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**DIGITAL PLATFORMS
DATA GOVERNANCE
ARTIFICIAL INTELLIGENCE
MEDIA & CONTENT
DIGITAL INFRASTRUCTURE**



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INTRODUCTION

Europe is in the midst of a digital revolution. It offers opportunities for people and for business, but also brings about challenges at an individual and societal level. To enable Europe to deliver both innovation and fairness, and to support this digital revolution while empowering citizens, policymakers must address some critical issues. However, in order to see the challenges that lie ahead, it is worth highlighting what has been achieved in the past five years

The Digital Single Market (DSM) strategy adopted in May 2015 has remained one of the Commission's key priorities throughout its mandate and was centred on three broad objectives. First, delivering better access to digital good and services, in particular by removing barriers to cross-border e-commerce and online content. Second, fostering an environment for digital networks and services to grow through the provision of high quality infrastructure and appropriate regulation. Third, using digital technologies to drive economic growth.

The European institutions have had some notable achievements in the past five years. At a broad level, a mix of hard law (Regulations and Directives) and soft law (recommendations and guidelines) have helped the move towards the harmonisation of rules across the EU. Significant effort has also been made to harmonise national-level enforcement, through the improved operation of regulatory agencies and by enhancing their cooperation at a European level. Alongside these regulatory actions, non-regulatory tools have also been used to further develop the DSM, such as the use of benchmarking to help the sharing of best practice among Member States, the targeted use of EU funds for digital initiatives and the implementation of policy action plans to better coordinate EU and national digital policies.

In facilitating e-commerce, the emergence of online platforms and the provision of online services, European policy has removed some barriers with the DSM: allowing for cross-border portability of some content, a prohibition on unjustified geo-blocking, new copyright rules and a simplification of VAT procedures. Several national rules governing the operation of online platforms have been harmonised, particularly for platforms offering audio-visual media services and for platforms hosting illegal or harmful content. While e-government and the online provision of public services remains a national competence, European policymakers have at least attempted to facilitate the sharing of best practice.

Access to, processing and the control of data have emerged as critical issues in recent years and are vital both to protect European values and fundamental rights, but also to enable a new wave of technological developments including Artificial Intelligence. The Juncker Commission eased data location requirements and harmonised several national rules to facilitate cross-border data business and the movement of data, and EU funding has been made available to stimulate the development of Artificial Intelligence research and development. At the same time, the General Data Protection Regulation and the Open Data & Public Sector Information Directive have secured privacy protection for citizens. In addition, the establishment of the European Data Protection Board will help harmonise enforcement of these regulations throughout the Union. However, questions are already emerging as to whether such regulations are sufficiently future-proof, in light of developments in Artificial Intelligence and data processing.

At a broader level, more general consumer protection provisions have been updated to account for the particular characteristics of the digital economy, including the lack of monetary prices for some services or the difficulties in understanding the functioning of algorithms. At a systemic level, greater attention is being paid to cybersecurity threats, with improved cooperation between national agencies, the emergence of ENISA as an EU-level cybersecurity agency and the establishment of a new EU Competency Centre.

The benefits of the digital economy cannot be delivered without reliable, modern infrastructure. The Commission's strategy on Connectivity for a European Gigabit Society, adopted in September 2016, called for 5G coverage for all urban areas and connectivity offering at least 100 Mbps for all European households, by 2025. While the ambition of such targets is commendable, their achievement cannot be taken for granted.

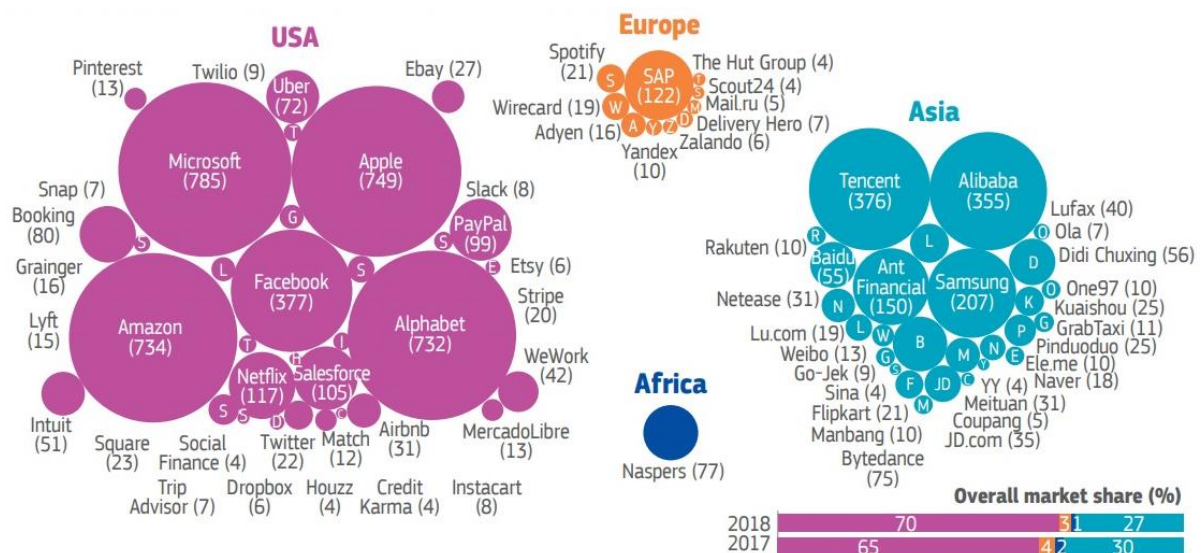
The regulatory framework was substantially revised and adopted as the new European Electronic Communications Code (EECC) to better align with the connectivity objectives. Rules have been further harmonised to ease market entry and promote more efficient use of spectrum, while cross-border issues like roaming have also been successfully tackled.

Despite the achievements of the past five years, much work remains to be done.

Effective implementation of the many regulatory & non-regulatory actions that have been taken is far from guaranteed. Implementation will need to be harmonised across the Union and the efficiency and effectiveness of the enforcement will have to be evaluated. In addition, the rapid evolution of technology and markets, and their importance to the European economy and society, mean that the pace of reform will have to be sustained. However, at the same time, policymakers must do more to assess the impact of regulation - legislative or regulatory action in itself should not become the objective in itself.

In the platform economy, Europe is certainly able to produce promising technology companies and world class computer scientists, mathematicians, and software developers. Yet European-based platforms continue to lag behind their North American and Asian competitors when it comes to global market share.

Figure 1: Market valuations of online platforms by continent, in \$bn (December 2018)



Source: Dr Holger Schmidt (TU Darmstadt/Netzoekonom.de)¹

¹ EU Industrial Policy After Siemens-Alstom: Finding a new balance between openness and protection, European Political Strategy Centre, 2019

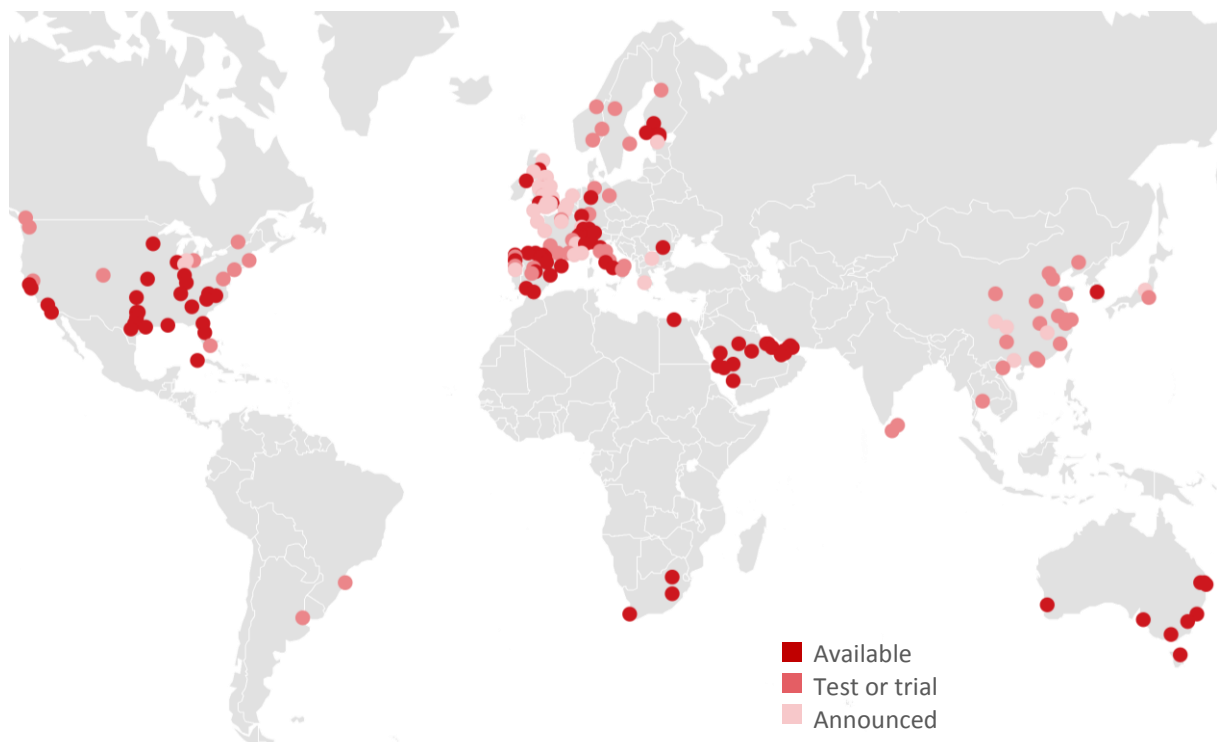
European policymakers will need to do more to stimulate the start-up and scale up of platforms within Europe, particularly by enabling access to larger funding rounds.

Data portability will become an ever more pressing issue, while data protection law will need further revision to make it compatible with emerging AI technology. The entire field of Artificial Intelligence will raise numerous ethical and legal concerns – fostering trust in, and the adoption of, such new technology will be a significant challenge.


The media sector has been fundamentally transformed in the past decade and European policy has been slow to keep up. Challenges to fundamental rights and the well-being of European citizens are emerging from many sides: on the one hand, the ability of harmful and illegal content to spread rapidly will need to be checked, while on the other, governmental overreach and threats to freedom of expression will be defining challenges in the coming years. The structure of the media landscape, including issues of ownership structures, media pluralism and the balance of power between those investing in content production and those aggregating and distributing it, will also require careful monitoring.

Finally, if Europe is to achieve its ambitious connectivity targets, some significant obstacles must be overcome. In the 5G race, despite some early success in setting up test programs in Europe, other regions are racing ahead in making the technology available to businesses and consumers. In the US, operators have been rolling out 5G connections in major cities since 2018 and are expected to move toward nationwide coverage in 2020. China is the world's largest 5G market and has been gradually rolling out pilot projects; it is expected to extend coverage to 40 cities over the summer of 2019. On the other hand, 5G is relatively unevenly distributed throughout Europe and most European countries won't see deployment of 5G until 2021.

Figure 2: Global 5G roll-out



Source: 5G Observatory up to March 2019 and POLITICO research



The development of 5G along with very high capacity fixed networks, such as fibre, will require substantial levels of investment, including from public sources. Policymakers will have to grapple with how to organise this efficiently, and consider to what extent the connectivity targets should be universal. However, maintaining a competitive marketplace through effective implementation of the Electronic Communications Code will also be vital to unlocking the levels of private investment required, particularly in the case of 5G infrastructure.

The incoming European Commission and Parliament therefore inherit both significant achievements and fundamental challenges. To help address those, we deliver ambitions and recommendations across four key areas: digital platforms, data governance and AI, media and content, and digital infrastructure.

01

DIGITAL PLATFORMS

AMBITIONS

- 1** Ensure an innovation level playing-field and market contestability
- 2** Empower digital users
- 3** Give the appropriate incentives for a safe Internet to all players
- 4** Rely on smarter rules

STATE OF PLAY AND ISSUES

In the digital age, **consumers' attention** is an important resource and all online content and service providers (CSPs) are competing for this resource in one way or another. This is also why platforms have taken on a special role in the Internet economy. The very purpose of platforms is to aggregate the attention of many consumers by organising products, services, content or other commercial or non-commercial offers in an effort to facilitate the search process (for products, services or information) of consumers' and to enable better matches or allocations. Examples of this are search engines, booking platforms, social media platforms, ride-sharing and accommodation-sharing platforms or shopping platforms.


