



Connecting Europe for a better future: Vodafone's Policy Priorities

Executive summary

One of the great successes of the EU has been building the foundations of the single market so that businesses and consumers can benefit from one joined-up marketplace. This has transformed industries ranging from manufacturing and aviation to wholesale banking. The vision of the next European Commission should be to realise this potential in all industries, powered by best-in-class connectivity and networks. In Europe, a faster evolution to digitisation is urgently needed.

As the future College of Commissioners prepares its vision and priorities for 2020-2024, it should capture the potential social and economic value that would be brought by a truly harmonised approach to the telecoms and digital markets. Despite great progress being made in the last five years, Europe is still suffering from a fragmented regulatory framework for infrastructure and digital services, holding back all sectors of the economy. This is also one of the key things keeping Europe from becoming a hub for fast-growing digital and platform businesses. Europe's clear strengths in research and development (R&D), advanced manufacturing and education need the right access to high-speed networks and digital services in order to make the shift to digitisation.

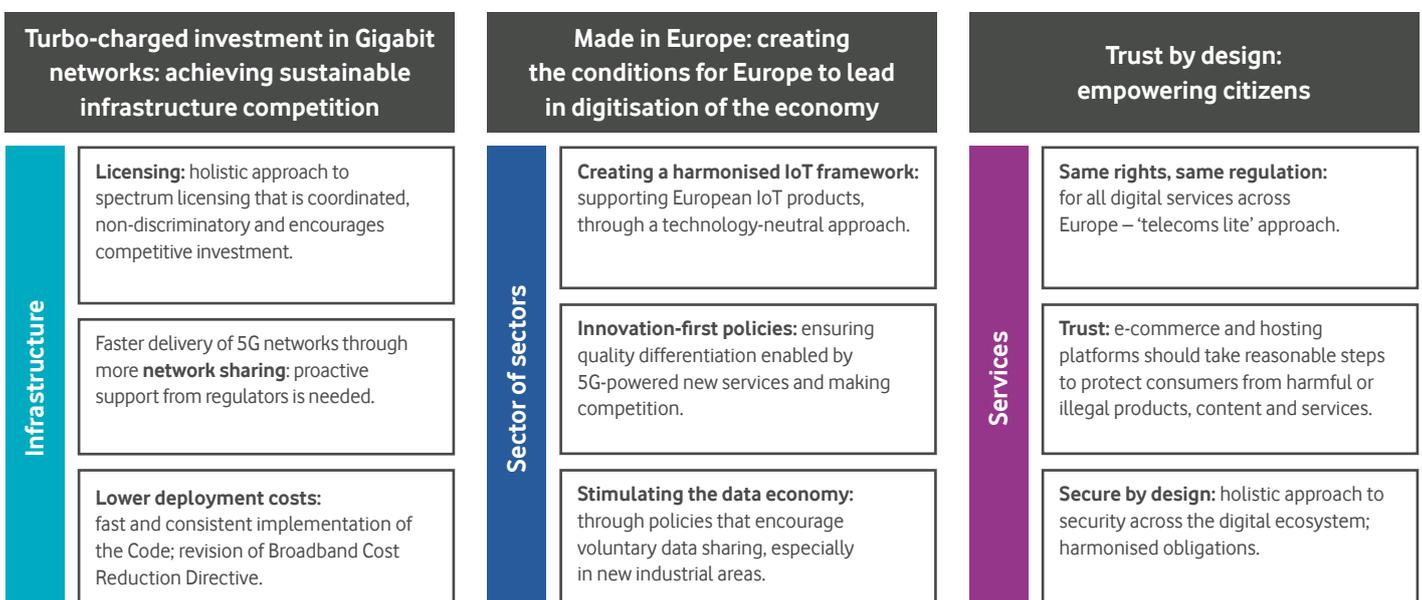
Europe has an opportunity to become a global leader in the next phase of the digital era. Gigabit networks and new technologies such as the Internet of Things (IoT) and artificial intelligence (AI) could transform Europe's traditional sectors and create new employment opportunities. From Europe's strong position in data protection to the work that is going on to reinforce cybersecurity, Europe is well placed to take additional steps that will turn it into a centre of excellence for digital growth for industries and ensure that digital services are trusted by consumers.

At Vodafone, we connect for a better future. We recognise that we have a fundamental role to play in a digital society. Gigabit networks are integral to the overall functioning and success of the European economy. Digital services, like the ones we enable and provide, are quickly becoming the new engines of growth in the global race for economic prosperity and sustainable development. In order for digitalisation to be successful, people and businesses everywhere must be connected to best-in-class networks and the right conditions must be in place to encourage digitisation of the economy.

Vodafone's recommendations to support this vision focus on three key pillars: **Turbo-charged investment in Gigabit networks**: achieving sustainable infrastructure competition and building the digital highways needed for Europe to become truly digital; **Made in Europe**: creating the conditions for Europe to be a leader in digitisation of the economy; and **Trust by design**: empowering citizens by embedding trust into the digital world to protect citizens in a way that is able to keep pace with the speed of technological change.

