that year. This included ten key proposals to guarantee users' neutral and high quality access to the Web.

The 10 ARCEP proposals: taking a preventive approach

⬦ the current and future regulatory framework today provides the appropriate competencies and instruments

⬦ ARCEP's proposals have been well received by stakeholders

Recommended features of ISP's Internet access offers:

⬦ Freedom of use and sufficient quality

⬦ Non-discrimination between traffic streams

⬦ Limited exceptions to the first two principles – 5 criteria to supervise traffic management

⬦ Unrestricted managed services as long as Internet access not degraded below acceptable level

Making the recommended features transparent:

⬦ Increased end-user transparency

Concrete follow-up:

⬦ Monitoring traffic management practices

⬦ Monitoring the quality of the Internet access service

⬦ Monitoring the data interconnection market – importance of non-discrimination for Internet

Neutrality also depends on other parts of the value chain:

⬦ Content providers

⬦ Terminal equipment providers

Source: ARCEP

These proposals are not intended to establish a strict and targeted regulatory framework, but rather to help shore up the existing principles of transparency and

non-discrimination. ARCEP concluded that users must be free to access the content of their choice, and that operators should not discriminate against traffic streams according to their origin, their destination, content or the user's device. If operators strayed from this policy to ensure the smooth running of their networks, the measures they take must be proportionate, efficient, non-discriminatory, justified and transparent.

In addition to traffic management, ARCEP recognises that operators must also have the option of selling managed services in both the retail and wholesale markets. They need to be free to develop managed services, provided these "closed" services to not result in a poorer quality of service on the open Web.

A great deal of emphasis is put on transparency with respect to users. ARCEP demands that ISPs be completely transparent about their traffic management policies, and that users be informed of any restrictions and their impact on their service.

By the same token, ARCEP believes that services that carry restrictions which are not objectively justified by the principles of relevance, non-discrimination and proportionality cannot be sold as "Internet access" products.

The regulator is also proposing to monitor traffic management practices, the quality of Internet services and interconnection markets – the purpose being to be able to assess whether there is a need to take more prescriptive measures for these markets, and particularly the introduction of "IP data termination" solutions.

Lastly, ARCEP has underscored another crucial link in the value chain other than the network, namely devices. The French regulator wants to see neutrality extend into this area as well. It has referred explicitly to the iPhone which enjoys a very strong position in the smartphone market but whose ecosystem remains very closed, including limitations on the applications available and the software that can be used on the devices.

In September 2012, ARCEP presented another report[48] on net neutrality, which had been commissioned by the parliament. In this report, ARCEP outlines four areas requiring further scrutiny:

⬧ Transparency

⬧ Quality of service

⬧ Traffic management

⬧ Interconnection

---

48. http://www.arcep.fr/uploads/tx_gspublication/rapport-parlement-net-neutrality-sept2012-ENG.pdf

ARCEP recalls that competition is crucial in containing net neutrality issues. Therefore, users must have access to comprehensive information about the tariff they (plan) to subscribe to and the potential restrictions applied. ARCEP, in collaboration with other relevant authorities will present proposals for further improving transparency.

Regarding quality of service, the NRA announces presentation of a list of KPIs measuring the performance of fixed networks (mobile networks are already being monitored). The results will be made available publicly.

ARCEP is also monitoring the type of traffic management practices applied as well as their respective frequencies. According to the regulator, operators intervene less frequently today than they did back in 2010. ARCEP urges operators to continue this trend.

In the 2010 report, ARCEP noted that it lacked insight into the interconnection market between internet players. Since March 2012, the authority has been collecting data from players to remedy this situation. After two measurement campaigns in 2012 and 2013, the regulator decided to update its measurement policy in 2014. While reducing the level of detail required from the stakehoilders overall, ARCEP has decided to

⬧ distinguish the installed and configured capacity on each interconnection link covered by the decision;

⬧ allow ARCEP to request additional information periodically, to enable it to assess the scale of a presumed traffic overload on interconnection link[49]

In 2015, the French government examined the introduction of a tax on bandwidth used. ARCEP was invited to investigate the technical feasibility of making bandwidth measurements. In its response to the government's request, the regulator concluded that such measurements were complicated but technically feasible nevertheless at the point of interconnection. The NRA also highlighted that the system had different drawbacks

⬧ [..] the stream is identified as coming from the interconnection partner[..], this would be a technical intermediary (transit operator, Content Delivery Network, Internet Exchange Point (IXP) manager, etc.) and not a service provider