In this manner, **online platforms are powerful engines for growth and innovation**. They allow small professional users to reach out to millions of customers at very low cost, they increase customers and traders' information and, in the end, they allow the development of new and disruptive business models.

In order to aggregate enough attention, a platform must offer something that is considered to be sufficiently 'useful' by a large number of consumers. Then, it can **monetise this attention by selling third-parties access to it**. Those third-parties can be advertisers, which are allowed to place advertisements while consumers are using the platform, but those third-parties can also be any other commercial entity, whose products or services can be discovered and bought by consumers via the platform. In the following, we will denote these third-parties simply as *the other market side* or as *business users*.

Digital platforms have been at the centre of the policy debate regarding digital markets as they exhibit a number of economic **characteristics** that may challenge traditional approaches and raise several policy concerns.²

- 1) Digital platforms are online **intermediaries** that bring together two distinct user groups (e.g. buyers and sellers) between whom indirect **network effects** exist. This means that at least one of the two user groups values participation on the platform more, the more users of the other group are present on the same platform. These network effects may lead to a winner-takes-all phenomenon, whereby the market 'tips' to the largest platform in a given market, defying the traditional notion of competition *in* the market. Therefore, one of the challenges in platform markets is to keep markets contestable, i.e. to foster the possibility of entry by new competitors, leading to competition *for* the market.

² See Jacques Cremer, Yves-Alexandre De Montjoye, & Heike Schweitzer, Euro. Comm'n, Directorate General For Competition, Competition Policy For The Digital Era (Apr. 4, 2019), <http://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf>; Jason Furman Et Al., H.M. Treasury (U.K.), Unlocking Digital Competition: Report of the Digital Competition Expert Panel (March 13, 2019), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/785547/unlocking_digital_competition_furman_review_web.pdf; Austl. Competition & Consumer Comm'n, Digital Platforms Inquiry: Preliminary Report (Dec. 2018), <https://www.Accc.Gov.Au/System/Files/Accc%20digital%20platforms%20inquiry%20%20preliminary%20report.Pdf>; Japanese Ministry of Economy, Trade, & Industry, Fundamental Principles for Rule Making to Address the Rise of Platform Businesses Formulated, (Dec. 18, 2018), https://www.Meti.Go.Jp/English/Press/2018/1218_002.Html ; Heike Schweitzer Et Al., German Bundesministerium Wirtschaft und Energie, Modernising the Law on Abuse of Market Power: Report for the Federal Ministry for Economic Affairs And Energy (Apr. 9, 2018), <https://www.Bmwi.De/Redaktion/De/Downloads/Studien/Modernisierung-Der-Missbrauchsaufsicht-Fuermarktmaechtige-Unternehmen-Zusammenfassung-Englisch.Pdf>; L'autorité de la Concurrence [French Competition Authority], Portant sur l'exploitation des données dans le secteur de la publicité sur Internet [On the Exploitation of Data in the Internet Advertising Sector] (Mar. 6, 2018), <http://www.autoritedelaconcurrence.fr/pdf/avis/18a03.pdf>.

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- 2) The **multi-sidedness** of platforms allows them to pursue a special business model, where one user group (typically the end consumers) does not pay a monetary price for using the platform. Revenues are then made from the other market side, i.e. the business users. On the one hand, this allows platforms to disrupt traditional business models, where users are charged a positive price for the service they are using. On the other hand, this business model provides the platforms with incentives to collect personal and usage data (instead of a price) from end users, because this information can enhance the monetisation on the other market side (e.g. through targeted advertisements). The collection of those personal data may also improve the quality of the services offered, especially when the quality increases with personalisation.
 - 3) Digital platforms may be **vertically integrated**, operating both as intermediary and as business user on the same platform. This means that their role as intermediary allows them to steer consumer's attention towards their own upstream or downstream service, product or content rather than to independent content and service providers. This raises concerns around leveraging market power into upstream or downstream markets, which would in turn lower competition in these markets, and provide the dominant platform with additional bargaining power vis-à-vis the business users.
 - 4) A digital platform's power may be further enshrined by the inflow of **data**, stemming from the transactions mediated on the platform (e.g. search queries, purchase history, location data), which may provide the platform with a comparative advantage when pursuing data-driven innovations. Lack of access to up-to-date market data can in some circumstances be a hindrance to contestability, especially when there are positive feedback loops between data collection, data analysing and the improvement and personalisation of offers, products and advertisements.
 - 5) Digital platforms evolve in very dynamic and global ecosystems where **innovation** is important, rapid and often unpredictable. Therefore, the position of a platform is never secure as they can be rapidly displaced by new disruptive platforms in a Schumpeterian creative destruction competition. The next 'innovators in a garage' in the US, in China, in Europe or elsewhere incentivise even the biggest digital platforms to continue to innovate and offer new and better products. Public authorities should protect this process of competition.

However, '**online platform**' is a **catch-all concept that covers very different business models** with different economic characteristics and private incentives. In designing public intervention for digital platforms, it is of the utmost importance to keep those differences in mind and avoid one-size-fits-all solutions. In the following, we propose and discuss four policy ambitions to accompany the development of online platforms in Europe.

Ambition #1: Ensure an innovation level playing-field and market contestability

EU policies should ensure that digital platform markets remain contestable and contested. To do that, EU policies and regulation should stimulate the emergence and the take-up of new platforms and then the scale-up of those platforms.

Stimulating digital start-ups

As competition in the digital sector often takes place *for* the market and happens thanks to new innovative firms, EU policies and regulation should stimulate the innovative digital start-up. This requires mainly **smart and comprehensive innovation policies** going from financing fundamental research which may be exploited by small and big firms, to improving education and digital skills, to improving the functioning of capital markets, and to improving the capacity and willingness to take risks.

Those policies and regulation should also ensure an **'innovation level playing-field'** ensuring that small start-ups have access to indispensable **capabilities for digital innovation such as data, computing power, data analytics and AI skills and risky and patient capital**³. In general, those capabilities are available on the market and start-ups may access them to develop innovative products and services. The state may help the market by increasing the quantities of those innovation capabilities through the appropriate mix of policies such as opening more public data, reforming public education to improve data analytics and AI skills, improving the functioning of capital markets and stimulating the development of computing power capacity, potentially with co-financing.

When some digital innovation capabilities are controlled by dominant platforms and are truly indispensable for new start-ups, the state may impose the **sharing of such innovation capabilities as it does for other indispensable facilities**. This may be the case of **data** when the concentration of consumer's attention to some online platforms provides them with indispensable access to timely raw usage data (e.g. search queries, purchase histories). Such usage data, even if provided in anonymised form, can be very valuable to start-ups in order to train and test potentially competing data-intensive services, enabling start-ups to compete with existing platforms.⁴ The indispensability of a dataset depends on the type of data and the type of algorithms to be developed and therefore always requires a case-by-case analysis.⁵ If data is found to be indispensable, then authorities may impose the sharing of those data provided they take into account, on the one hand, the **economic incentives of the data owners to collect and store** that data and, on the other hand, the **privacy** of the data subject when data are personal and also the **security** and integrity of the data and the sharing process (see below, the section on data).

³ A. Lambrecht and C. Tucker (2015), "Can Big Data Protect a Firm from Competition?", available on SSRN.

⁴ For example, prediction accuracy increases for larger data sets of fine-grained user behaviour data: Junqué de Fortuny, E., Martens, D., & Provost, F. (2013). Predictive modeling with big data: is bigger really better?. *Big Data* 1(4), 215-226; Martens, D., Provost, F., Clark, J., & de Fortuny, E. J. (2016). Mining Massive Fine-Grained Behavior Data to Improve Predictive Analytics. *MIS Quarterly*, 40(4), 869-888. Whereas benefits decrease marginally as prediction accuracy approaches the theoretical benchmark, some studies show this convergence is not yet reached in many popular application settings: Li, X., Ling, C. X., & Wang, H. (2016). The convergence behavior of naive Bayes on large sparse datasets. *ACM Transactions on Knowledge Discovery from Data (TKDD)*, 11(1), 1-24. For the online advertising industry, some studies find that only very large amounts of data allow firms to measure whether advertising campaigns are indeed successful: Lewis, R. A., & Rao, J. M. (2015). The unfavorable economics of measuring the returns to advertising. *The Quarterly Journal of Economics*, 130(4), 1941-1973.

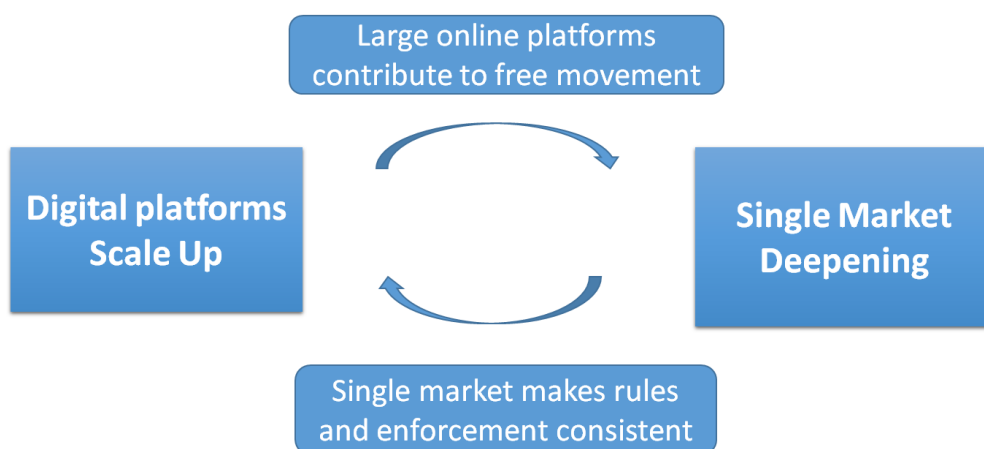
⁵ See M. Bourreau, A. de Stree and I. Graef, *Big data and competition policy*, CERRE Report, February 2017: <https://www.cerre.eu/publications/big-data-and-competition-policy>

Sometimes it may not be the lack of data, but the lack of **computing resources** that prevents market entry for new platforms with innovative ideas as the existence of economies of scale in data is not only driven by the marginal benefit of additional data but also by the marginal costs to analyse large amounts of data. A related problem lies in the fact that some commercially available computing resources for big data applications ('cloud computing') are offered by some of the largest platforms. This may not only create potential conflicts of interest and reinforce the position of dominant platforms, but it may also limit the possibilities to differentiate the service of new entrants, for example, in regards to privacy of data storage. Again, the indispensability of computing power is a case-by-case analysis.

Stimulating digital scale-up


EU policies should also stimulate the scale-up of digital platforms, which is one of the main weaknesses of Europe compared to the US or China. Again, this requires a **comprehensive set of macro and micro economic policies, but one of the key ingredients to stimulate digital scale-up is the development of the single market**. Indeed, there is a positive feedback loop between the single market and platform scale up as (i) the scale-up allows business and consumers to more easily reach their counterparts all over Europe, thereby contributing to the single market while (ii) the single market rules facilitate business operation and consumer trust all over Europe.

Figure 3: Feedback loops between platform scale-up and the Digital Single Market



For this feedback loop to work, online platforms should be subject to **one set of rules**. This can be achieved with either the **mutual recognition of national rules** (country of origin or EU passport principle) as is now the case for information society or audio-visual media services, or with the **full harmonisation of national rules** as is increasingly the case for consumer protection rules. Although the digital single market has been deepened during the period 2014-2019, the process is not yet complete. Policymakers should extend the scope of the mutual recognition principle and strengthen the full harmonisation of the remaining national rules.⁶

⁶ A. de Stree and Ch. Hoepied, *Contribution to Growth: European Digital Single Market – Delivering improved rights for European citizens and businesses*, May 2019, Study for the European Parliament, http://www.europarl.europa.eu/thinktank/sv/document.html?reference=IPOL_STU%282019%29638395



However, a single set of national or EU rules is not sufficient for a true single market. A **single enforcement** of those rules is also necessary. When rules are national and recognised over the whole EU on the basis of the principle of mutual recognition, the enforcement is carried out solely by the national authorities of the country of establishment. However, the authorities of the country of destination where the digital services are consumed often maintain the right to intervene in exceptional circumstances. When rules have been harmonised at the EU level, they are enforced by national authorities that may have different interpretations of EU legislation leading in practice to different legal regimes across the Member States. To reduce the risk of divergent interpretations and contribute to common interpretation of EU law, **several networks of cooperation between national regulatory authorities have been set up and then strengthened** during the period 2014-2019.⁷ It remains to be seen what the practical effects of those recent changes are. If they are not sufficient to ensure common enforcement across the EU, the **cooperation networks should be strengthened again or ultimately transformed into a fully-fledged EU regulator**, as is now the case for the main banks active in Europe.⁸

Issues for policymakers

- *Maintain market contestability and fostering digital start-ups by ensuring access to competitive bottlenecks such as data, computing resources, digital skills and capital.*
- *Further harmonisation of rules and strengthening of enforcement to facilitate European-wide digital scale-up?*

⁷ For instance, BEREC for the electronic communication regulators, ERGA for the audio-visual media service regulator, ECN for the competition agencies, EDP for the data protection authorities, CPC for the consumer protection agencies.

