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Rethinking Electronic Communications: Europe and the Others

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Annual Conference

On 27 May 2016, the Florence School of Regulation, Communications and Media Area (FSR C&M)

Robert Schuman Centre for Advanced Studies

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On 27 May 2016, the Florence School of Regulation Communications and Media (FSR C&M) held its seventh Annual Conference. Following the adoption of the new Digital Agenda by the European Commission in May 2015, the event sought to look at 'Europe and the Others' to discuss whether the European Union has put in place the correct policies so as to seize the opportunities offered by the digital economy. The Conference was divided into three sessions, which dealt respectively with (i) experiences of other jurisdictions and the lessons to be drawn with respect to broadband deployment, the use of mobile technologies and data protection in the online world; (ii) risks and opportunities facing the European electronic communications sector in the near future and insights for reshaping and modernising European regulation; and (iii) challenges related to the Internet of Things (IoT) and online platforms.

The event gathered different stakeholders together, which included representatives from National Regulatory Authorities (NRAs), international organisations, academia, and industry, as well as law and consulting firms. The diversity of views ensured a lively debate. While participants agreed on various issues, the discussion revealed the need for further research on those issues that have as yet not been sufficiently explored. This policy brief summarises the main points raised during the discussion and seeks to stimulate further debate.

Europe and the Others

The objective of the first session was to look beyond Europe and to discuss the experiences of other jurisdictions with a view to identifying interesting policy lessons that could be useful to further boost the widespread deployment and adoption of broadband technologies in Europe, and, more generally, to ensure that people and businesses can benefit from the opportunities brought by the Digital Economy.

First, participants looked at broadband deployment in selected Asia/Pacific countries (in particular, Hong Kong, Korea, Japan, Singapore, New Zealand and Australia), and benchmarked them with the EU. This comparison revealed that although broadband has been widely adopted, it is not very evenly distributed. For example, in terms of mobile data, Finland not only uses more data than anyone else in the world, but also the difference between Finland and other countries is quite substantial. With respect to statistical international comparison, participants stressed that in order to properly reflect and compare the status of broadband markets in individual countries, policy makers must proceed with caution and must take into account a range of indicators; in particular penetration, usage, coverage, price, services and speeds.[1] Only with a wide range of broadband indicators, can policy makers design and put in place effective broadband policies.

The discussion confirmed that levels of competition in national broadband markets continue to vary both among countries and between rural and urban areas within countries. In markets where end-users have a limited choice of broadband providers, prices for Internet access tend to be high. Participants also noted that there has been a remarkable evolution of broadband plans. For example, residential customers in Japan and Singapore are among the first to be offered 10 Gbps (at USD 90 and USD 131 monthly, respectively).

With respect to broadband traffic and pricing, a much discussed issue is the so-called zero-rating. This practice, which can take various forms, consists of not charging subscribers with limited or metered data plans for data that is used by specific applications or Internet services.

1. With respect to Internet speed, it is important to differentiate between the advertised speed and the actual speed that is provided by the Internet Service Provider (ISP).

Regulatory authorities across the world have adopted different approaches to zero-rating. While some consider it to be anti-competitive (as, among other things, it violates the principle of non-discrimination by a service provider with significant market power)[2] or, in contravention of net neutrality regulations (i.e., Canada, Chile, India, the Netherlands), others have chosen to refrain from taking any action against such conduct.

From an economic perspective, a distinction should be made between zero-rating that involves payment from content providers to Internet service providers, and zero-rating that does not involve any direct payment. In the first case, it may be possible to identify zero-rating as part of an anti-competitive strategy on behalf of a powerful content provider who seeks to gain even more market power. The Internet service provider could, in this case, be neutral if the payment received compensates for the loss of revenue on the data user's side. Often, though, zero-rating happens to occur in the second case, in which Internet providers initiate zero-rating programs to attract subscribers, riding on the positive network effects that powerful content providers trigger. In fact, the main pro-competitive effect of zero-rating is that it allows firms to differentiate the products and services that they offer, and it generates positive network effects which, in turn, increase consumers' welfare. As Eisenach notes:

> *"Most zero-rating programs are carrier initiated and do not involve payments to carriers by the providers of the zero-rated content. Particularly in the absence of payments, zero-rating cannot plausibly be characterised as anticompetitive foreclosure by content providers. Rather, to the extent that carriers elect to include certain content providers in a zero-rating plan, the decision reflects the carrier's unilateral determination that doing so improves the value of its platform".*[3]

Zero-rating may be an optimal strategy that exploits the positive multi-sided network effects of an Internet provider's platform. In this sense, it would not be anti-competitive and may also be welfare enhancing. Zero-rating is likely to be less of an issue when it is adopted in competitive markets and where data allowances are high

2. For example, if a given social media service is provided by mobile operators for free, while users of other services have to pay for the data consumed while using the service, there is a risk that, in such a case, zero-rating may discriminate unfairly between services, thereby harming competition and limiting innovation.

3. NERA Economic Consulting (2015), The Economics of Zero Rating by Eisenach, J.A.

or unlimited.[4] Regulatory authorities, however, should be cautious, as zero-rating can have detrimental effects on competition among content providers in markets with limited competition and demand-side lock-in effects. In any case, zero-rating constitutes a departure from strict net neutrality, which some consider to be a threat to Internet growth.

Attendees agreed on the need to analyse the compatibility of EU rules with domestic legal frameworks governing net neutrality, taking into account the ultimate goal of reaching a harmonised approach throughout the EU. Although, in some countries, such as the Netherlands, there are rules forbidding all price differentiation, so that no form of zero-rating is allowed, the new European regulatory framework seems to leave room for interpretation. BEREC guidelines are supposed to clarify most of the aspects that are located in this 'grey area'.[5]

Participants also discussed: (i) different forms of incumbent operators' separation – functional, structural and ownership - that have been adopted over time in various Asian countries, (ii) the extent of private and public participation in broadband projects; and (iii) the impact of both on broadband deployment. It was noted that while separation of the incumbent's wholesale and retail activities mostly concerned copper operations, recently this remedy has also been used in the context of Next Generation Access Networks (NGANs). The aim of the remedy is to prevent the accumulation of market power by firms deploying such networks, thereby limiting their ability to engage in anti-competitive behaviors. Structural separation with respect to NGANs has, for example, been adopted in Singapore, Australia and New Zealand. In these countries structural separation was preferred over functional separation as the latter was considered insufficient and/or inapplicable in the respective national contexts. [6]

Given the importance of broadband to the overall economy, various countries have decided to invest public funds to foster the development of communications markets. Public investment typically sought to extend access to underserved, mostly rural, areas and to upgrade existing networks with very high speed lines in areas where intense service competition is possible.[7] Participants deliberated about the right level of public investment in communications networks to reach a market structure that would leverage the necessary investment without the need for public intervention.

Next, the Conference attendees discussed the extent to which the EU model of regulation, which is based on the concept of Significant Market Power (SMP), can be meaningfully applied in other jurisdictions, in particular, Sub-Saharan Africa, which in many aspects exhibits different geographic and socio-economic features than the EU. One of the main differences concerns the importance of mobile communication in relation to other technologies. In Africa, mobile communication allows more people to be connected than any other technology. For instance, fixed broadband with 9.8 million connections has a penetration rate of 1.4 per cent whereas 198 million mobile broadband connections have a penetration rate of 17.2 per cent.

Participants remarked that the EU SMP framework was based on the *essential facilities doctrine*, as it was initially thought of as a solution to monopoly problems that were raised by fixed infrastructure.[8] However, the framework also applies to mobile communications markets. This implies that, as a matter of principle, the EU model does not necessarily need re-thinking in order for it to be applied in countries where the fixed network has scant penetration and is unlikely to become ubiquitously available. If properly understood and implemented, the SMP framework is sufficiently flexible to account for the specificities of mobile markets. However, in order to benefit from this flexibility, regulatory authorities need to have sufficient resources that will allow them to properly define relevant markets that are in need of regulatory intervention, instead of simply using the EU 2003 or EU 2007 list of markets that are susceptible to ex ante regulation. The problem is that some countries may

4. OECD (2015) Digital Economy Outlook.

5. BEREC (2016), Draft Guidelines on the Implementation by National Regulators of European Net Neutrality rules.

6. Functional separation, which represents a stricter form of operational separation, requires the creation of so-called 'Chinese walls' to separate the incumbent\s wholesale division from its retail division. In Europe, for example, this model was adopted in the UK with Openreach.