⬧ measurements [..] at interconnection points[..]not take into account [..] volumes of traffic being relayed under special conditions such as multicasting, peer-to-peer exchanges between two subscribers with the same ISP[50]

---

49. ARCEP, available at http://www.arcep.fr/index.php?id=8571&no_cache=1&L=1&no_cache=1&tx_gsactualite_pi1%5Buid%5D=1654&tx_gsactualite_pi1%5Bannee%5D=&tx_gsactualite_pi1%5Btheme%5D=&tx_gsactualite_pi1%5Bmotscle%5D=&tx_gsactualite_pi1%5BbackID%5D=26&cHash=405b70c32fd170ba34eeadc541c935db; web site accessed July2016

50. ARCEP, available at http://www.arcep.fr/uploads/tx_gsavis/15-0832-ENG.pdf ; web site accessed July2016

ARCEP points out that should those measurements be implemented, stakeholders were likely to seek developing bypass solutions.

6.3.2 Legislation

Over time France has seen several by the politcial sphere to legislate on net neutrality and and closely related matters. Back in 2010 Eric Besson, then Minister of Industry, Energy and the Digital economy at the time when he said that Google and OTT companies should help finance the network, as an extension of the more general debate over the possibility of taxing online advertising[51].

In April 2011, in a report drafted by the deputies (i.e. members of Parliament) Erhel (Socialist Party) and of the Raudière (UMP/Union for a Popular Movement) was presented to the French National Assembly. This relatively comprehensive report addresses the question of Net neutrality from various angles (technical, political, legal) and, by way of a conclusion, offers nine proposals within four main courses of action.

Figure 68: Proposals contained in the Economic Affairs Committee report

<div style="border:1px solid #000; padding:1em;">

♠ **First guideline: set internet neutrality as a political objective**
Proposal n° 1: define the principle of neutrality. Proposal n°. 2: make neutrality a political objective and give regulatory power the ability to impose obligations to promote it.

♠ **Second guideline: set strict obligations on blocking sites**
Proposal n° 3: investigate justifications of legal blocking measures, despite their apparent legitimacy, given their lack of effectiveness and the negative repercussions they are likely to have.
Proposal n° 4: immediately establish a single procedure requiring a court ruling.

♠ **Third guideline: protect universality and guarantee the quality of the Internet**
Proposal n° 5: confine the term "Internet access" to only those offers that comply with the principle of neutrality.
Proposal n° 6: create an observatory for monitoring the quality of Internet services.
Proposal n° 7: give ARCEP the task of guaranteeing access to a sufficiently high quality Internet.

♠ **Fourth guideline: ensure lasting financing for the Internet**
Proposal n° 8: document the economic stakes surrounding the Internet.
Proposal n° 9: perform an in-depth assessment of the introduction of IP data termination at the European level.

</div>

Source: French National Assembly

The proposals are quite similar to those of the regulator. The report suggests reserving the term "Internet access" to refer only to those products that comply with neutrality criteria. The proposal for introducing a system for monitoring the quality of the Internet service is also echoed in the report.

The latter is nevertheless more openly in favour of an IP data termination scheme which ARCEP perceived more as a possible option, rather than coming out clearly in support of it.

One interesting point is found in the fourth proposal which recommends that any blocking or filtering of unlawful content be subject to the approval of a judge. According to current forecasts from the Loppsi Act (legal guidelines on Internet security), a decision to block a child pornography site can be made without any legal approval.

A draft law, expected to draw heavily from the report, was due to be introduced in December 2011. However, no specific legislation on net neutrality has been adopted so far.

A bill including net neutrality provisions in has been under preparation since 2014. The government has based its decision on a statement by the French National Digital Council (CNNum) presented on the 1st of March 2013[52]. In its statement, the CNNUm concludes unanimously that freedom of speech is not sufficiently protected in the light of the development of filtering, blocking, throttling and censorship measures. The council therefore recommends inscribing neutrality into legislation as a fundamental right which may only be interfered with following approval by a judge. Furthermore, the council considers that net neutrality is a driver of innovation, which needs constantly being adapted to technological and economic developments. Folllowing the CNNum's advice, Ms. Pellerin, then Digital Economy Minister announced that the corresponding provisions would be included in the law on "internet rights".

The digital law was eventually adopted in July 2016. In terms of net neutrality, the law essentially transposes the provisions of the European regulation into national law. It does however bestow ARCEP with the right to have offices of stakeholders searched if it suspects violations of the net neutrality principle. ARCEP can fine net neutrality infringements up to 3% of the perpetrator's annual revenue or up to 5% in case of a recidivist.