⁸ <https://www.bankingsupervision.europa.eu/about/thessm/html/index.en.html>

Ambition #2: Empower digital users

Next to supply-side measures ensuring market contestability and facilitating Schumpeterian competition, EU policies and regulation should also empower the consumers, and more generally the users, of online platforms to guarantee trust and the possibility that users can 'vote with their feet' when they are not satisfied by the services provided.

Informing users and authorities

Empowered users are first and foremost **informed users who know and understand the characteristics of the services as well as the conditions of the contract**, including the counter-performance which may be paid with a monetary price or with personal data. Online platforms reduce users' asymmetry of information as they allow users to get access to more offers and to compare more easily the prices and the quality of those offers. However, given the complexity of some digital offers and products, in particular when they are based on self-learning algorithms, information asymmetry may also increase in some cases.⁹

Transparency rules may also serve as a means of 'coercive regulation' in the sense that the requirement to be transparent about one's operations may prevent unjustified discriminatory conduct in the first place.¹⁰ Transparency may also be a means to expedite ex-post competition cases.

The **recent reform of EU consumer protection rules and the new Regulation on Platform to Business¹¹ have increased transparency and users' information.** Those new rules should now be enforced effectively in the Member States. Given the complexity and the novelty of those issues, **implementation should be designed in close cooperation with industry and with consumer associations.** Moreover, **the digital expertise of the authorities in charge should be strengthened.** After some years of implementation, an evaluation of the rules should be carried out and, when necessary, rules should be adapted.

Facilitating switching

Empowering digital users also means that they should vote with their feet. This means that **consumer lock-in at any given platform should be avoided and switching costs should be lowered**, such that consumers can freely move and allocate their attention to the platform that best suits their needs. Two possible sources of consumer lock-in are particularly noteworthy in this context.

First, lock-in may be due to **network effects**. That is, consumers cannot switch, because they could no longer participate in the same network as the other users, either on the same side, or on the other market side. This source of lock-in may happen in the context of social media and other communications platforms. In the context of telecommunications networks, the same type of lock-in has existed and, in consequence, triggered regulation imposing the interoperability of networks. A similar approach could be necessary in some circumstances in the context of online platforms, where simple messages could be exchanged based on **agreed-upon standards and interfaces**. While such standards may limit the 'richness' of messages (e.g. with respect to format,

⁹ See A. de Stree and A.L. Sibony, *Towards smarter consumer protection rules for digital society*, CERRE Report, October 2017: <https://www.cerre.eu/publications/towards-smarter-consumer-protection-rules-digital-society>

¹⁰ J. Kraemer, D. Schnurr, A. de Stree, *Internet Platforms and Non-Discrimination*, CERRE Policy Report, December 2017, <https://www.cerre.eu/publications/internet-platforms-non-discrimination>

¹¹ Directive 2019/... of the European Parliament and of the Council as regards better enforcement and modernisation of EU consumer protection rules; Regulation 2019/1150 of the European Parliament and of the Council of 20 June 2019 on promoting fairness and transparency for business users of online intermediation services.

appearance, size) that can be exchanged across platforms, and the appearance of the message may differ from platform to platform, it would at least allow for some interoperability between platforms¹². This would enable consumers to choose more freely which platform to join, or with which platforms to share messages, based on the individual merits of a given platform, and less based on the existing size of the network effect of a given platform.

Such a standard would have **to strike a balance between interoperability, to avoid consumer lock-in, and flexibility, so that platforms can continue to compete on the basis of differentiation and innovation**. The development of interoperability standards are therefore best left to industry participants, but would require independent oversight, such that the agreed-upon standards can indeed deliver a meaningful interoperability. Moreover, the standards would need to be open, so that they can be freely adopted by all industry participants.

The second source of lock-in may be due to a lack of **data portability**. Even in the absence of network effects, consumers may find it burdensome to switch, or to multi-home between several platforms because over time they have established an elaborate user profile at a given platform, which allows that platform to deliver a better content or service. For example, a music streaming platform could offer better music recommendations because the user has explicitly (by means of feedback buttons) or implicitly (by means of skipping songs) expressed her or his musical preferences. Possibilities of data portability may therefore be necessary and are already imposed by the GDPR for personal data and by the regulation on the free flow of non-personal data (see the following section on data).

Issues for policymakers

- *Strengthening and enforcement of transparency rules concerning the characteristics and implied costs of digital services.*
- *Facilitate switching of digital services by improving data portability and give due consideration to interoperability through standards and interfaces between related digital services.*

¹² The new Art. 61(2c) EEC allows the national authorities to impose proportionate interoperability obligations on providers of number independent interpersonal communications services which have reached a significant level of coverage and user uptake.

Ambition #3: Give the appropriate incentives for a safe Internet to all players

Illegal and harmful content (such as terrorist content, hate speech, online disinformation) and products (counterfeit products) should be restricted on the Internet. The EU regulatory framework, in particular its liability rules, should **share among all the private and public actors involved in the digital eco-system the burden of minimising illegal and harmful material and policing the Internet**. The rules should give the appropriate incentives to all private actors, including users, sellers and the platforms themselves, to detect and remove illegal and harmful content or products online while respecting fundamental rights.¹³

During the period 2014-2019, some elements of hard law have been adapted with the reform of the Audio-visual Media Services Directive¹⁴ and the adoption of the new DSM Copyright Directive¹⁵. Different self- and co-regulation approaches have also been adopted to fight against terrorist content,¹⁶ hate speech¹⁷ or online disinformation¹⁸. The **effects of these reforms should now be closely monitored and assessed. The coherence of these reforms with the general liability regime in the e-Commerce Directive¹⁹ should also be assessed**. Given the complexity of this issue for the States as well as for the platforms, **close cooperation with online platforms to design and implement rules is indispensable**.

Issues for policymakers

- Create incentives for digital platforms to detect and remove illegal and harmful content?
- Assessment to adapt the horizontal liability regime of the e-Commerce Directive.

¹³ A. de Stree, M. Buiten and M. Peitz, *Liability of online hosting platforms*, CERRE Report, September 2018 <https://www.cerre.eu/publications/liability-online-hosting-platforms-should-exceptionalism-end>

¹⁴ Directive 2018/1808 of the European Parliament and of the Council of 14 November 2018 amending Directive 2010/13 on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the provision of audio-visual media services (Audio-visual Media Services Directive) in view of changing market realities, OJ [2018] L 303/69.

¹⁵ Directive 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9 and 2001/29, OJ [2019] L 130/92.

¹⁶ An EU Internet Forum was established in 2015: Commission Press release of 3 December 2015, IP/15/6243: http://europa.eu/rapid/press-release_IP-15-6243_en.htm

¹⁷ Code of Conduct of 31 May 2016 of countering illegal hate speech online: https://ec.europa.eu/newsroom/just/item-detail.cfm?item_id=54300

¹⁸ EU Code of Practice of 26 September 2018 on Disinformation: <https://ec.europa.eu/digital-single-market/en/news/code-practice-disinformation>

¹⁹ Directive 2000/31 of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (Directive on electronic commerce).

Ambition #4: Rely on smarter rules

Proportionate regulation

According to the general principle of EU law, regulation should also be proportionate. This implies that regulation should always be **based on clearly identified market failures and, when justified, be the least burdensome possible to remedy the market failures**. Some recent policy reports recommend intervention, either under competition rules and/or wider regulation, against those digital platforms which have important market power or significant market status.²⁰ However, both the necessity and the means of defining **an appropriate threshold for 'significance'** is particularly complex in digital industries which evolve very quickly and are not well understood. The next Commission should stimulate a political and academic process on this issue.

The regulation applicable to online platforms should **not increase the burden for start-ups** and small platforms, allowing them to enter, to reach scale and to experiment.

Principles-based and non-discriminatory rules

The rules applicable to online platforms should be **principles-based** in order to be flexible enough to adapt to the various business models that exist among platforms today and those that may arise in the future. This means the regulation should lay out a **set of general principles that safeguard fair competition and democratic values** on the platform. These principles should be developed in a political process, together with the relevant stakeholders. In the following, we offer some guidance for this process:


- The regulation should be **applied across industries in a horizontal fashion**. As platforms tend to break traditional sector boundaries, sector-specific regulation would likely result in an incoherent patchwork. Conversely, this also means that existing sector-specific regulations should be revisited to assess if they are still warranted (for example, in the context of the GDPR and the proposed ePrivacy Regulation).
- The **same principles should apply to all layers of consumers' access** to content and services, that is, not just platforms run *over* the Internet (e.g. search engines, social networking sites), but also platforms that facilitate access *to* the Internet (e.g. operating systems, app stores, browsers).

Coherent rules

In markets where consumer prices are zero, competition often takes place in non-price dimensions, such as consumers' privacy and data protection. In this regard, some view the lack of privacy as a competition problem (see, for example, the case of the German Federal Cartel Office vs. Facebook), while others view the lack of competition as a privacy problem. Evidently, **privacy, data protection law and competition law are inherently intertwined** in the context of digital platforms²¹. In fact, the goals of data protection law and competition law may often be in conflict with each other, as more access to personal data would facilitate competition, but possibly undermine consumers' privacy. Eventually, in a digital market, neither competition law, nor privacy protection may be effective without the other. For example, everything else being equal, a

²⁰ S. Soriano, Big Tech Regulation: Empowering the Many by Regulating a Few, <https://medium.com/@sorianotech/big-tech-regulation-d12430d7fc1b>

²¹ F. Costa-Cabral and O. Lynskey, "Family ties: the intersection between data protection and competition in EU Law", *Common Market Law Review* 54 (1), 2017, 11-50; N. Helberger, F. Zuiderveen Borgesius and A. Reyna., "The Perfect Match? A Closer Look at the Relationship between EU Consumer Law and Data Protection Law", *Common Market Law Review* 54(5), 2017, available at <https://ssrn.com/abstract=3048844>



dominant platform is more likely to receive a user's consent on its privacy statement than if that platform were in competition.

However, the legal system treats data protection regulation, consumer protection and competition law largely separately from each other, including from an institutional perspective. The approaches of competition law, data protection and consumer protection need to be better aligned and intertwined to achieve a coherent regulation of platform markets²².

Here, ambitions should strive towards a **coherent horizontal legal framework**. The boundaries between sectors, especially in the digital economy, are increasingly hard to draw. This is not only with respect to different types of platforms, but also with respect to the digital versus physical sphere. For example, several large digital platforms are currently expanding and entering into physical markets, for example, in the context of transportation, farming or shopping. Therefore, as a coherent and integrative legal framework is developed between competition law, data protection and consumer protection law, duplicative sector-specific legal approaches should be phased out.

Issues for policymakers

- *Assess proportionate principles-based and non-discrimination rules to correct clearly defined market failures for 'significant' platforms.*
- *Strive towards a cross-sector horizontal legal framework where possible and re-consider sector-specific vertical regulation in this process.*

²² This was the case in Decision of the German Bundeskartellamt against Facebook of 7 February 2019. See also the Digital clearinghouse project: <https://www.digitalclearinghouse.org/>

02

DATA GOVERNANCE

AMBITIONS

- 1 Stimulate data portability**
- 2 Encourage the creation of privacy-preserving data marketplaces**

State of play and issues

Four interconnected factors have led to a new wave of economic innovation, which is now commonly referred to as the **data-driven economy**: (i) the continuous increase in available data points; (ii) the sophistication of machine learning and data analytics techniques harnessing natural language processing (NLP), deep learning and neural networks; (iii) the accessibility of cheap and often third-party computing power; (iv) and finally the increased digitalisation of all areas of life that in turn provides opportunities to generate new data and apply the outputs of data analysis.