7. In New Zealand, for example, the government adopted the Ultra-Fast Broadband (UFB) Network initiative, under which it allocated NZD $1.5 billion to FTHH deployment, with a view to reaching 75% of households and businesses. The remaining 25% should be reached under the Rural Broadband Initiative.

8. This is, of course, because fixed communications markets have traditionally been characterised by the presence of a monopolist incumbent who benefited from exclusive rights granted by the State. Accordingly, to address problems raised by the presence of such incumbents, the EU developed its regulatory framework on the premise that market failures had been caused by the accumulation of market power by one firm.

mechanically incorporate the forms of the EU model, without really embracing its substance and its main underlying principles.

Participants acknowledged that effective enforcement of the EU regulatory framework is fully dependent on the independence of NRAs. Some participants remarked that the independence of the authorities seems to be working well as long as there is no economic and financial crisis. When independence is not assured, ensuring effective competition in the communications markets becomes particularly challenging, especially when, in a given country, there is no competition authority that will enforce competition law *ex post*. Lack of competition enforcement is important, in particular, in the light of the last criterion of the EU *three criteria test*, which is used to determine whether a given market should be regulated. The requirement is that competition law alone must be insufficient to adequately address a given market failure.

Attendees finally concluded that while the EU electronic communications regulatory model has a number of advantages and is sufficiently flexible to be meaningfully applied in other jurisdictions, it also suffers from various shortcomings which need to be addressed. For example, functionally equivalent services are sometimes regulated differently.[9] According to the BEREC Report, "OTT-1" services are defined as services that potentially compete with traditional electronic communications services, but that do not qualify as such. The EU electronic communications regulatory model may also not be best suited to address freemium products (or multi-platform businesses). In fact, in accordance with the definition provided by the Framework Directive 2002/21/EC, an electronic communications service is a service normally provided *for remuneration* (emphasis added). As such, freemium services fall outside the scope of the application of the Regulatory Framework.

To conclude the first session, participants discussed potential privacy issues that are raised in the context of electronic communications. It was noted that the European Directive 2002/58/EC, also known as the 'e-privacy Directive' complements the existing data protection regime and sets out more-specific privacy rights on electronic communications. The framework, in particular, covers: (i) marketing by electronic means, including marketing calls, texts, emails and faxes; (ii) the use of cookies or similar technologies that track information about people accessing a website or other electronic services; (iii) the security of public electronic communications services, and (iv) the privacy of customers using communications networks or services as regards specific aspects. One of the aspects that certainly raises many questions is the extent of the territorial scope of the Directive in a context where local data protection authorities are increasingly scrutinising cross-border data processing transactions. There is a need for worldwide companies to identify exactly whether, and which, EU data protection law(s) apply to the processing of personal data that takes place either wholly or partially outside of the EU.

Participants pointed out that some of the Privacy and Electronic Communications (EC Directive) Regulations 2003 (PECD) rules, which are directly derived from EU law and aim to implement the e-privacy Directive, only apply to organisations that provide a public electronic communications network or service. However, certain provisions may apply to firms, even if they are not a network or service provider. In particular, the PECD will apply if a company: (i) markets by phone, email, text or fax; (ii) uses cookies or a similar technology on their website; or (iii) compiles a telephone or a similar public directory. Participants also pointed out that while privacy has long been recognised as one of the fundamental social values, the emergence of a market for data calls for a better understanding of the value of that data and of how data protection regulation affects businesses. For example, it was noted that, in terms of marketing, the choice to use opt-in or opt-out as the default option has a significant impact on online firm's revenues.[10]

Europe looking at the future

During the second session of the Conference, participants examined the evolution of the communications markets in the EU and the challenges facing both the market players and NRAs. In particular, the discussion focused on (i) the issues raised by the transformation of fixed communications markets from monopolistic to oligopolistic structures, and (ii) the challenges posed by the standard access regulation.