---

51. http://www.economie.gouv.fr/presse (December 2010)

52. http://www.cnnumerique.fr/wp-content/uploads/2013/03/130311-avis-net-neutralite-VFINALE.pdf

6.4. UK

6.4.1. Regulator (Ofcom)

In the UK, Ofcom has altered its position on the issue of network neutrality. Initially, Britain's NRA had been very sceptical about the need for dedicated regulation – believing broadband market competition was such that it would prevent any anti-trust behaviour on the part of ISPs.

To ensure that operators' traffic management practices are transparent, Ofcom has included provisions on customers' information in its code of practices for broadband access[53]. This code, which was introduced in 2008 and to which ISPs adhere on a voluntary basis, was signed by the vast majority of broadband access providers in the UK[54].

The code does not focus on prohibiting traffic shaping but rather on promoting transparency. It requires signatories to inform customers of their traffic management measures in an easily accessible location, such as the FAQ section of their website. The ISP must list the types of applications, services and protocols concerned by this traffic shaping, and must provide detailed information on how the streams are managed during peak times.
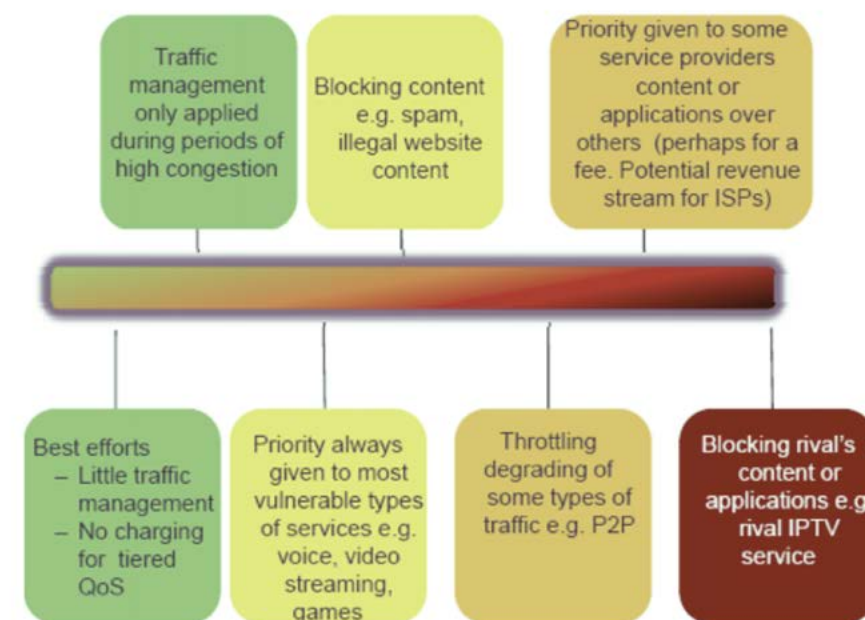
In 2010, the regulator held a public consultation on Net neutrality – its goal being to obtain information on any discriminatory or anti-competitive behaviour occurring in the British market. Ofcom consulted on measures which, should they become necessary, would be taken to counter these abuses.

Here, Ofcom listed two possible solutions: either to impose an obligation of non-discrimination, regardless of the ISPs' market power, or a "zero price cap", in other words prohibiting access providers from charging premium rates. The regulator's initial position on the issue is nevertheless that there is no need for *ex ante* regulation prohibiting any form of discrimination. A system that allows for differentiated quality of service, whereby content providers and end users are billed for a guarantee QoS, seems preferable.

---

53. http://www.ofcom.org.uk/telecoms/ioi/copbb/copbb/
54. http://www.ofcom.org.uk/telecoms/ioi/copbb/list/

Figure 69: Degrees of traffic management

Source: Ofcom

As for transparency with consumers, Ofcom wanted to obtain details on the type of information that consumers need, and how that information should be presented to allow users to make fully informed decisions.

Information on traffic management policies or any restrictions on use could be supplied by each ISP on an individual basis, or on a website that offers a comparison. These websites that allow users to compare all of the ISPs' policies could be managed by a public body, such as Ofcom, or by a private sector player such as price comparison sites. Ofcom acknowledges that this type of information is very important, but also very hard for a lot of consumers to understand.

Imposing minimum quality of service requirements, as provided for in the new European framework, could be another option, but Ofcom has not yet published its conclusions on the matter.