In the words of the European Commission, there is currently an ongoing 'data revolution' as '[d]ata has become an essential resource for economic growth, job creation and societal progress'.²³ Nonetheless, it remains a resource that is relatively little understood and conceptualised from both an economic and regulatory perspective. Importantly, data is both an enabler and an output of the computational learning processes conventionally referred to as 'Artificial Intelligence' or 'AI' – in essence algorithms that improve with data. Machine learning algorithms are trained with (often large amounts of) data and the resulting model is subsequently applied to new data to make predictions. This is a particular reason why **public and private players in the data market often need access to large and diverse datasets alongside skills, computing power and risky and patient capital** in order to generate new innovations and value.²⁴

Ambition #1: Stimulate data portability

Data availability is key in light of the centrality of data for Artificial Intelligence

Given that data is non-rivalrous in nature, its use by one party does not necessarily lead to exhaustion or decrease its value for another party. The resulting increase in the fluidity of data in the internal market could increase consumer welfare (though increased choice and decreased lock-in effects), stimulate new business models and render markets more competitive (through a reduction in network effects and lower switching costs) and ultimately also contribute to more innovation in AI (in making data available to a broader pool of players).

Personal data and the GDPR's limits

In terms of personal data, the **GDPR has introduced a new personal data portability right** that seeks to increase the fluidity of personal data between various actors.²⁵ This novel right is an important mechanism to create more dynamic data markets. This links to the GDPR's main objective of giving data subjects more control over personal data that relates to them, a notion often referred to as 'data sovereignty'. Whereas the right to data portability is explicitly fashioned as a fundamental right, it has analogies to a competition law tool which may unlock data's competitive potential.²⁶ It is in line with some initiatives adopted by some online platforms to allow and facilitate data mobility and portability.

²³ European Commission Staff Working Document', A Digital Single Market Strategy for Europe – Analysis and Evidence, SWD (2015) 100, 59.

²⁴ European Commission, 'Building a European Data Economy' (Communication) COM(2017) 9, 4.

²⁵ Pursuant to Article 20 GDPR a data subject has a qualified right to 'receive the personal data concerning him or her, which he or she has provided to a controller, in a structured, commonly used and machine-readable format'.

²⁶ The European Data Protection Supervisor considers that portability could release synergies in data protection and competition law in preventing exclusionary or exploitative abuses of dominance and consumer lock-in in addition to empowering consumers 'to take advantage of value-added services from third parties while facilitating greater access to the market by competitors': Preliminary Opinion of the European Data Protection Supervisor, 'Privacy and Competitiveness in the Age of Big Data: The Interplay between Data Protection, Competition Law and Consumer Protection in the Digital Economy' (2014) 36 https://edps.europa.eu/sites/edp/files/publication/14-03-26_competition_law_big_data_en.pdf.

Yet, the right to data portability in the GDPR has **some limits**. It applies only (i) to personal data, which (ii) has been provided by the data subject to the data controller (thus excluding, for example, users from porting reviews regarding their services from one platform to another); (iii) processing is carried out by automated means; and (iv) processing is based on consent or contract (leaving out any personal data processing based on other grounds such as legitimate interests). There exists a right to export, but not a right to import data. The data handler has one month to provide the data, rendering immediate possibilities to switch moot. Moreover, to make personal data effective, the Article 29 Working Party has called on **industry stakeholders and trade associations to define 'a common set of interoperable standards and formats** to deliver the requirements of the right to data portability'.²⁷

Non-personal data mobility

Regarding non-personal data, there is no overarching EU legal framework. Rather, non-personal data is subject to a **mosaic of distinct regulatory frameworks which impose some forms of non-personal data mobility under some circumstances**. Some are horizontal and apply to all sectors of the economy such as the Free Flow of non-personal data Regulation²⁸ or competition law²⁹.

In particular, the Free Flow of Data Regulation encourages the development of **self-regulatory codes of conduct at the EU level to facilitate the porting of non-personal data** in a structured, commonly used and machine-readable format.³⁰ Other legal instruments are sectoral and apply to specific sectors such as automotive,³¹ mobility,³² finance,³³ geo-spatial information³⁴, satellite data³⁵ and chemicals.³⁶ Moreover, to encourage the voluntary sharing of private sector data, the Commission has adopted some guidance and set up an expert centre.³⁷

The EU institutions should **ensure an effective implementation of the recently adopted personal and non-personal data mobility provisions and monitor industry led initiatives** in different sectors of the economy³⁸. Given the complexity and the novelty of the issue, authorities should **encourage industry-led data mobility schemes** such as the data transfer project and closely cooperate with the stakeholders to ensure effective implementation.

²⁷ A29WP 'Guidelines on Data Portability 3.

²⁸ Regulation 2018/1807 of the European Parliament and of the Council of 14 November 2018 on a framework for the free flow of non-personal data in the European Union, OJ [2018] L 303/59.

²⁹ Data sharing may be imposed under (i) the Merger Regulation, in particular when data are an important input whose access could be foreclosed after a vertical merger; (ii) Article 101 TFEU in some cases of data pooling;²⁹ (iii) Article 102 TFEU when the refusal of a dominant firm to give access to data amounts to an exclusionary or an exploitative abuse.

³⁰ As in Article 6(1) of the Free Flow on non-personal data Regulation and Commission Guidance of 29 May 2019 on the Regulation on a framework for the free flow of non-personal data in the European Union, COM (2019) 250, pp. 16-19.

³¹ Regulation 715/2007 of the European Parliament and of the Council of 20 June 2007 on type approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information, as lastly amended by Regulation 2018/858.

³² Directive 2010/40 of the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport.

³³ Directive 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market.

³⁴ Directive 2007/2 of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE).

³⁵ Regulation 377/2014 of the European Parliament and of the Council of 3 April 2014 establishing the Copernicus Programme.

³⁶ See further Article 17 and 30 of the Council Regulation 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

³⁷ Commission Staff Working Document of 25 April 2018, Guidance on sharing private sector data in the European data economy, SWD(2018) 125.

³⁸ See the Data Transfer Project which was formed in 2017 between Facebook, Google, Microsoft and Twitter in order to create an open-source, service-to-service data portability platform so that all individuals across the web could easily move their data between online service providers: <https://datatransferproject.dev/>. In the financial sector, see the Open Banking Initiative which is a secure way to give financial providers access to the financial information of the customers who accept such access: <https://www.openbanking.org.uk/>

If the EU institutions determine that additional obligations would be necessary to incentivise even further data mobility, some relevant safeguards should be put in place:

- the **incentives to collect and store data should be preserved** and any intellectual property right should be respected, which implies that data sharing should only be imposed when data are indispensable and with fair remuneration³⁹. This also implies that any data access should be limited to raw input data (such as search queries, user feedback or purchase histories) and not for refined or recombined data and data-derived insights (analytics);
- the **security** and the integrity of the shared data should be ensured;
- and in case of personal data, the **privacy** of the data subject should be guaranteed.

Issues for policymakers

- *Strengthen consumers' rights for data portability beyond GDPR, e.g. through common standards and interoperability, including for non-personal data.*
- *Ensure effective implementation and enforcement of recently adopted data mobility provisions.*

Ambition #2: Encourage the creation of privacy-preserving data marketplaces

Various options have already been considered to stimulate the circulation of data within the Digital Single Market, particularly regarding non-personal data. An early proposal included the creation of property rights in such data, an option that was criticised⁴⁰ and subsequently abandoned by the Commission. Indeed, the focus now lies on access to data rather than ownership.

Data-sharing is encouraged in the form of voluntary data trading in business-to-business contexts. Non-regulatory measures adopted to this end at supranational level include a decision to rely on the freedom of contract principle.⁴¹ So-called data marketplaces designed to facilitate data sharing could contribute to this objective. These marketplaces can take a variety of forms. First, the use of Application Programming Interfaces ('APIs') could overcome some of the technical and operational barriers that include a lack of interoperability between datasets, and the high costs of data curation necessary to adapt it for sharing.⁴²

Second, data marketplaces can make it easier for parties to share data and to promote innovation in the Digital Single Market. A **data marketplace is an electronic marketplace where data is traded as a commodity**.⁴³ The concentration and sharing of data is, of course, likely to generate concerns from a data protection perspective. It is for this reason that such mechanisms should be **designed in accordance with the data protection by design and data protection by default**


³⁹ Some authors have proposed that data should be shared on a FRAND (fair, reasonable and non-discriminatory) basis: D.L. Rubinfeld and M.S. Gal (2017), "Access Barriers to Big Data", *Arizona Law Review* 59, 339-381.

⁴⁰ Josef Drexler et al, 'Data Ownership and Access to Data - Position Statement of the Max Planck Institute for Innovation and Competition of 16 August 2016 on the Current European Debate' (2016) Max Planck Institute for Innovation & Competition Research Paper No. 16-10.

⁴¹ European Commission Staff Working Document on the free flow of data and emerging issues of the European data economy, SWD (2017)2, 12.

⁴² Commission, 'Towards a common European data space' COM (2018) 232.

⁴³ Lara Vomfell et al, 'A classification framework for data marketplaces' (2015) ERCIS – European Research Center for Information Systems, No. 23 <https://www.econstor.eu/handle/10419/118643>.



requirements, such as using secure computational methods where there is no need to reveal the underlying data.

These could include techniques such as secure multi-party computation, homomorphic encryption or zero knowledge proofs. The Commission has recently also announced that computational learning where the algorithm is brought to the data, rather than the data to the algorithm is a promising avenue in this regard.⁴⁴ The next Commission should build on these ideas and efforts in order to ensure that the innovative potential of data is unlocked while data protection is safeguarded.

Issues for policymakers

- *Encourage the emergence of data marketplaces and incentivise the public and private sharing of data, while preserving European values with respect to data protection.*

⁴⁴ European Commission Staff Working Document, 'Guidance on sharing private sector data in the European data economy', SWD (2018) 125 final, 17.

03

ARTIFICIAL INTELLIGENCE AMBITIONS

- 1 Make Data Protection Law Fit for AI**
- 2 Support algorithmic explainability**

Ambition #1: Make Data Protection Law Fit for AI

Although the GDPR only became binding in May 2018, its main components go back to the 1995 Data Protection Directive, which itself drew inspiration from national data protection laws with origins in the 1970s and 1980s. It is too early to pass judgment on its success but **some elements of the GDPR** no longer correspond, and are **hard to match, to some of the most recent forms of personal data processing such as machine- and deep-learning**. There is indeed a tension between core GDPR principles and computational intelligence.

- Data protection is firmly based on **individual rights, whereas the harms associated with AI can take a collective form**, such as where they stigmatise groups based on a particular characteristic. Thus, there is a need to reflect upon how group rights can be operationalised in this framework and the focus should also lie on how systems can be designed from the beginning to respect data protection principles as opposed to a main focus on individual remedies.
- The principle of **data minimisation**⁴⁵ requires that personal data be 'adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed'. At least at this stage, AI however needs to rely on large quantities of data to realise its potential.
- The principle of **purpose limitation**⁴⁶ requires that personal data only be collected 'for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes'. Yet innovations in AI often come from the (re-) use of data that was initially collected for other purposes. This raises the question of how the principle of purpose limitation can be applied in such circumstances.
- The GDPR has created a particularly protective regime for so-called **special categories of data**, often referred to as 'sensitive data' such as data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, health data, or data pertaining to a person's sex life or sexual orientation.⁴⁷ The same is true of the ePrivacy Directive, which applies additional protections to communications metadata. With big data analysis, the distinction between various categories however becomes increasingly arduous to draw as data may not be sensitive data at the starting point but become sensitive data once it has been processed (such as, for instance, where a machine learning algorithm processes ostensibly non-sensitive personal data to determine a persons' health status).

More fundamentally, **the definition of personal data and the difference between personal and non-personal data can be very hard to discern in practice:**

- First, there are currently some uncertainties on the implementation of the legal test to determine whether data is personal or not⁴⁸.
- Second, as methods of data analytics become more sophisticated and as more data is generated that could be matched with other data to relate the latter to an identified or identifiable natural person, much data that does not seem to be personal data at first glance may nonetheless qualify as personal data under the GDPR. Moreover, as machine learning algorithms self-learn and upgrade, their operation and usage of data might move

⁴⁵ Article 5(1c) GDPR.

⁴⁶ Article 5(1b) GDPR.

⁴⁷ Article 9 GDPR.