9. BEREC (2015), "Report on OTT services", BoR (15) 142.

10. The terms 'opt-out' and 'opt-in' refer to options given to individuals to either avoid receiving unsolicited marketing materials, or to indicate their interest in receiving such materials.

Fixed communications markets and the evolution from monopolistic to oligopolistic structures

In Europe, one of the key objectives of the Digital Agenda is the transition to NGANs. First, participants reflected on the evolution of the communications markets in Europe, and, in particular, on how the situation has changed with the deployment of fibre. Whereas, in the past, national communications markets in the EU Member States were characterised by the presence of a single fixed infrastructure owned by the incumbent operator, nowadays, a number of markets can best be described as (tight) oligopolies, i.e., highly concentrated markets in which a few firms are dominant. In some countries, this is due to the head-to-head competition between cable and telecoms operators, which has completely changed the competitive dynamics of the sector. For example, in 2011, around 80 per cent of fibre lines were provided by new entrants, i.e., by cable firms, whereas in 2015, the fibre lines provided by such firms accounted for 55 per cent.

Participants conceded that whereas the concept of single firm dominance had come to be well understood, joint dominance, or tacit collusion, has always been, and continues to be, one of the most elusive concepts in European competition law. Given that fixed communications markets have moved away from the traditional notion of single dominance to more oligopolistic structures, participants pondered about whether there is any need to adapt the current regulatory framework in order to address potential competition problems that may arise in terms of joint dominance. The main concern was that if the concept of joint dominance is not properly used, the risk of collusion in the electronic communications sector may remain unaddressed, thereby causing harm to consumers.[11] For example, in the Netherlands, the position of both the incumbent and the cable operators is equally balanced in terms of market shares, which illustrates the disappearance of the traditional single dominance position. However, this does not necessarily mean that the market is effectively competitive. Participants discussed whether the current regulatory regime is able to address this duopolistic situation in an optimal way, and they stated that it probably is not. In particular, there is a risk of potentially costly errors: if, following a withdrawal of access regulation, access seekers disappear from the market, then they will not return very easily, even if access regulation is reintroduced. Even in oligopolistic markets, access regulation cannot be considered useless. In fact, the total absence of regulation may lead to the creation of an environment that is quite conducive to coordination. Hence, the participants agreed that access regulation is still necessary.

However, attendees also remarked that standard access regulation fails to adequately address the duopoly problem. Horstmann et al. (2016), for example, argue that a duopoly leads to suboptimal market outcomes, since it is prone to tacit collusion and produces high static inefficiencies.[12] It was also noted that asymmetric regulation in a symmetrical duopoly may be inefficient as access regulation reduces the incentives of regulated telecoms firms to invest in respect of cable operators that are not subject to access regulation.

An additional assessment was conducted using a comparative analysis of other markets, where there is no access regulation, as is currently the case in the US. One might wonder whether this market delivers the optimal outcome for consumers. Conference attendees came to the conclusion that it probably does not, taking into account the facts that prices are quite high and competition is scant.

Finally, some participants submitted that, ideally, access regulation should secure markets with at least three infrastructure-based players since, with two players, the risk of tacit collusion and high static inefficiencies is high. However, when less than three fixed infrastructure-based operators effectively compete, all fixed infrastructure should be subject to sharing obligations. Such regulation should then be symmetrical so as to secure fair competition and investment incentives. It should also be imposed according to a division into different local areas, at one single access level per area, as well as per infrastructure.

11. For analysis of competition issues that are raised by oligopolistic structures in the communications sector, see, for example, BEREC (2015), Report on oligopoly analysis and regulation.

12. Horstmann, N., Kraemer, J. and Schnurr D. (2016), *Number effects in oligopolies: How many competitors are enough to ensure competition?* Working Paper. SSRN 2016.