As for rules governing advertising for broadband products, Ofcom responded to the public consultation held by the Advertising Standards Authority in early 2011 on use of the terms "unlimited" for Internet access and "up to" for connection speed. The regulator offered several proposals, including having the advertised maximum

achievable bitrate accompanied by an indication of the typical connection speed supplied by such an offer. As for the use of the word "unlimited", Ofcom believes certain rules must apply:

Table 10: Allowable use of the word "unlimited" according to Ofcom

Claim	Traffic management / fair use policy		
	Subscriber-based traffic management	Application-based traffic-management	Monthly usage caps/ charge or service suspension
"Unlimited broadband"	No	No	No
"Unlimited downloads"or "Unlimited usage"	Yes - if qualifications (e.g. peak-time usage cap) clearly stated	Yes - if qualifications and policy (e.g. peer-to-peer traffic slowed) are clearly stated	No

Source: Ofcom

Building on the consultation and the huge amount of other preliminary work, Ofcom eventually published a statement[55] presenting its approach to net neutrality in November 2011. The regulator continues its rather light-handed approach and favours competition and transparency over binding direct net neutrality regulation

Ofcom eventually worked with the Broadband Stakeholders' Group the UK government's leading advisory group on broadband to elaborate a voluntary code of conduct. In March 2011, the top fixed and mobile ISPs in the UK committed to a code of practices for traffic management. BSkyB, BT, O2, TalkTalk, Three, Virgin Media, Vodafone and Everything Everywhere – which together account for 95% of wireline broadband and 90% of wireless broadband subscribers in Britain – drafted a code of practice on transparency in traffic management, under the guidance of a government organisation, the Broadband Stakeholder Group (BSG).

The stated goal of the code is to provide consumers with easy and comparable access to information on the traffic management practices employed by ISPs. To this end, information will be standardised, to explain the techniques that are used, when they are used and how they affect quality of service.

The code repose is based on three elements:

- Firstly, an explicit commitment to provide more information to consumers about what practices are used in networks to (a) help maximise capacity for everyone's benefit and (b) to support adherence by customers to terms and conditions;

- Secondly, an agreed set of good practice principles that will inform how ISPs communicate that information to consumers. Signatories agree that the information they provide about traffic management to their current and prospective customers will be understandable, appropriate, accessible, current, comparable and verifiable;

- Thirdly, to commit to publishing a consistent Key Facts Indicator (KFI) table, summarising the traffic management practices they use for each broadband product they currently market. This information will be accessible to consumers and for third parties, such as price comparison websites, to be able to compile this information for consumers.

After the first draft of the code was presented, the BSG announced that it would be working on an expanded version with Tim Berners-Lee.

In 2012, another code of conduct was presented, the Open Internet Code of Practice[56]. According to the Broadband Stakeholder Group (BSG°, the code brings about three major commitments. Operators will:

Ensure that full and open internet access products, with no blocked services, will be the norm within their portfolio of products

Provide greater transparency in instances where certain classes of legal content, applications and/or services are unavailable on a product. These products will not be marketed as "internet access" and signatories will be obliged to ensure that any restrictions are clearly communicated to consumers.

Not target and degrade the content or applications of specific providers[57]

"Best-effort" is enshrined as a "viable solution" for internet access. The Code also contains a mechanism for content/application providers to file a complaint with the

55. Ofcom, available at: http://stakeholders.ofcom.org.uk/binaries/consultations/net-neutrality/statement/statement.pdf, web site accessed August 2016

56. BSG, available at: http://www.broadbanduk.org/2012/07/25/isps-launch-open-internet-code-of-practice/; web site accessed August 2016
57. Ibid.

BSG. If the matter cannot resolve the issue at hand, it will share the case with Ofcom and the UK government.

The Open Internet Code received a minor update in 2013. Two clarifications were included, both regarding commitment 2

⬥ signatories shall not be considered to violate the code if they deployed content filtering or made available content filtering tools where appropriate for public wi-fi access

⬥ signatories shall make available information on how the voluntary system in support of commitment 2 […] would operate

In 2015, the BSG launched a review of the code, the results of which were presented in June 2016. According to the BSG, the revised code of conduct has been endorsed by ISPs representing 90% of the UK's fixed Internet subscribers. Four principles are at the heart of the code:

⬥ Supporting access to the Open Internet as the norm

⬥ Clarifying the ability of ISPs, under certain conditions, to deliver managed or alternative services

⬥ Permitting the deployment of traffic management tools under certain conditions and not on the basis of commercial rivalry

⬥ Ensuring that traffic management practices are transparent and communicated effectively to the user[58]

In 2015, Ofcom examined the question whether traffic management detection schemes might be useful addition to the regulatory toolkit in order to safeguard net neutrality in the future. The regulator commissioned a study based on the review of relevant literature. The outcome of the study was rather sobering, though:

⬥ None of the TMD methods studied satisfy all the key attributes that would make them suitable for effective practical use. In particular, those that are currently in active deployment generate significant volumes of traffic, which would risk damaging the QoE of other users

⬥ It is easy to envisage TM policies that would not be detectable by any of the methods analysed

⬥ Our conclusion is thus that no tool or combination of tools currently available is suitable for effective practical use.[59]

6.4.2. Legislation

The UK government has adopted a light-touch position on net neutrality and no major initiatives to legislate in favour of net neutrality have been observed in the past. Instead, the previous government was concerned that the EU net neutrality regulation and the resulting obligation to treat all traffic in the same way was a threat to its approach of restricting minors' access to pornographic or violent contents. In fact, the government pressured ISPs to offer network-sided filters that block this type of content. Users still wanting to access it would have to actively opt out. This approach would be contrary to EU net neutrality rules according to which any filters may only be applied on "opt-in" basis. The government announced it was prepared to introduce national law to maintain the status quo. With a new government in power and the recent vote to leave the European Union, it remains to be seen in how far the European rules will be transposed in the national law in the UK or if the UK decides to adopt an alternative approach to net neutrality.

6.5. Germany

6.5.1. Regulator (BNetzA)

Although the German regulator has said it was keeping a close eye on Net neutrality issue, the BNetzA was slow to actually take initiatives on net neutrality. As with other NRAs across Europe, the *reasoning given by the BnetzA is that competition between ISPs using xDSL and other technologies is* strong enough to dissuade network operators to engage in abusive practices.

In 2009, the chairman of the BNetzA M. Kurth issued a reminder that, even though the telecoms act (TKG) dif not contain specific rules, the obligations concerning end-to-end service delivery and network interoperability give network operators a solid

---

58. BSG, available at: http://www.broadbanduk.org/2016/06/08/bsg-publishes-new-open-internet-code-of-practice/; web site accessed August 2016

59. Ofcom, available at: http://stakeholders.ofcom.org.uk/binaries/research/technology-research/2015/traffic-management-detection.pdf; web site accessed August 2016

enough framework[60]. At the same time, Mr Kurth said he was confident that, as long as there is healthy competition in this market, consumers will not accept discrimination against certain types of traffic and would quickly change ISPs should it occur.

This view was largely confirmed by BNetzA's Cara Schwarz-Schilling during a hearing in parliament in November 2012. Schwarz-Schilling said that there were no "alarming" problems with net neutrality in Germany and that competition was sufficiently strong to undermine operators' attempts to implement major traffic management schemes.

In mid-2012 BNetzA also launched a broadband speed measuring scheme in order to evaluate the actual speed of "up to" headline speeds as well as the impact of managed offers on best effort traffic. For the former, users can download a tool to test the speed of their internet connection. The latter is measured by a centralised platform. The measurement campaigns have been repeated in 2013 and 2016[61] .

At the same time the results of the latest measurement campaign were presented in June 2016, BNetzA and the responsible Federal Ministry of Economics presented a regulation on transparency aiming at giving users more certainty with respect to the performance of their subscirbed broadband offer.

6.5.2. Legislation

On 19 March 2010, the BMWi outlined the main points of amendments to the telecommunications act[62] (TKG), which were scheduled to come into force later in the year. The points relating to network neutrality did not extend beyond the provisions in the European framework. The BnetzA will have the option of setting minimum quality of service requirements, along with obligations to inform users of any traffic management measures being taken.

In 2010, the BMWi together with operators and other stakeholders co-signed a paper on the occasion of its "national IT summit"[63].. With respect to regulation it says that

competition is seen as the most effective tool to deal with net neutrality issues and that there is no need for further interventions beyond the transposition of the common framework position into national law.

In 2011 and 2012 the BMWi organised three conferences with stakeholders to further investigate the topic. However the ministry's conclusions remained largely unchanged. On the occasion of the 3rd conference held in November 2012 Undersecretary of State Herkes stated that the German government trusted in competition and entrepreneurship[64] to ensure that internet can continue playing its vital role in achieving economic and societal progress;

That situation changed after DT's plan to cap its fixed broadband plans but not to take into account its own managed services against the monthly traffic allowance. The BMWi presented a draft decree on net neutrality in June 2013, specifying amongst others that managed services would not adversely affect the quality of best-effort internet. However, the decree was not adopted before the Federal parliamentary election in September 2013. The new ruling colation did not take up work again on the draft regulation and preferred waiting for an EU wide approach to net neutrality.