⁴⁸ Some clarifications are provided in the Commission Guidance of 29 May 2019 on a framework for the free flow of non-personal data in the European Union, COM (2019) 250, pp. 4-11.

beyond human comprehension, as does the ability of human observers to determine whether this data is personal data or not.⁴⁹

- Third, the qualification of a given data item is dynamic as a single data point might be non-personal at some stage of its lifecycle while becoming personal at other. Conversely, data that is personally identifiable to begin with can be subjected to pseudonymisation or anonymisation techniques. Given that the current EU legal framework is, however, based on the creation of disparate legal frameworks for personal and non-personal data (as illustrated by the Regulation on the Free Flow of Non-Personal Data in the European Union) it is important to further clarify the appropriate legal test to legally classify data.

Thus, technological progress challenges some the GDPR's fundamentals, even though it was designed as a technology-neutral, principles-based regulatory framework that should stand the test of time. It furthermore provides co-regulatory mechanisms such as codes of conduct and certification mechanisms able to adapt its principles to new forms of data processing. It may thus be appropriate to **revisit**, at the next review of the GDPR foreseen for May 2020, **the fundamentals of the data protection regime in light of the advances in AI technologies**.

In addition, the **very innovations that enable AI may also contribute to the respect of data protection**. Through careful analysis and collaborations, it should thus be determined how Europe can innovate while securing respect for data protection principles.

Issues for policymakers

- *Critically re-assess GDPR with a view to paving the way for European leadership in privacy-preserving AI, especially with respect to data minimisation, purpose limitation and the distinction between sensitive vs. non-sensitive data as well as personal vs. non-personal data.*

Ambition #2: Support algorithmic explainability

Machine- and deep-learning algorithms improve with data. Yet, it may also be difficult to understand how exactly this happens. As a consequence, when these algorithms are used in circumstances such as decision-making processes, it may be difficult to trace how a given decision was reached, thereby raising ethical and legal issues (for instance, to control whether an algorithm decision is based on illegal grounds). Moreover, explainability is an important element to generate trust in such algorithms and thus an important factor determining their eventual adoption.

It is for this reason that the need for **AI algorithms to be explainable** has been stressed, including in the Ethics Guidelines of the EU High Level Expert Group on AI.⁵⁰ Explainable AI ('XAI') is a field of active research as many different avenues towards explainability are currently being explored.⁵¹ EU law contains several recently adopted provisions which aim to increase the transparency and explainability of algorithmic decisions.

When **personal data are involved, the GDPR** provides that the data subject has a right to obtain information, within the limits of the trade secrets and intellectual property of the data processors, **about 'the logic involved'** in the data processing.⁵² In addition, in the case of fully automated

⁴⁹ Nadezhda Purtova, 'The law of everything. Broad concept of personal data and future of EU data protection law' (2018) 10/1 Law, Innovation and Technology <<https://www.tandfonline.com/doi/abs/10.1080/17579961.2018.1452176>>.

⁵⁰ <https://ec.europa.eu/digital-single-market/en/high-level-expert-group-artificial-intelligence>

⁵¹ See, by way of example, the various initiatives of DARPA: <https://www.darpa.mil/program/explainable-artificial-intelligence>.

⁵² Article 15 and Recital 63 of the GDPR.

algorithmic decisions (i.e. when a human is not involved in the decision making), the data subject has the right to obtain 'human intervention' and 'other suitable measures to safeguard her rights' which may imply a right to an explanation.⁵³

In the field of algorithmic decisions related to **online ranking of results or offers**, the recent reform of **EU consumer protection law** imposes an obligation on online marketplaces to provide the main parameters determining ranking of offers presented to the consumer as result of his search query.⁵⁴ Similar obligations for online intermediation services and search engines with regard to their business users (B2B) have been imposed by the recently adopted **Platform-to-Business Regulation**. Online intermediation services have to set out, in their terms and conditions, the main parameters determining ranking and the reasons for the relative importance of those main parameters. Search engines have to set out, for corporate website users, the main parameters determining ranking, by providing an easily and publicly available description, drafted in clear and unambiguous language on the online search engines of those providers.⁵⁵

To date, discussions around explainable AI have focused mostly on the explanation of the underlying algorithm as a means of 'opening up the black box'. This approach has limitations. Indeed, unveiling the mathematical details of the algorithm will have very little explanatory value to most actors. As such, **alternatives should be explored such as the provision of a 'model-of-model', subject-centric explanations that focus on particular regions of a model around a query or counterfactual explanations** which can themselves be simple ways of explaining the key factors by which the user can understand and influence the result.⁵⁶

Issues for policymakers

- *Strive for European leadership in Explainable AI, harnessing the existing leadership role in data protection and platform-to-business regulation.*

⁵³ Article 22 and Recital 71 of the GDPR.

⁵⁴ Article 6(a) of the amended Consumer Rights Directive and Recital 19 of the better enforcement and modernisation Directive.

⁵⁵ Article 5 of Regulation 2019/XXX of the European Parliament and of the Council on promoting fairness and transparency for business users of online intermediation services

⁵⁶ Lilian Edwards & Michael Veale, 'Slave to the Algorithm? Why a 'Right to an Explanation is Probably not the Remedy you are Looking for' (2017) 16 Duke Law & Technology Review 18; Sandra Wachter et al, 'Counterfactual Explanations without Opening the Black Box: Automated Decisions and the GDPR' (2018) Harvard Journal of Law and Technology.

MEDIA & CONTENT

AMBITIONS

- 1 Actively protect freedom of expression in Europe**
- 2 Safeguard the production & dissemination of high quality, European content**
- 3 Discourage the economic or political profitability of harmful and illegal content**
- 4 Enforce transparency of ownership structures beyond media content businesses**

State of play and issues

There are many diverging commercial and political interests at play in the media content sector in Europe. While some claim content is abundant, diversity has never been greater and pluralism is all around, others argue quantity of content should not be equalled with quality and that phenomena such as filter bubbles, echo chambers (even if nuanced on the basis of scientific research), and fake news put immense pressure on the diversity, pluralism and accuracy of content. There is probably value in both perspectives. This section on media content regulation cannot be situated within one of these perspectives, but acknowledges that European policies might play an instrumental role in dealing with both threats and opportunities that an internationalised and converged digital market offers for content creation and consumption.


The **EU regulatory basis for intervention in the media sector is limited** to internal market and competition policies. Policy relating to the cultural aspects of media content regulation is still situated at the level of Member States. Admittedly, elaborate actions have been taken in spite of both these constraints and the sensitivities surrounding competence divisions in the media content domain. These actions include the application of anti-trust and merger regulation, the guidelines developed for state aid to film or public service broadcasting, the Audiovisual Media Services Directive (AVMSD), the Copyright Directive, the (Online)Satscab Directive(s), the Portability Regulation, the emerging regulatory framework on online platforms and the emerging policies on fake news and disinformation.

The thin line between the competencies of the European Union and Member States remains a difficult one to walk when faced with some of the problems related to freedom of expression and the sustainability of European content production that we discuss below, and is further complicated by the global nature of some of the newer players in the media industries.

Media content is being produced, aggregated, distributed and consumed in a market that is vastly different from the sector we observed two decades ago. We have **moved from a predominantly nationally organised two-sided market model in print and broadcasting to an internationalising and increasingly platform-based economy**. We speak of ecosystems rather than value chains. Limited supply and assured, adequate demand have been replaced by a seemingly unlimited or abundant offer of content and limited, contested audience attention, for which nationally-based media content providers compete with global players.

Against this background there are three economic trends that impact content production. First, there is an increased supply of professionally made content and user-generated-content. That means more competition, but also fragmentation of resources for content production. Second, there is pressure on some of the mainstream business models that fund media content production: subsidies and advertising. Pay-TV, subscription video on demand (SVOD) and other pay-models are on the rise. Third, companies producing or heavily investing in media content partly depend for business (development) on some so-called multi-layered platforms. These function as mediators who set the terms and access conditions between them and audiences, and/or them and advertisers. In addition, those that depend on advertising revenue now compete for advertising budgets with platforms that are not primarily content producers and have nearly unlimited advertising inventory on offer.⁵⁷ At the same time, those mainly engaged in content acquisition, production and distribution through linear TV and accompanying on-demand catalogues are taking advantage of new online opportunities to directly address viewers and users. Due to vertical integration in many forms, fair and equal access to content and advertising markets cannot be taken for granted. This is not *per se* a story of media businesses against platforms, as the

⁵⁷ For further elaboration of these dynamics see: Evans, T. and Donders, K. 2018 *Platform Power and Policy in Transforming Television Markets*, Palgrave Macmillan



boundary between the two is also blurring. It is a story of media content industries reshaping in an unprecedented way. The challenge for the sector is to find ways to sustain investments in journalism (particularly local and investigative), domestic children's content, news and current affairs programming, and other types of content important to social and political life in the EU. There are already signs of larger newspaper groups successfully transforming and some broadcasters acquiring adtech companies. This is a dynamic situation where EU-level rules such as the new Copyright Directive and the expected ePrivacy Regulation can have significant consequences. There are legitimate concerns that media pluralism may be reduced if the larger players benefit, while smaller ones such as local or minority media face greater obstacles to reaching audiences and/or advertisers.⁵⁸

In Europe, there has been a long-standing consensus on the **importance of independent and commercially viable media to democracy and society**. There is a need for journalism across a variety of media that functions as a fourth estate, as well as content that reflects our cultural identities and diversity, contributes to social cohesion and inspires people to engage in society, participate in politics and nurture Europe's cultures. While the economics of media have for a long time, in spite of commercialisation, sensationalism, format TV, etc., ensured media could play this role in society, the recent trends mentioned above are eroding this role. Given the increasingly harsh division within European societies, it has become perhaps more important than ever to ensure that media content that plays these important social and political roles is available and attractive to audiences in the context of changing viewer habits.

Ambition #1: Actively protect freedom of expression in Europe

Freedom of expression is protected by Article 10 of the European Convention on Human Rights, Article 11 of the European Charter of Fundamental Rights, other international treaties and covenants, and by the national constitutions of EU Member States. Essentially, all emphasise the right of all human beings and public or economic entities to hold opinions and express those opinions freely, without any intervention, and across borders. People and other entities should be able to access information, again without any intervention. While there are some limitations to this right (for example, one cannot incite hatred or violence) and it carries responsibilities, the right to freedom of expression is nearly absolute. Freedom of expression is a positive right, the protection of which entails not just avoiding undue constraints on expression, but also enabling expression.

We notice that governments in some Member States are jeopardising freedom of expression themselves, for example by facilitating state capture of public media as in Hungary and Poland, failing to protect journalists as in Malta, or threatening ISP blocking as a way of dealing with legal yet potentially harmful content as is being suggested in the UK. Efforts to deal with harmful content online such as the German NetzDG law need to be carefully monitored as there is potential that they will incentivise the overremoval of content with negative consequences for expression. **States overly restricting freedom of expression is unacceptable** as it is the basis for media content production, aggregation, distribution and consumption in Europe, and is crucial for democratic processes that citizens are able to receive and impart information freely and be exposed to a diversity of opinions, positions and world views.

⁵⁸ Several of these trends are also reported on in the Media Sovereignty Report drafted by Guillaume Klossa in Spring 2019 https://ec.europa.eu/commission/publications/towards-european-media-sovereignty_en

The **European Commission should become more active in protecting freedom of expression and hold to account Member States who do not respect it or fail to protect it.** The procedure in case of infringement of Article 7, concerning the respect for the rule of law, has been strengthened. However, that procedure has not been used to deal with freedom of expression in the Member States and it is not appropriate for addressing systemic issues such as the precarious situation of several public broadcasters in Europe, both in financial terms and in political independence, or deficiencies in media plurality. The new rule of law framework can provide a vehicle for revealing challenges to freedom of expression and a mechanism for working with Member States to address them.⁵⁹ A more active stance by the European Commission, and a process, in collaboration with the European Parliament, should be instigated to use the variety of early warning mechanisms at its disposal⁶⁰ to trigger the use of this framework, and to establish what kind of behavior is expected from Member States for respecting and protecting freedom of expression. Best practices should be identified related to the legal safeguards for editorial independence of journalism; the appointment of management and funding systems of public broadcasters; media ownership rules including transparency obligations; political advertising; the use of filtering or blocking online; and other relevant issues. In the transposition of the AVMSD some of these issues will indeed be addressed at the Member State level and the Commission's role will need to be handled delicately as most aspects of cultural policy and several elements of media policy are not among its competencies.