The Challenges Posed by Standard Access Regulation

The question of whether access is necessary in oligopolistic communications markets led to a wider debate about the degree to which regulators' choices on access can shape the market.

The Conference attendees noted that network access regulation continues being a topic of great impact. In the light of the European Commission's public consultation on the evaluation and the review of the regulatory framework for electronic communications,[13] the first strand of the debate focused on the analysis of the main trends that have recently emerged at the EU level.

Participants stressed the importance of properly identifying circumstances that can justify access regulation, and they discussed how this regulation should look. They also remarked that two main views can be distinguished when analysing the results of the consultation. One is that of the incumbents arguing that lighter access regulation would increase returns, and therefore the incentives to invest. According to them, the ultimate result would be more dynamic competition, and, eventually, a better deal for users. On the other side, parties relying on regulated access claim that regulation is necessary in order to create competition, as long as it allows a sufficient level of investment. As both positions offer perspectives that are definitely interesting, everybody agreed that they would need to be balanced. Furthermore, as these two opposite views agree, at least on the necessity to ensure sufficient investments, this strand of the debate was followed by a discussion on the determination of the optimal level of competition that is needed to encourage a sufficient level of investment, as well as other challenges that are posed by standard access regulation. In particular, participants discussed the challenges posed by standard access regulation, such as: (i) the conflict among the various objectives of the regulatory framework, and investment as one of them; (ii) support of inefficient market structures by regulation, and (iii) the lack of an adequate approach to collective dominance.

First, concerning the impact of regulation on investment, conference attendees noted that while access regulation normally facilitates competition based on existing infrastructure, it deters private investment in NGANs, which should replace old networks. It was argued that under the standard access regulation regime, investment benefits are shared with competitors and, consequently, there is no incentive to invest, especially when private investors have to bear all the financial and policy risks themselves. Notably, the argument is supported by an extensive economic literature analysing the impact of competition on firm-level investment, as well as the strategic effects underlying infrastructure investment decisions. Bourreau *et al*. (2012), for instance, use game theory to analyse the incentives for incumbents and entrants to migrate from 'old' to 'new' technology, i.e., the NGA network.[14] They find that NGA-related investment incentives are negatively impacted upon by access regulation charges in the 'old' copper networks.

Second, participants focused on the claim that standard access regulation supports inefficient market structures. It was recalled that the aim of the regulatory framework was to convert monopolistic into competitive markets, and that, accordingly, the framework was designed to unconditionally support entry. This view has been further reinforced by the EU case law on margin squeeze.

Some participants, moreover, voiced concerns that with the ongoing convergence between fixed and mobile communications, there is a risk that the regulatory framework could result in duopolies. Given that the current framework does not secure fixed access for pure Mobile Network Operators (MNOs), there is a risk that they could be driven out of the market when, for example, two fixed network owners also have a mobile network and compete on the provision of convergent fixed-mobile offers. In such a case, a pure MNO could not survive in the market by serving mobile customers only.

As for the wholesale price, it has been shown that the relevant cost standard for the Economic Replicability Test (ERT) is incompatible with the economics of NGA networks when including both fully fixed and variable

13. The above-mentioned consultation took place from 11th September, 2015, to 7th December, 2015. The Commission launched it in order to gather input from Member States, its regional and local administrations, NRAs, technology providers and broadcasters, among others, with the objective of (i) aligning the general framework with the market and technological developments; and (ii) contributing to the Digital Single Market Strategy.

14. Bourreau, M., Cambini, C. and P. Doğan (2012), 'Access Pricing, competition and incentives to migrate from "old" to "new" technology', *International Journal of Industrial Organisation*, vol. 30, pp. 713-723.

costs' recovery for the access seeker. This entails that only the variable part of the wholesale price should be subject to the ERT, as otherwise the price will conflict with the risk sharing principle.

Finally, participants also reflected on issues raised by the coverage of non-profitable areas. In this context, it was pointed out that it is investment that is unprofitable, not the operations. This, in turn, implies that the need for public intervention should be limited to investment only.