A review of the TKG to implement EU regulations was adopted by the government in August 2016 and sent to Parliament for vote.

In another move related to net neutrality, the Bundestag adopted a low on free selection of routers. So far, certain ISPs, notably on the cable market, obliged their subscribers to a certain CPE. This practice has thus been abolished by the law adopted in November 2015.

---

60. Bundesnetzagentur; available at: http://www.bundesnetzagentur.de/SharedDocs/Downloads/DE/Allgemeines/Presse/ Reden/2009/TaetigkeitsBerichtTK141209Id17889pdf.pdf?__blob=publicationFile&v=2; web site accessed August 2016

61. Results can be found at https://breitbandmessung.de/startseite/; web site accessed   August 2016

62. BMWi, available at: http://www.bmwi.de/BMWi/Navigation/Presse/pressemitteilungen,did=335206.html; web site accessed August 2016

63. BMWI, available at: http://www.bmwi.de/BMWi/Redaktion/PDF/IT-Gipfel/dresdner-agreement,property=pdf,bereich=bmwi20 12,sprache=de,rwb=true.pdf; web site accessed August 2106

---

64. BMWi, available at: http://www.bmwi.de/DE/Presse/pressemitteilungen,did=539988.html; web site accessed August 2016

7. Recommendations

Brazil could benefit from the European experience around the OTT markets. Like most European countries, Brazil is also facing some similar concerns and has to deal with large US-based players capturing strong market shares. Nonetheless, there are some major differences to be considered between Europe and Brazil before deep diving into the recommendations.

Europe is not a country but a group of countries, leading to fragmentation in terms of language and regulation to name a few, creating barriers for small players trying to expand in those markets. Regulation is indeed conducted at the regional level for some aspects and then implemented locally. The regional framework may remain vague/broad and can therefore lead to different interpretations and rules in Member States. Some of the regulatory issues that Europe is facing are in the end coming from this internal competition between European markets. This is for instance very clear regarding taxation, with different VAT regimes. Europe may therefore often arbitrate in favor of regional harmonization rules (especially with the initiative of the Digital Single Market).

Key findings for Brazil

Category of action	EU situation	Best practices for Brazil
Level playing field	Limited progress on telco vs OTT framework (old ECS and ISS definitions still apply), especially around OTT communications	Development at the geographical level to address US counterparts Non-sector specific rules on consumer protection and competition
Net Neutrality	EU rules with a clear framework with some variations at the Member State level Competition rules also still apply	Transparency rules (potentially through a code of conduct like in the UK) Providing room for specialized services Investigation of IP interconnection markets (France) Measurement of QoS and speed
Digital Platforms	No real progress yet (mainly consultations)	Non-sector specific competition rules UK CMA suggesting to update competition instruments (rather than rules) and to focus more on personal data
Taxation	Internal competition between Member States with different tax systems Harmonized VAT regime for e-commerce within Europe (country of destination regime) Fines on large OTT players	"Google tax "schemes before more global agreement on multinational taxation Country of destination rules
Privacy	Specific regional framework in place and being updated with new rules with GDPR Local rules may be more stringent (ex : Germany) Agreements with the USA being reconsidered (Safe Harbour) Competition rules also still apply Telcos have additional rules to follow	GDPR with more stringent rules and less administrative burden Interaction with the US to promote country of destination rules

Source : IDATE

7.1. Level playing field

Europe has not made significant progress regarding the question of level playing field. Numerous reports, including the recent BEREC report, are more and more considering that players with similar services should follow similar rules. One can expect in the end progressive deregulation of the telecom industry to rely more on horizontal measures and/or co-regulation, but it is too early to take Europe as a potential example for Europe. Obligations of telcos may be progressively rebalanced, even though many rules unlikely to evolve soon like emergency services or legal intercept in a context of growing terrorism threats. Specific rules for privacy specific for telcos are likely to become less .A few European countries already stand out like France asking for license for OTT communication providers, but he impacts of such measures are quite limited so far.

The main thing that could inspire Brazil is indeed the numerous cross-sectoral rules already being developed, applying to both OTT and telcos. This is indeed true for consumer protection, e-commerce and most privacy rules.