Issues for policymakers

- *Identify the standards and best practices expected of Member States and actively monitor results using the early warning mechanisms that exist.*
- *Bearing in mind Member State competencies, take a more active stance in protecting freedom of expression from both deliberate and unintended infringements.*

Ambition #2: Safeguard the production and dissemination of high quality, European content

The European Union has emphasised the importance of our cultural identity and diversity since the 1980s, when its policy initiatives in the media sector expressed the ambition to create a single market, while also protecting and stimulating the cultural identity and diversity of Europe. That resulted, for example, in the adoption of the 'country of origin' principle (ensuring free circulation and legal predictability for companies), as well as quotas for European and independent production in the 1989 Television Without Frontiers Directive.

All of Europe's subsequent initiatives in the sector have attempted to strike a balance between economic and cultural goals. Today, we face a situation where **content has become more popular but its valorisation on the basis of advertising or direct pay-models has become more challenging (e.g. due to ad-blockers or ad-skipping in case of time shifted viewing)** for some content providers. This trend that has been accelerated by competition from platforms that largely deal in user-generated content and content made for US or global markets. At the same time, the increase of distribution means is also an opportunity for audiovisual content

⁵⁹ https://ec.europa.eu/info/policies/justice-and-fundamental-rights/effective-justice/rule-law/rule-law-framework_en

⁶⁰ Such as the media plurality monitor <http://cmpf.eu.europa.eu/media-pluralism-monitor/>, the reporting requirements in the AVMSD, the progress reports on the implementation of the Code of conduct on Countering Illegal Hate Speech and the Code of Practice against Disinformation, among others.



creators. While the AVMSD might allow Member States to impose an investment obligation on providers of on-demand audiovisual media services and this will likely generate some additional funds for domestic production in several EU Member States, the current economic environment requires more holistic and coordinated European policy action. We recommend several concrete measures.

First, the **introduction of the levies for production foreseen in the Audiovisual Media Services directive should be implemented carefully, adequately and in a well-targeted manner, and European Commission guidance** should facilitate this. The current wording of the Directive allows it to be applied to any media service, which could result in the levy being applied by Member States inefficiently or even in a manner detrimental to their domestic audiovisual media services.⁶¹

The Commission should monitor how this levy is being applied and the impact it has on national markets. It should also suggest to Member States that income from such a levy should go into funds for domestic content production that not only focus on drama, film and documentary, but also on journalism, (info)entertainment with social value, new media projects with public interest ambitions, and other formats.

The variety of funding destinations is important as drama, film and documentary already benefit from funding today, and consumers demonstrate a willingness-to-pay for such content. It is genres such as journalism and (info)tainment that contribute to informed citizenship, social cohesion, empathy, and other benefits. that will suffer in the coming years. They have been shown to be socially beneficial, but are comparatively expensive and audience's willingness-to-pay is often fairly low. The guidance could further suggest Member States allow for such levies to be offset by direct investments in the production of content by on demand services in order to encourage co-production with domestic content producers.


Second, **Member States should be encouraged to invest a certain percentage of their GDP in public interest driven media content initiatives**, including independent public service media. High quality production requires a critical mass, so overly fragmented distribution of public funds for production can be counter productive. There is a need to preserve centralised institutions that contribute to the achievement of public interest objectives. That, of course, requires adequate funding and subsidies that can act as a lever for growth in the media content industries.

Third, with the aim of a single market for distribution and production in mind, the **European Commission should facilitate discussions on findability and due prominence with industry and civil society stakeholders** across the Union. Media content policies have historically focused heavily on the supply of valuable content from a quality, creativity, diversity, and pluralism point of view. The expansion of satellite and cable services in 1980s and 90s raised concerns about audiences access and exposure to certain categories of content, such as that from public service media. As a result, Member States were allowed to establish 'must carry' rules to ensure their public and other important national audiovisual media were available and prominent in multi-channel services.⁶²

Now that content is consumed across a much greater variety of platforms and devices, the key question is how we can ensure that consumers find their way to content that has positive externalities, to content that adds to informed citizenship, and to content that reflects local culture? For example, is it an appropriate 'must carry' equivalent to ask smart television producers to ensure standard apps are not only Netflix, Spotify and YouTube, but also domestic providers of journalism

⁶¹ For further explanation see: Broughton Micova, S., Hempel, F. and Jacques, S., 2018. Protecting Europe's content production from US giants. *Journal of Media Law*, 10(2), pp.219-243.

⁶² This was part of the Telecoms Package's Universal Service Directive 2002.



and other media content services? Findability and prominence rules can be applied to various kinds of catalogue-based services, but there may also be ways that these can be addressed in peer-based recommending systems as well, that focus more on how content is presented, tagged and classified. The Commission could focus on facilitating the open exchange of empirical insights on industry practices and user experiences to identify any potential shortcomings and/or best practices amidst the numerous means of navigation and user guidance.

Finally, the **European Commission should take a holistic approach to assess the balance of power between those investing in content production and those aggregating and distributing it, and the extent to which EU law is contributing to ensuring balance.** Concerns have been raised by some industry players that there is a lack of fair competition between broadcasters and press publishers on the one hand and telecommunications companies, social media, search and other online companies on the other hand.

However, boundaries are increasingly blurred by mergers and acquisitions within the ecosystem. Multi-faceted companies are competing for audiences, and advertising budgets. In addition, the ability to own, access and utilise the vast amounts of data being generated is increasingly becoming a strategic asset in this competition. In order to allow nationally-based media companies to compete, the European Commission should lead discussions on revising media pluralism measures and adjusting the approach in the application of anti-trust rules in relation to media and online platforms. This could allow for more collaboration among European media and distribution or platform operators where greater scale is needed, such as in the supply side of programmatic systems or data utilisation, while maintaining diversity of content and ownership.⁶³

The European Commission could also offer guidance as to data 'ownership' or 'rights of use' in situations of partnerships between content producers and telecommunications services (such as in addressable TV, flagging and presenting European works). It should also consider establishing an element within the Creative Europe programme aimed at the effective capture and use of data similar to its existing activities to support distribution.

As a final point, there is a need for a thorough discussion on the practice of zero-rating, especially in relation to important 'must have' content and services such as premium sport or social media, and whether or not it overly erodes net neutrality as a principle and can further aggravate market imbalances.⁶⁴

Issues for policymakers

- *Support and guide a holistic, coordinated policy approach across Member States making use of the policy tools available in the AVMS Directive.*
- *How to ensure that wider EU rules on topics including competition, mergers and data allow media organisations to compete on a level playing-field?*

⁶³ For further evidence on this issue see the CERRE Report: Broughton Micova, S. and Jacques, S. *The Playing Field in Audiovisual Advertising: What does it look like and who's playing?* April 2019. https://cerre.eu/sites/cerre/files/cerre_playingfieldaudiovisualadvertising_2019april.pdf

⁶⁴ See also the CERRE Report on zero-rating: <https://www.cerre.eu/publications/fresh-look-zero-rating>

Ambition #3: Discourage the economic or political profitability of harmful and illegal content

The spread of harmful and illegal content has become a problematic issue in an era of abundance and the rapid spreading of content via online platforms. In many legislative instruments at EU, international and national levels, stipulations are made against the dissemination of illegal content. In addition, there are a number of statutory rules and initiatives of a self- or co-regulatory nature that deal with potentially harmful content that may not be illegal. Here it is necessary to have in mind the first ambition of protecting freedom of expression, as rules and mechanisms aimed at combatting harmful and illegal content can have serious repercussions on other expressions.

The focus should be on transparent and accountable *ex post* measures against such content, and on intervening in the revenue streams, rather than on filtering content, which can be a very blunt tool, and should be reserved for clearly illegal content. Online platforms are already taking measures that aim to keep harmful content from being profitable such as tools for advertisers to ensure brand safety and demonetising and/or limiting the dissemination of flagged extremist or harmful disinformation. As many of the efforts being undertaken aim to address global services, and place much of the responsibility on those private companies, the European Commission can lead the way in ensuring that proper transparency and appeal measures are in place.

Member states have been taking individual action against a whole range of services with differing geographic origin and core business activity in relation to harmful and illegal content, resulting in a regulatory field that can be considered patchy and inconsistent.

The **Commission should take a close look at these existing regulations and evaluate the effectiveness and consequences for freedom of expression of policies in the following areas with the aim of coordinating a more coherent and freedom of expression-grounded approach**: (i) harmful content, including incitement to hatred and content that goes against the protection of minors; (ii) disinformation, including fake news for geopolitical or economic gain; (iii) illegal content and copyright enforcement.

Issues for policymakers

- *Ensure policies to combat illegal material are transparent, that appeal measures are in place and that freedom of expression is not threatened.*

Ambition #4: Enforce transparency of ownership structures beyond media content businesses

Ownership concentration has always been a central concern in media content policies.

Several Member States still have cross-ownership regulation in place. However, most Member States have relaxed these rules over time or have no such rules in place (on top of the existing European merger regulation). The main concern is that overly concentrated ownership also has, besides detrimental economic effects, a negative impact on the plurality of voices in society. For example, the Commission-supported Media Pluralism Monitor identified high levels of risks to media pluralism related to concentration of ownership and ownership influence over content in both the Czech Republic and Poland. In both cases this was combined with problems with political independence of editors and of public media, as well as access to media by regional and other minorities and by women.⁶⁵

However, small markets have difficulties in sustaining varied ownership. There is a need to **carefully monitor the evolution towards increasing concentration. Alongside this, transparency of ownership should be an equally important concern.** Consumers have a right to know who owns the media. That right should apply not only to traditional outlets such as newspaper publishers and broadcasters, but should be extended to all telecommunications, such as cable providers or ISPs offering IPTV and catalogue services, as well as over-the-top content service providers and content sharing platforms. It should also extend to those in the advertising ecosystem upon which so much content production is dependent.⁶⁶ Some of large intermediaries have become important channels for people's access to content or in content producers' access to funds.

We recommend the European **Commission takes the initiative in ensuring the mapping of ownership structures that impact media content, and not only those structures of media content production and aggregation.** The Media Plurality Monitor, which draws attention to potential threats to media pluralism in Member States⁶⁷ is a useful tool that can be combined with the databases of the Audiovisual Observatory and other information held by national regulators to present clearer pictures of ownership and financing streams.

Issues for policymakers

- *Proactively monitor concentration in media markets along with mapping corresponding ownership structures.*

⁶⁵ For details see the Štetka, V. and Hájek, R. *Country Report: Czech Republic 2017* http://cadmus.eui.eu/bitstream/handle/1814/61135/2018_Czech_Republic_EN.pdf?sequence=1&isAllowed=y and Klimkiewicz, B. *Country Report: Poland 2017* http://cadmus.eui.eu/bitstream/handle/1814/61151/2018_Poland_EN.pdf?sequence=1&isAllowed=y

⁶⁶ The French Sapin Law is a useful example here. It was enacted in 1993 to require transparency in the agency margins and prices in the advertising markets and was amended in 2014 and 2018 to encompass the new programmatic intermediaries. For further explanation see: Broughton Micova, S. and Jacques, S.

⁶⁷ <http://cmpf.eui.eu/media-pluralism-monitor/>

DIGITAL INFRASTRUCTURE

AMBITIONS

- 1 Realise the 2025 targets**
- 2 Provide the conditions for 5G market momentum to build and be maintained**
- 3 Realise the Next Generation Internet, fixing the old and accommodating the new**

Ambition #1: Realise the 2025 targets

A key objective for the 2014-19 Commission was to ensure that Europe continues to benefit from advances in digital broadband technologies through the extension of very high capacity (fibre) networks to households, businesses and public institutions, and through the widespread deployment of the current generation of mobile technologies, while providing the conditions for a successful roll-out of the next generation – 5G. A set of ‘Gigabit Society’ targets for digital broadband deployment in Europe by 2025 have been adopted and the regulatory framework has now been substantially revised and adopted as the new European Electronic Communications Code (EECC) so as to better align with these objectives.

Achieving ultra-fast broadband investment while maintaining a competitive marketplace

The focus of the 2019-24 Commission will have to shift towards ensuring the **effective implementation of the EECC in order to mobilise the level of private sector investment in broadband infrastructure necessary to realise the 2025 targets**. The new framework introduces a number of new and unfamiliar policy concepts which the Commission, working with BEREC, the national regulatory authorities and the telecommunications industry, will now need to operationalise and implement to achieve harmonised and effective implementation across the Member States. These concepts include the application of the new SMP Guidelines to oligopolistic markets, the application of ‘symmetric’ access remedies, the conditions under which ‘co-investment’ projects and/or ‘wholesale only’ networks attract regulatory relief and the use of ‘mapping’ to identify areas in which only operators offering firm pre-commitments to build will be expected to deploy.⁶⁸

In realising the Gigabit Society, broadband infrastructure is the enabler. However, adoption hinges increasingly on the end-user acceptance of the products and services offered, and where the issues of security and privacy have increased in importance. Hence, the **focus of the 2019-24 Commission is expected to be a more holistic** one – from infrastructure through services to applications.