Finally, the Conference attendees raised the issue of how to solve the competitive bottleneck problem and to ensure consumers' protection at the same time. In the Netherlands, for instance, the Authority for Consumers and Markets (ACM), which combines sector-specific regulation with competition powers, has a particular focus on generating improvements in consumer welfare. Within this framework, the ACM plays a key role by applying a problem-oriented approach to all the sectors that fall under the umbrella of its action-based competences, including electronic communications. Finally, attendees pointed out that consistent efforts are also required on the NRAs' side in order to implement consumer protection.

Europe and Digital Technology

The final session of the Conference was preceded by a keynote speech that focused on the reassessment of regulation and the Internet of Things (IoT).

The IoT is not a new concept, since the term had already been coined in 1999 by Kevin Ashton. It essentially refers to the system of interconnected devices that provide a whole spectrum of new and innovative services by transferring data over a network. While it is difficult to predict exactly how the IoT will evolve, it will most certainly affect numerous sectors of the economy to different extents and at different speeds. What is also certain is that the IoT is likely to create new regulatory challenges in various policy areas.

The keynote speech focused on three main areas concerning privacy: (i) the collection and control of information; (ii) the effectiveness of privacy policies, and (iii) the need for a multi-level regulatory response.

The first part of the debate dealt with privacy issues. Privacy policies are meant to ensure that users know what kind of information about them is being collected; who controls the information collected and how it will be used. It is therefore essential that users are able to make a choice, which is to be understood as the ability to express the lack of consent to data collection. According to the EU's new legal framework, which is contained in the General Data Protection Regulation (GDPR), consent must be (i) freely given, specific, informed and unambiguous; (ii) it must be expressed in a statement or by a clear affirmative action; and, last but not least, (iii) it should be easy to withdraw at any time without having to stop the use of the service provided.[15] 'Silence, pre-ticked boxes or inactivity' are also deemed inadequate to express consent, and so would an informed consent given by an individual in a position of subordination, e.g., an employee, since it is presumed not to have been 'freely' given.

A declaration to obtain consent must be presented

> *"in an intelligible and easily accessible form, using clear and plain language and it should not contain unfair terms. For consent to be informed, the data subject should be aware at least of the identity of the controller and the purpose of the processing".*[16]

However, as participants noted, with the proliferation of connected devices, the effectiveness of privacy policies is being seriously challenged. According to some research (McDonald and Crano, 2008), end-users would have to spend an average of 76 working days to read all the privacy policies that are encountered in one year.[17] With intermittent attention, users are unlikely to fully appreciate privacy risks. The problem is further compounded by the fact that these complex and long privacy policies may become very ineffective when users access them on small screen devices. This is because the small size of a screen can make these privacy policies more difficult to read and understand.

To fully understand the problem of privacy in the context of the IoT, one should think of these connected devices as a source of a great wealth of interconnected

15. Article 29 Data Protection Working Party (2014), Opinion 8/2014 on the Recent Developments on the Internet of Things.
16. Regulation 2016/679 of the European Parliament and of the Council of 27th April, 2016, on the protection of natural persons with regard to the processing of personal data and of the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation), O.J. [2016] L119.
17. McDonald, A. and L.F. Crano (2008), 'The Cost of Reading Privacy Policies', *A Journal of Law and policy for the Information Society.*

information - both non-personal and personal - that can be tracked and used. Moreover, personal information can be analysed to identify patterns in people's behavior, with the risk of being exploited. Participants agreed that adopting effective privacy policies and conveying to users meaningful information about potential privacy risks, will remain a formidable challenge tofor policy makers.

Another serious concern that was discussed by the conference attendees was the impact that the IoT has on 'intimacy', given that connected devices allow for enhanced monitoring, tracking in public spaces and unconsented capture. Participants seemed to agree that as more data is now collected, regulation should give greater power and control to users. At the same time, producers should enrich their products with "privacy-by-design" features to overcome the difficulties that users have in reading and enacting stricter privacy settings on their devices.

Given the qualitative and quantitative changes in the use of devices that has been brought by the IoT, participants agreed that policy makers should continue to take privacy very seriously. Moreover, in the light of the global character of the IoT, discussions about solutions to privacy issues should take place, not only at the national and regional levels, but also at the international level.