Commercial services and current obligations

Current categories	ISS provided by OTT or operators	ECS provided by operators
Commercial services	. E-commerce, web-based content . Hosting services . Search engines . VoIP pc-to-pc . E-mail services not "conveyed"by operators . Instant Messaging services	. Publicly Available Telephone . Service . SMS . Internet access . VoIP to and from PSTN . E-mail services "conveyed"by operators
Main, cross-sector obligations	Intermediary liability regime [1] Cross-sector privacy rules [2] Consumer protection rules [3] Content specific regulation (copyright, media pluralism, etc)	
Main Telecom-sector obligations		Interoperability [4] Net neutrality [4] Security and integrity [4] Emergency calls [4] Sector-specific privacy rules [4] Legal interception [4] [5]

(1) Directive 2000/31/EC of 8 June 2000, called the E-Commerce Directive.
(2) Directive 95/46/EC of 24 October 1995, called the Data Protection Directive.
(3) Directive 2011/83/EU of October 2011, called the Consumer Rights Directive.
(4) Telecom Package (see footnote 3).
(5) Directive 2006/24/EC of 15 March 2006, called the Data Retention Directive.

Europe is making more progress on the level playing field between countries more than between different types of players (OTTs vs telcos) but. Efforts are by nature concentrated on level playing field between Member States (or harmonization), but are expanding towards other countries also, especially USA. Initiatives around tax regimes and personal data are clearly heading towards such considerations.

7.2. Net Neutrality

Despite some variations over the years, Europe has defined and settled its own framework for Net Neutrality (different from the USA), in a context of intense internal competition between telcos, favored by pro-competition regulation lowering the barriers for new entrants (unbundling, bitstream, etc…). This European context is very important (and very different from the USA) to take into account for Brazil before using Europe as a potential benchmark.

Like in other regions, unfair traffic management, especially if targeting specific services from given providers (rather than targeting a category of services, especially in case of congestion), is generally restricted, except for some activities involving cybercrime, child pornography or security (like viruses). But Europe is not preventing otherwise traffic management, as long as transparency is offered. Traffic management is even quite frequently applied in the UK. Note that unfair traffic management may be addressed by non-specific competition law rather than Net Neutrality rules/framework, as already in the past in France (Cogent case) or Germany.

After numerous discussions and different orientations (initially with a very strict vision of Net Neutrality implying no discrimination at all and therefore less favorable for telcos), Europe has opted for an approach that can balance the innovation in monetization schemes for telcos, seen as a way to fund networks, and the innovation from OTT players to provide new services leveraging the networks. The idea is to not prevent the development of European champions, which are mostly telcos and/or verticals, whereas Europe is lagging behind for OTT providers (the rare key leading OTT players have often been acquired by US players like Skype, WhatsApp or Meetic). Therefore, telcos have generally the opportunity to offer discriminated QoS to consumers and/or businesses through specialized services and specific billing mechanisms for zero rating. There are some differences between Member States regarding possible discrimination for best effort Internet access, but generally this should not be affected by other services and Member States can even define a minimum level of QoS for best effort Internet. This is in reality quite complex to implement, but most Member

States are at least measuring Internet access performances like speed (compared to advertised speed) in order to take penalties if necessary.

The capacity to offer discriminated QoS is essential for some OTT applications (like video) and will become crucial for IoT/M2M; this is already something that can be done outside access networks with CDN and other optimization technologies. The important thing to consider here is that best effort Internet should not be impacted. Therefore, only technical solutions providing some form of positive discrimination should be tolerated: those are solutions for which extra resources are deployed to provide a better service. This is the case with caching servers in CDN technologies: the path is shorter if the content is cached but not longer otherwise; non-cached content delivery is therefore not impacted.

Among European NRAs initiatives, a very interesting and original one is coming from ARCEP in France with the monitoring of the IP interconnection markets. Indeed, except for unlimited flat rates, the main causes of the technico-economical issues for Net Neutrality are related to peering (directly or through CDN). It remains nonetheless to be seen if this initiative has had yet any positive impacts.

7.3. Taxation

Taxation is an area in which there is a clear unjustified imbalance between large OTT players and most other players (including telcos). Numerous reports have shown that OTT players are using legal tax optimization schemes to lower their income taxes and are opening local offices to leverage local tax regimes (especially VAT). These optimization schemes are partly implemented to optimize intra-European taxes. But even USA is facing similar concerns with the GAFA players

Regarding income taxes, the European Commission and some Member States have progressively taken strong reactions, with huge fines (Apple and the 13 billion EUR to be "reimbursed" to Ireland, though Ireland is not favor of this transfer) and/or so called "Google taxes" to capture some income taxes. The UK approach is similar but softer and therefore brings less money, but has allowed for faster recovery. The topic is nonetheless way broader than just OTT players. Indeed, as shown for instance by LuxLeaks, numerous multinationals from Europe and USA (including some telcos), have done similar optimization in Luxemburg. The issue is indeed more about multinationals, with nonetheless a more important intensity for OTT players only managing digital assets for which the local presence is harder to attribute. Again,

most of these optimization schemes are legal and exploiting loopholes. As digital revenues are becoming more and more significant (a third of the telecom revenues by 2020), policymakers will have to address this issue in order to try to balance the State budget. This should be addressed as much as possible at the global level, as all countries (except a few tax heavens) are facing similar concerns.