Resolving the misalignment between broadband ambitions and public funding commitments

We believe there will be a **need to significantly increase the level of public sector investment in broadband infrastructure if the 2025 targets are to be met**. A recent CERRE Report⁶⁹ on the role of state aid in broadband policy over the period 2003-2018 shows that less than 4% of the European Regional Development and Agricultural Funds are applied to support the extension or improvement of broadband infrastructure, far less than other Commission strategic priorities. The report contains recommendations on how to increase the flow of public funds that will be required to accelerate the adoption of the latest fibre technology, including a **revision of the current Broadband State Aid Guidelines** so as to better align them with the Commission’s broader Gigabit Society objectives and with the new Code.⁷⁰ The CERRE Report is consistent with, but goes some way beyond, the recommendations which appear in the Court of Auditors’ recent review of the broadband state aid regime.⁷¹ The recommendations include: proposals for stimulating the use of State Aid and the use of European funds; the removal of non-financial constraints; a more holistic view of financing; as well as recommendations on the collection and

⁶⁸ See ‘New European Electronic Communications Code: Interpretation & Implementation’ available [here](#).

⁶⁹ See ‘State Aid for Broadband Infrastructure in Europe: Assessment and policy recommendations’ available [here](#).

⁷⁰ <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2013:025:0001:0026:EN:PDF>

⁷¹ https://www.eca.europa.eu/Lists/ECADocuments/SR18_12/SR_BROADBAND_EN.pdf

publication of data to measure State Aid performance on the basis of funds deployed rather than the time to approve notifications.

Increasing the role of demand-side policies

Although the 2019-2024 Commission should retain a strong focus on the supply side challenge of facilitating investment in new broadband technologies, it should also start to **redress the lack of focus on demand-side measures which would ensure the greater and more rapid adoption and use of digital technologies by households and businesses** in Europe. With this in mind, a CERRE Report on demand side policies to accelerate the adoption of ultrafast broadband services recommends that the Gigabit Society targets should **include a target for the adoption of new technologies** alongside the targets for their deployment.⁷²

In addition, we recommend that the Commission promote the use of **'collective purchasing' schemes** to encourage mass migration onto new networks, as well as a range of other **measures to reduce switching costs and encourage individual households to adopt new broadband technologies earlier** than they might otherwise. **E-government** can play a role as anchor tenant, in bundling and in backbone development in rural areas. We also suggest that the State Aid rules for broadband, which we discuss above, incorporate conditions to ensure both the deployment of infrastructure and the adoption of new broadband services that are enabled by it.

In addition, some households will be unable to access new broadband services due to budgetary constraints. The need for **'social tariffs' to avoid digital exclusion** is a legitimate concern for an updated 'universal service' policy regime. It is anticipated by the EECC, but the new Commission will need to consider how it should be operationalised. Overall, the lack of focus on 'demand side' measures was a significant omission from the EECC, and one which the 2019-24 Commission ought to take steps to rectify.

Providing leadership and coordination across policy and regulatory areas

While in the past infrastructure developments, such as telecommunications, electricity and transport, have largely been treated separately, in the 2019-2024 period the **interdependencies of sectors are expected to increase significantly and the need for alignment of policies and regulations across infrastructural sectors will grow**, to ensure sector-specific progress.

Moreover, interdependencies are increasing around critical infrastructure, for example, with the energy and transport sector increasingly relying on ICTs for their proper functioning. Moreover, coordination across sectors will stimulate uptake of ultra-fast broadband and allow for cost reduction in terms of deployment or renewal, for example through coordinated civil works. In this context, harmonisation of the implementation of the Broadband Cost Reduction Directive and amendment, to include the full scope of deployment costs and barriers is important.

Furthermore, **coordination is considered essential to maximise the benefits from limited funding, both private and public**. A salient example of the need for alignment is the development of smart mobility, which links road infrastructure works with the roll-out of 5G and the future of autonomous driving. This calls for coordination between the private sector mobile operators and the public sector, at multiple levels of government. Another example is smart cities, which links the deployment of all kinds of IoT applications to the availability of communications infrastructure. Here again optimal outcomes will require coordination between private and public actors.

Another example is smart electricity grids. Increasingly, the benefits of a ubiquitous broadband communication infrastructure are reflected in the cross-sector developments it enables, including

⁷² See 'Demand-side Policies to Accelerate the Transition to Ultrafast Broadband' available [here](#).

cost savings and efficiencies in the maintenance of other infrastructure and improvements in the delivery of public services. **While much of the work will have to be done at the local level, European Union policy – and where appropriate regulation – on the future of smart industries and sectors is essential to ensure uncertainties in the market are reduced in order to stimulate investments.** This relates in particular to the increasing interdependence between infrastructural developments, sector related policies, the realisation of sustainable development goals and the economic and social benefits that a harmonised approach may provide to the Union.

In the next 5 years, policy and regulatory attention will also have to include the higher application layers, which are essential to assure a smooth Union-wide product and application flow. This applies to areas such as safety requirements and liability in the (autonomous) transport sector. A harmonised approach across the Union will avoid the need for 're-programming' at the border of Member States. It will reduce market uncertainty, lower risks and hence stimulate investments in electronic communications infrastructure.

Leveraging virtualisation to counter consolidation

On the access side of broadband electronic communications infrastructure, the goal remains very high capacity (VHC) networks. The pace at which this goal is achieved will receive a **boost from the fibre backhaul needs** resulting from the deployment of 5G, in particular the network densification with small cells. This development **favours the integrated fixed and mobile operators and drives the mobile-only players to collaborate closer or merge with fixed players.**

This structural change in the industry, with **fewer infrastructure players, increases the need for wholesale solutions to retain vibrant competition on the retail level. Such a shift is enabled by increasing virtualisation of mobile and fixed networks**, through software defined networking and network function virtualisation.⁷³

In the interim, the enhancements of twisted pair copper solutions from the distribution point into the premises remain a cost-effective solution in the short term; as are coax-based solutions from the last amplifier. To avoid legacy creep, fibre deployments could be recommended for green field situations, such as new housing developments and city renovations. The current review of the Guide to High-speed Broadband Investment will provide an opportunity to reflect the latest industry developments.

Issues for policymakers

- *Confront the funding gap in meeting connectivity targets: unlocking private investment through effective implementation of the EECC and facing up to the levels of public funding required.*
- *Deliver holistic policies that foster demand for this connectivity and ensure cross-sector coordination with areas such as energy and mobility which will increasingly rely on telecoms infrastructure.*

⁷³ Virtualisation refers to running multiple software applications, possibly on different operating systems, on a single hardware platform. Software Defined Networking (SDN) and Network Function Virtualisation (NFV) provide adaptability and scalability in communications networking in response to increasing traffic needs from cloud computing, mobility, social networking and video use. In SDN packet routing and forwarding are separated into a control plane and a data plane. Through NFV the virtualisation as applied in the IT-world is applied to network devices, such as routers, firewalls, switches, etc. NFV decouples the network functions from proprietary hardware platforms and implements these functions in software, allowing standard high-performance hardware to be used.

Ambition #2: Provide the conditions for 5G market momentum to build and be maintained

The worldwide success of 2G-GSM can be traced back to a set of coordinated actions by a broad range of stakeholders within the European Union to provide the conditions for GSM market momentum to build and be maintained.⁷⁴ The ambition for the 2019-2024 period should be providing the **appropriate set of conditions for 5G market momentum to build and be maintained**, that is, reducing market uncertainty to stimulate investment. Compared to the existing 4th generation, 5G offers improvements along virtually all important dimensions: in peak data rate, in user data rate, in latency, in support of mobility, in spectrum efficiency, in network energy efficiency, in connection density and in area traffic capacity. However, it appears that the transition from 4G to 5G lacks the stepwise improvement that has led to the success of 2G-GSM.⁵

The major change between 4G and 5G is within the 'black box': the fully virtualised architecture of 5G. As such, the transition from 4G to 5G could mirror the success of IT services moving into the cloud. To repeat this success, the **providers of mobile services will have to change their business approach from a focus on the consumer mass market to enabling business users across all industries and sectors**, from start-ups to established conglomerates.

In providing the conditions for 5G market momentum to build, the overall industry perspective should be considered, including market structure, investment obligations or expectations, and radio spectrum access fees, against the overall macro-economic benefits that an ultrafast and ubiquitous wireless electronic communications infrastructure provides.

Achieving investment in 5G infrastructure while maintaining a competitive marketplace


The transition to 5G does raise issues in terms of competition that European policymakers need to consider. First of all, the **pressure for infrastructure sharing is expected to increase** in order to reduce capital expenditure needs. Moreover, sharing will be required to reduce local community concerns around the increasing numbers of antenna sites as a result of densification. Informing the local actors involved on the objectives with 5G will reduce undue delays and hence market uncertainty. An update of the planning rules will be required, as well as harmonisation of the electro-magnetic field strength limits.

A totally different type of impact concerns the role of MVNOs. In the past and current mobile generations, so-called deep-MVNOs typically own a part of the signalling and routing control infrastructure, while using traffic capacity from the MNOs.⁷⁵ In the fully virtualised infrastructure of 5G, such an arrangement may no longer be possible. MVNOs will have to become so-called Virtual MNOs (VMNOs), and **MNOs will have to collaborate with VMNOs to manage a virtual network slice or multiple slices** if service differentiation is required. Operationally this means that MNOs and VMNOs will have to reach an agreement to provide access to the APIs as integral parts of the 5G architecture.⁵

A current competition concern that 5G may help to resolve is related to the consolidation of the sector. A returning pattern has emerged, whereby consolidation takes place in between auctions for radio spectrum access for each new generation of mobile technology. This triggers regulators to aim at introducing at least one new player as part of each auction, though this has been increasingly difficult and has shown diminishing success. This consolidation reflects the deep investments that the sector requires. The **opportunity that 5G provides is to open up the APIs**

⁷⁴ See 'Towards the successful deployment of 5G in Europe' available [here](#).

⁷⁵ Light MVNOs typically do not own infrastructure as their business model is based on pure retail of minutes of service.



to create a virtual wholesale-retail model. A small(er) number of MNOs can be offset by a much larger number of VMNOs, with a more differentiated services scope than it is generally the case with the current generation of MVNOs. VMNOs may therefore specialise in serving the mass consumer market or the specialised needs of vertical industries.

This new industry structure has the potential to deliver a vibrant level of competition on the retail level thereby serving the diverse end-user interests, business and consumer alike. The need for dedicated spectrum assignment, such as for GSM Rail and TETRA, may fall away if and when virtualisation has become a reality, further improving the efficient use of a scarce resource.

The introduction of 5G presents incumbent operators with new business opportunities and new business models. It also constrains current forms of competition, while opening up new ones. Hence, regulators and competition authorities will need to appreciate the new rules of the game and will have to be vigilant to assure competition is promoted and investment stimulated. This applies at the Member State level, as well as the EU level.

Achieving economically efficient allocation of radio spectrum access rights

While the Member States are the custodians of radio spectrum use, the European Commission and the Radio Spectrum Policy Group (RSPG) have an important coordination and harmonisation role. However, in the past it has failed to take an active role here or taken the opportunity to challenge bad decisions. A key issue will be ensuring the economically efficient allocation of radio spectrum access rights.

Over the years auctions have become the dominant instrument in this allocation and much has been learned to allow the design of auctions that avoid excessive fees. Nonetheless, the prospect of high fees attracts the interest of national governments. In providing the conditions for 5G market momentum to build and be maintained, Member States should **design spectrum auctions that allocate efficiently, but refrain from designs that unduly tax or otherwise constrain the developments in the sector**. This will optimise investments in the roll-out of 5G.


Balancing exclusive and non-exclusive rights to access the radio spectrum

The anticipated growth in data rate requirements, in the number of end-users, connected devices and applications requires additional mobile communications system capacity to be realised through (1) the allocation of additional radio frequency bands; (2) densification of the radio access network; (3) and more efficient use of the spectrum, as one of the 5G design objectives.