After the keynote speech, the final session of the Conference 'Europe and Digital Technology' focused mainly on (i) online platforms and the Digital Single Market (DSM); (ii) the regulatory challenges of the IoT in the UK; and (iii) the importance of 5G for the delivery of new levels of on-device intelligence and integration.

Online Platforms and the Digital Single Market

As part of its DSM Strategy, the European Commission made several different announcements on the 25th May, 2016. In particular, it adopted a new legislative proposal amending the Audiovisual Media Services Directive (AMSD);[18] which outlined a targeted, principles-based approach to online platforms;[19] and proposed new e-commerce rules to help consumers and firms reap the full benefits that are offered by the Single Market.[20]

Online platforms feature prominently in the Commission's agenda as they play an essential role in the DSM Strategy. They are strong drivers of innovation, increased consumer choice, the improved efficiency and competitiveness of the industry, and they can enhance civil participation in society. Online platforms, which can operate in two or multi-sided markets and across geographic borders, often provide free services to consumers. They are already subject to existing EU rules in areas such as competition, consumer protection and Single Market freedoms.

Given the diversity of online platforms in terms of size, type of services offered, business model or the sector in which they operate, it is not surprising that there is still no single all-encompassing definition. One possible set of definitions, proposed by Godlovitch *et al.*,[21] distinguishes between managed and online (unmanaged) services. While for managed services the network operators typically have some control over the quality of the service (QoS) delivered, the main characteristic of online (unmanaged) services is that network operators usually have a very limited influence over the QoS. OTT services, which compete to some degree with traditional telecommunications or broadcasting services, fall under the latter.

Conference attendees reviewed the approach that has been adopted by the European Commission concerning online platforms in order to discuss the overall principles governing the matter. They agreed that future regulatory measures proposed at the EU level must address clearly identified problems relating to a specific type or activity of online platforms, pointing out that principles-based

18. "Proposal for a Directive of the European Parliament and of the Council amending Directive 2010/13/EU on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the provision of audiovisual media services in view of changing market realities", COM/2016/0287 final.

19. "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Online Platforms and the Digital Single Market Opportunities and Challenges for Europe", COM/2016/0288 final.

20. On 25th May, 2016, the European Commission tabled a package of measures to allow consumers and companies to buy and sell products and services online across the EU more easily and confidently. This so-called "e-commerce package" is composed of: (i) a legislative proposal to address unjustified geoblocking and other forms of discrimination on the grounds of nationality, residence or establishment; (ii) a legislative proposal on cross-border parcel delivery services to increase the transparency of prices and to improve regulatory oversight; (iii) a legislative proposal to strengthen the enforcement of consumers' rights and guidance to clarify, among other things, what qualifies as an unfair commercial practice in the digital world. It is worth mentioning that the package complements two legislative proposals on the supply of digital content and on online and other distance sales of goods, which the Commission proposed in December 2015, and the upcoming VAT simplification proposal that is planned for autumn 2016.

21. Godlovitch I., Kotterink B., Marcus J.S., et al (2016), 'Over the Top Players: Market dynamics and policy challenges", study for the IMCO Committee of the European Parliament.

self-regulatory and co-regulatory measures can also play a role.

Attendees concluded that, as a matter of principle, similar services that compete with one another should be subject to similar obligations. However, this seemingly straightforward principle is difficult to apply in practice. In order to put in place adequate regulatory measures, therefore, it is necessary to understand, firstly, how online platforms differ from other online services, and whether regulatory obligations governing online platforms and other online services should differ. The second step is to ponder whether there are inappropriate asymmetries between OTT services and other Electronic Communications Services (ECS) today, and, should the answer be 'yes', whether they can be reduced by (i) selective regulation; and/or (ii) a shift away from sector-specific regulation to horizontal regulation; and/or (iii) an effective revision of horizontal regulation (e.g., making current sector-specific end-users' rules protecting not only the consumers, but also other end-users, such as Small and Medium Enterprises (SMEs).