Europe has opted for a regime in which the country of destination local rules apply for VAT on telecommunications, broadcasting and electronic services since 1 January 2015. This is an appropriate and fair framework despite the negative effects cross-border traders in terms of additional administrative hurdles and cost. Some issues still need to be solved to ensure fair competition with non-European players, exempted from charging VAT to private customers under the 'small consignment import exemption' (i.e. low value consignments relief, often referred to as LVCR). Brazil, not having the issue of Europe fragmentation, has to rely on the "country of destination/consumption.

7.4. Digital Platforms

Platforms allow third parties to build new products and services on top of them, which can lower costs and stimulate the emergence of new players; however, platforms also benefit from a network effect in which players which gain scale tend to get some market advantage. This may create dependencies and competitive issues, especially for smaller firms which rely on them for advertising and marketing.

The issue of the impact of digital platforms and large OTT players has not yet been addressed by new policies and/or regulatory framework in Europe. The main question is about unfair competition from free/low-cost services, but this is partly limited by shareholders pressure (looking for profits). Non-specific competition law is therefore generally used in Europe, already quite often in the UK or Netherlands, and this should serve as the best practice for Brazil.

It is nonetheless rather slow and should therefore be improved to take into account digital markets specific characteristics (emphasize on network effects, economies of scale and use of data). Policy makers should update/adapt existing policy tools and instruments, but those tools should apply to any player and not just OTT players and digital platforms. Reactions need to be faster than traditional competition investigation, to be considered into the global environment (therefore more interaction with other competition authorities from other countries, as done by authorities around online hotel booking). UK's CMA also point out the need to reconsider the anti-trust assessment,

too much focused on infrastructure assets, while other assets like data and customer relationships need to be better taken into account. Indeed, in the context of platforms, rules around personal data (applying to any businesses) are the ones that need to be clarified. Europe also generally also insists on developing consumer protection, with more transparency on operations (including personal data protection and privacy) and consumer rights and responsibilities.

Europe stands out with an initiative regarding data portability within GDPR (targeting mainly cloud providers and social networks), as a solution to avoid lock-in or high switching costs. But it is too early for Brazil to go the same way and adopt similar approach. Indeed, such solutions have yet to prove that they can be really implemented technically and with benefits for the consumer compared to the associated costs. No standards or data formats have been yet established or promoted to make it workable for suppliers and customers.

7.5. Privacy

Data protection and security are considered by most some stakeholders to the area with telecom competition where the EU approach, especially in Germany, is substantially stricter than in the US (except may be for California), which has so far relied on a light-touched approach but with significant fines if rules are not respected.

EU has set its own rules with the GDPR with some of the highest standards in the world for privacy, updating the previous directive with some simplification (like data transfer) but also more constraints and with bigger financial penalties if actions are considered inappropriate or violation of the rules (maximum fines were set so far at 150K Euros in France, even for Google when they decided to cross the data from various services). Many of the rules proposed by GDPR should be considered as benchmark for Brazil. Nonetheless, finding the right balance will be necessary to avoid imposing too stringent rules. With a stricter framework for privacy, Germany stands out, but also always been a laggard regarding online advertising and analytics markets. Among the important rules, the more important fines, the right to be forgotten and the faster notification of breaches should be seen as improvements. The jury is still out for data portability (see above), while attractive theoretically, but also for explicit consent, which may negatively impact the markets.

The GDPR is also addressing a lot cross-border/international activities and is indeed seen a key component of the Digital Single Market to harmonize rules and facilitating

business within Europe as whole and even for cross-border activities. The idea is to apply somehow rules of the country of destination. GDPR will apply worldwide to any processing of the personal data of data subjects in the EU. This extended territorial reach affects every entity and individual doing business with the EU, even if they operate from a non-EU country. Note that nonetheless rules that will apply are the rules of the main establishment in EU, acting as one-stop shop for EU countries in case of cross-border activities.

The revision of the EU-US Safe Harbor into the EU-US Privacy Shield is following the same approach, with application of EU rights, even if operations or data is located outside the territory. This is a very important element that Brazil should take into account when designing its own rules.

Finally, EU countries like Germany and France are using more and more non-specific competition rules to tackle privacy issues. This is also something Brazil should consider.