Alongside the nation-wide exclusive licensed allocation of frequencies for mobile use, there is a **growing need for non-exclusive unlicensed frequency bands for localised use cases**, ranging from remote door openers, through Wi-Fi to micro-wave ovens. With 5G being targeted to vertical industries, exclusive localised and specialised enterprise use is also expected to grow. The next Commission should therefore seek to significantly expand the opportunities for those actors who wish to exploit spectrum on an expanded and innovative basis. **To assure optimal flexibility in the unlicensed frequency bands, regulators should refrain from creating specific assignments for dedicated use cases.**⁷⁶

In the past, to meet specific needs spectrum allocations have been granted on an exclusive basis to non-telecom actors, such as railway operators (GSM-R) and the public protection and disaster relief sector (TETRA). The current debate on upgrades to broadband suggests that the common use of the 4G and 5G standard would allow for economies of scale in terms of equipment. No consensus

⁷⁶ See the analysis in Kruys & Anker (2018) Technology agnostic regulatory criteria for licence-exempt spectrum. *Digital Policy, Regulation and Governance* 20(1) 1-13. <https://doi.org/10.1108/DPRG-05-2017-0022>



has been reached yet whether public protection and disaster relief (PPDR) should be provided using dedicated spectrum or should be provided as a service.⁷⁷

The **virtualised architecture of 5G using APIs will allow PPDR and other dedicated sectors to become virtual mobile network operators**. This combines the common use of the infrastructure with full control over the service functionality. Such a development would provide a major boost to 5G deployment and would facilitate similar use by a wide range of vertical applications, such as in autonomous driving and in variants of smart cities. In this scenario it would provide an alternative to current exclusive use of spectrum on a local basis, such as Private-GSM and Private-LTE.⁷⁸

However, 5G also allows the development of dedicated enterprise solutions, for example, as part of Industry 4.0, for which local exclusive spectrum in a higher frequency range would be the natural solution.⁷⁹ Note that allocations in the 3.5 GHz band are now considered by a number of regulators across the EU to enable the evolution towards Private-5G.

Involving non-telecoms actors

Much of the debate during the 2014-2019 period has related to the role and incentives of the existing telecommunications operators and, in particular, their capacity to finance investments in new broadband technologies.

However, we consider that **the successful deployment of 5G mobile technologies and the 'Internet of Things' over the 2019-2024 period will depend upon the effective participation of a wide range of other industrial sectors or 'verticals'**, such as the automotive industry, transport sector, health, those providing public emergency or security services and other industries who are best placed to adopt these technologies within existing processes and activities or to use them to develop new ones, either on a national or on a pan-European scale.

This produces two new and important challenges for the 2019-24 Commission. First, we believe that the **Commission may have an important role to play in facilitating co-operation between different participants – public and private – in the evolving '5G value chain'** (as well as between the relevant services within the Commission itself). It already does this in relation to collaborative working in pre-commercial stage R&D, but this may now need to extend into commercial activities as well. This was recognised by the Commission in its first 5G Action Plan.⁸⁰

In contrast, policymakers in the United States take the view that: 'Turning innovators loose is far preferable to expecting committees and regulators to define the future. We won't wait for the standards to be first developed in the sometimes arduous standards-setting process or in a government-led activity.'⁸¹

We think the next Commission should consider carefully the circumstances under which the Commission might intervene and when it would be better to leave market participants in different 'verticals' to resolve issues amongst themselves, what institutional arrangements might best facilitate such co-ordination, how the task should be approached and resourced, and the


⁷⁷ Full integration implies that the QoS required by the PPDR sector, such as longer uptime during power outages, will need to be provided across the whole network.

⁷⁸ Note that the deployment experience of SDN and NFV in fixed networks suggests a more modest pace than anticipated when virtualisation was launched around 2013. Mainly due to the complexity that virtualisation entails.

⁷⁹ This development can be compared with the pabx in the days of circuit-switched telephony. A pabx provided a much wider range of features to end-users than the public network provided.

⁸⁰ 5G for Europe: An Action Plan. COM(2016) 588 final and SWD(2016) 306 final. https://ec.europa.eu/digital-single-market/en/5g-europe-action-plan?utm_source=twitter&utm_medium=social&utm_campaign=5G

⁸¹ FCC Chairman Tom Wheeler, 20 June 2016 'The Future Of Wireless: A Vision for US Leadership in a 5G world' <https://www.fcc.gov/news-events/events/2016/06/future-wireless-vision-us-leadership-5g-world>



circumstances under which it should be undertaken at a European level. The Commission should also be prepared to adapt quickly if it becomes clear that particular initiatives will fail to deliver on their objectives or are inhibiting the development of the market. The result of this work should be incorporated into a second '5G Action Plan' in which the focus moves from enabling measures in spectrum and technical standards to detailed implementation by market participants, while allowing for fast-learning.

Second, it will be important to recognise that **relations between the telecommunications and other sectors may be competitive or adversarial, as well as co-operative**. The role of different commercial actors in different parts of the 5G value chain remains unclear today and is likely to be contested as different actors seek to control different activities, as we explained in a recent CERRE Report on 5G.⁸² The Commission should encourage the emergence of innovative solutions of this kind but should not intervene unless it is clear that there is harm, given the need to achieve the 2025 targets highlighted above.⁸³ Such conflicts are otherwise likely to raise costs and uncertainty, as well as lead to delays in the deployment and adoption of new 5G technologies in Europe.

Balancing 'open internet' and differentiated services for verticals

In addition, the next Commission will need to ensure that the **Open Internet Regulation**⁸⁴ that was adopted in 2015 and which has been in force since April 2016 **does not adversely or unintentionally impact the adoption of new digital broadband technologies in Europe**, and should be prepared to act quickly if it does. These concerns were first articulated in a 2014 CERRE Report⁸⁵ - before the Open Internet regulation was adopted - and more recently in a CERRE Report on 'zero rating' practices.⁸⁶

Although the general aims of the current regulation are clear, its application to new services and the management of new networks are not. New technologies such as 5G envisage that networks will be configured to better match the different needs of different users and services, but it is unclear whether this aligns with principles of 'neutrality'. The United States has recently withdrawn its 'net neutrality' regulation, and so any adverse impact may place Europe at a comparative disadvantage to other regions. The upcoming review (after four years of being in force) provides the opportunity for a re-assessment and adaptation to accommodate evolved needs.

Issues for policymakers

- *Ensure wider policy issues do not hamper 5G deployment: that competition policy does not impede necessary infrastructure sharing; that Open Internet Regulation does not prevent configuring networks to match user needs.*
- *How to encourage spectrum allocations that are fit for purpose in 5G: efficient, and effectively balancing exclusive and non-exclusive rights?*
- *Determine where to intervene to ensure coordination between telecoms and wider industrial players, and where to leave it for market participants to determine.*

⁸² See 'Towards the successful deployment of 5G in Europe' available [here](#). See also the discussion of the relationship between MNOs and MVNOs above.

⁸³ Which is not to say that a strict application of Europe's existing 'net neutrality' rules is required, as explained earlier.

⁸⁴ Regulation 2015/2120 of the European Parliament and of the Council of 25 November 2015 laying down measures concerning open internet access and retail charges for regulated intra-EU communications, as amended by Regulation 2018/1971.

⁸⁵ See 'Market Definition, Market Power and Regulatory Interaction in Electronic Communications Markets' available [here](#).

⁸⁶ See 'A Fresh Look at Zero-Rating' available [here](#).

Ambition #3: Realise the Next Generation Internet, fixing the old and accommodating the new

The Next Generation Internet (NGI) initiative launched by the Commission to “re-imagine and re-engineer the Internet for the third millennium and beyond” is very timely. The NGI initiative aims at “developing a more human-centric Internet supporting values of openness, cooperation across borders, decentralisation, inclusiveness and protection of privacy; giving the control back to the users in order to increase trust in the Internet. It should provide **more transparent services, more intelligence, greater involvement and participation, leading towards an Internet that is more open, robust and dependable, more interoperable and more supportive of social innovation.**”⁸⁷

In imagining the future needs of the Internet, due account should also be given to the increasing use of the Internet by machines as part of the Internet-of-Things and Industry 4.0 developments. Moreover, lessons from the past should be taken into account as well. Despite its success, the Internet does have some serious flaws, which must be resolved as society and the economy become more dependent on this critical infrastructure.

Some authors argue that the Internet has become too successful, too quick. The original ARPANET and the NSFnet, from which the Internet evolved, were prototypes for a limited group of research organisations for a limited set of tasks. However, the TCP/IP code became freely available and was used in networks everywhere. These networks evolved into the global Internet, now used for many things for which it was not designed.

The flaws of the current Internet can be summarised as: wrong addressing model; wrong congestion control; no security mechanisms; difficulty in supporting mobility, multi-homing and quality of service; difficulty in supporting real-time and low latency applications.⁸⁸ As a consequence, our cybersecurity efforts are largely aimed at fighting symptoms rather than resolving the issues at the root cause. Fixing the flaws will be necessary before a successful transition to the tactile Internet can be considered.

Deciding on a next generation Internet and its implementation is not a trivial affair. Since the Internet transitioned in use from a US government supported research community to private business in the late 1980s and to the wider public in the mid-1990s, the Internet has seen only one major upgrade. This was the transition from IPv4 to IPv6 to provide an extended IP address range, to which a number of other enhancements were added.⁸⁹

If one wants to retain one global Internet, global alignment of the stakeholders will be required. Meanwhile, improved versions of the Internet have been developed, such as RINA (led by Boston University) and SCION (led by ETH Zürich), and running code is available and is being tested by multiple organisations at various locations.⁹⁰


Assuming the 2019-24 Commission intends to take the NGI initiative forward, which would be in line with the goals and norms that are core to the European Union project, it calls for a leadership role that will transcend the Union and will require more than one Commission term.

⁸⁷ Sources: <https://www.ngi.eu/news/2018/05/22/interview-with-the-new-deputy-and-acting-head-of-the-ngi-unit>; <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/ict-24-2018-2019.html>

⁸⁸ Sources: “Reflections on the history and future of the Internet” by K. Neggers, former IAB member, presented at the DigitalOcean Meetup February 22, 2018.

⁸⁹ Given the large installed base of IPv4 the transition is a long process, which started around 2008 and 10 years later- approx. 23% of the requests for Google search use IPv6.

⁹⁰ Sources: <https://www.scion-architecture.net/>; <http://csr.bu.edu/rina/index.html>.



The notion of a more open Internet has also obtained a new dimension as nation states feel an increasing threat to national security. Open economies and open networks have enabled the malevolent use of the Internet to grow.

The **increasing dependence of the economy and society on the ICTs has made them vulnerable to cyberattacks**, which may be economically or politically motivated. The concerns include so-called 'backdoors' in infrastructure equipment, which may be used by governments for surveillance, espionage, the spread of malware or – in the extreme – taking control over the infrastructure to shut it down. This has raised the question as to whether national governments are still in control of the vital infrastructure in their countries and in control of the flow of sensitive and valuable data.

However, **assuring or regaining digital sovereignty** is not a trivial affair. It implies governmental intervention in the market. This may range from prescribing certain technical functionality to be made available, to intervening in the procurement of equipment and services, which will violate European regulations regarding (public) procurement and will lead to fragmentation of the EU market. The current political discussion on the role of equipment from Huawei in enabling espionage by the Chinese government is a case in point. This case represents a major trade-off, between lower equipment costs and lower security risks. How should this trade-off be resolved? Who should decide? This is at the core of the question of how open Europe wants to be.

Issues for policymakers

- *How open should Europe be in facilitating the Next Generation Internet? How to balance the need for an "open, robust and dependable" Internet, with cybersecurity and digital sovereignty?*

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ABOUT CERRE

The Centre on Regulation in Europe (CERRE) is an independent Brussels-based think tank. We promote ever-better regulation of network and digital industries in Europe and beyond.

We support rules that guarantee access to quality services at reasonable prices for all citizens, consumers and users today, while stimulating investments and innovation for tomorrow. These rules should safeguard citizens' rights and ensure strong consumer protection as well as appropriate competition between industry players.

The growing convergence and interactions between the energy, water, mobility, media, telecom and online economy sectors, create new opportunities and challenges for regulation. CERRE's approach allows stakeholders, including policymakers and regulators, to actively adapt to fast changing technology, business models and markets.

The CERRE community supports applied research that guides political, regulatory and business leaders to take better decisions for all. To do so, CERRE develops and disseminates policy-oriented independent research undertaken by experienced economists, lawyers, engineers, political scientists and other acknowledged academics based all over Europe.



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