Finally, participants noted that the great majority of large online service providers are US-based. Although Europe is not inherently weak, the continent still faces a few challenges in the online services markets. The weakness of European entrepreneurial culture, the complex and inconsistent taxation and the resistance to process changes, among other things, certainly represent some of the main issues with which players need to deal.

Certainly, there are signs of recovery, but, overall, results are mixed. In fact, while, in terms of online services, start-ups in Europe are almost closing the gap with the United States, scale-ups, i.e., start-ups seeking to grow their business to the next level, have so far not been equally successful.

The Internet of Things: Regulatory issues in the UK

Next, participants discussed regulatory challenges raised by the IoT from the UK's perspective. The IoT services, which affect many industries, ranging from healthcare, agriculture to energy, communications, and many others, have the potential to bring significant benefits to consumers. To ensure that these benefits are fully delivered, in 2014, Ofcom published a call for input, with a view to identifying the potential barriers to investment and innovation in the IoT and the role that Ofcom could play in helping to overcome these barriers. Following the feedback received from various stakeholders, Ofcom identified four priority themes: (i) data privacy and consumer literacy, (ii) network security and resilience, (iii) the availability of spectrum for IoT networks, as well as (iv) telephone number and address management.[22]

In terms of data privacy and consumer literacy, Ofcom concluded that future developments in the IoT sector require a framework under which consumers would be able to authorise the conditions under which data collected by their devices is used and shared by others.[23] With respect to network security and resilience, an increasing use of IoT services will require further improvements, not only in respect of the resilience of the networks, but also of secure storage and the processing of collected data.

In terms of spectrum, although Ofcom does not currently consider spectrum availability to be a barrier to the development of the IoT, it acknowledges that it is necessary to monitor its evolution, as the spectrum requirements for the IoT services, in the longer term, are still uncertain. In the short to medium term, existing initiatives should be sufficient to meet spectrum demand for IoT services. These initiatives include, for now, making available spectrum in the 870/915MHz bands and liberalising licence conditions for existing mobile bands. The general consensus was that, as the IoT sector develops, in the longer term there may be a need to make new bands available. Finally, in respect of addressing the network, Ofcom concluded that instead of telephone numbers, IoT services "will likely either use bespoke addressing systems or the IPv6 standard".[24]

Participants then made some concluding observations about the challenges faced by the IoT. First, they stressed that while regulation is unlikely to drive the further evolution of the IoT, competent regulatory authorities should ensure that they do not hamper it. Second, given that heterogeneity is one of the most striking features of the IoT, "any steps taken to promote investment and innovation in the IoT will need to acknowledge this diversity".[25] In particular, the success of the IoT will

22. See, for example, Ofcom (2015), Promoting investment and innovation in the Internet of Things: Summary of responses and next steps.
23. Ofcom (2015).
24. Ofcom (2015).
25. Ofcom (2015).

depend on open and interoperable standards, since the IoT encompasses a heterogeneous collection of technologies. Some of these technologies are licence-free, whereas others are not. The international harmonisation of spectrum and standards is also expected to bring significant benefits as it will help to achieve international economies of scale and lower costs for consumer equipment. Finally, in terms of institutional interactions, there is scope to bring different parties together.

5G and the delivery of new levels of on-device intelligence and integration

Last, but not least, participants discussed the role of 5G in the context of the EU Digital Single Market. It was recalled that 5G is expected to constitute the backbone of the EU Digital Single Market as it is a kind of network that offers a huge potential that has yet to be unleashed. It enables new services and an empowering new user experience. However, the key challenge is to put in place predictable policies, both at the EU and at national levels, which will lead to an actual deployment of 5G. Various participants agreed that the success of 5G depends on secure and reliable standards that are essential to ensure the interoperability of systems. Standards, in fact, are seen as the foundation of an effective Digital Single Market, which is reflected by the fact that 5G standards are one of the five priority areas under the EU's "Digitising European Industry" initiative.[26] However, the main challenge is that the landscape for 5G and IoT standards is currently rather fragmented.

26. For more information on the initiative please visit Digitising European Industry website.

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