Digital single market 2.0 – Vodafone proposal

Three pillars



Turbo-charged investment in Gigabit networks: achieving sustainable infrastructure competition

Spectrum licensing must be coordinated and non-discriminatory and must encourage competitive investment

National governments need to take a long-term approach to spectrum licensing, to ensure sustainable investment in Gigabit networks that power their economies. This requires three key actions. First, there should be no discrimination, for example, towards new entrants or by imposing unreasonably high fees, which distorts the market. Similarly, while voluntary sharing of spectrum should be encouraged, the reservation of spectrum for local licences for industrial use should be avoided as this leads to fragmentation, discrimination and inefficiencies (e.g. large areas where spectrum is unused or under-used). Second, spectrum fees should be reinvested back into the digitisation of the industry to create a virtuous circle, supporting further network investment. Third, in order to support the development of the digital single market, there should be an increased focus on conditions that encourage the management of spectrum both within and across borders, such as the alignment of spectrum bands in order to facilitate European services. The Radio Spectrum Policy Group (RSPG) must take a stronger peer-review approach, with a clear scorecard for adherence to consistent licensing best practice, including transparent award procedures and level playing field treatment of all applicants. This should be complemented by additional guidance by the European Commission towards spectrum harmonisation across Europe.

Faster delivery of futureproof 5G networks

5G networks will be the backbone of our entire economies. Building them requires a market environment that works for critical infrastructure investments. Competition and industrial policies are key enablers in this, as guarantors for long-term competition among efficient operators. They should neither induce re-monopolisation nor artificially create new entrants that cannot be sustainable given underlying cost and demand structures. There is no doubt that network sharing is essential in order to achieve the connectivity targets for 5G and Fibre to the Home (FTTH) as well as delivering better quality and coverage in fixed networks. There is a need for support from member states and guidance from the European Commission to encourage network sharing, which allows the industry to cover more areas through a collaborative approach without impacting on competitive outcomes for end users.

Addressing barriers to deployment

There is a need to speed up deployment and reduce unnecessary cost and red tape if we are to meet the growing digital needs of business and consumers. For example, planning permissions for rollout of new network infrastructure across our markets range from 35 days to a year. Effective, consistent and quick implementation of the European Electronic Communications Code (the Code) will be essential to deliver the appropriate incentives to stimulate competitive investment in best-in-class networks. This is particularly needed in relation to passive access to ducts and poles, which enables better competition and co-investment, which drives higher quality. For this to happen, European Commission guidance is urgently needed to avoid uncertainty and fragmentation. In this regard, the Broadband Cost Reduction Directive needs to be reviewed and to become a true means to redress impediments to infrastructure rollout, together with more consistent enforcement, in particular to include better access to relevant public facilities. Such a move would help ensure that costs are allocated to improving networks and that new technologies can be rolled out quickly and efficiently.

Ensuring networks are secure

Vodafone strongly supports the EU initiative for a common 5G security risk assessment and the plan to draw up EU-wide measures to mitigate risks. Setting the right standards and establishing robust evaluation regimes will be critical to success.



Made in Europe:

creating the conditions for Europe to lead in digitisation of the economy

Creating an IoT framework that is fit for purpose

Traditional person-to-person communications regulation is not fit for purpose for IoT, where national telecoms regulation is holding back new European services. Europe needs proportionate European regulation ‘designed for IoT’ – ensuring that regulatory rules relate to actual risk of harm based on communications between machines as opposed to people. For example, there is no need for number portability for a location tracker where the number is never used or displayed. Similarly, consumers should be protected whether they are using cellular or non-cellular IoT, which is not the case today as different rules apply. Finally, a joined-up, technology-neutral approach to industrial policy is needed, given that sector-specific policymakers are at risk of mandating non-cellular IoT standards, which would distort market development and limit the transition to 5G.

Moving from an ‘innovation by permission’ to an ‘innovation first’ approach

5G networks, through a combination of AI and new technologies such as network slicing and multi-access edge computing, will create new opportunities for a range of sectors, enabling quality differentiation in agriculture, media, healthcare, entertainment, automotive and many other areas. An innovation-first approach requires room for experimentation. The new Body of European Regulators for Electronic Communications (BEREC) guidelines on net neutrality, which are due to be published in 2020, should create the foundations for this innovation-first approach, allowing service providers to use quality differentiation in new and innovative services. Similarly, in relation to AI, we are strongly supportive of the ethical framework proposed by the High-Level Expert Group on Artificial Intelligence appointed by the European Commission, as regulating too early in this area could chill innovation. As set out above, vertical specific licences for 5G could lead to fragmentation and inefficient use of spectrum, and we should learn from the mistakes of the past (e.g. set-aside of aeronautical spectrum).

Promoting effective and sustainable competition

EU policies should encourage the emergence and scaling of new platforms and digital services through a joined-up approach. In particular, competition law needs to be updated for the digital age to be able to better assess multi-sided markets and data-funded services, which can be done through new European Commission guidance. Antitrust enforcement in digital markets should be implemented more quickly, with interim measures to ensure that anticompetitive behaviour can be remedied in a timely manner. The information gathering and monitoring required under the new Platform-to-Business Regulation should be used to assess the platform market on an ongoing basis to ensure any additional obligations are targeted at specific harms, such as exclusionary behaviour of dominant players or access to essential facilities needed to enable new entrants to thrive.

Stimulating the data economy through voluntary data sharing

Huge amounts of data are generated throughout the internet value chain. It is imperative that the value of the data can be realised (in conjunction with AI techniques) to contribute to our societies, for example, via smart cities, optimised healthcare, greater efficiency of business and a greener environment. These new opportunities could be unlocked by developing additional targeted policy measures that can facilitate and incentivise voluntary non-personal data sharing. In particular, the European Commission should support standardised data-sharing models across sectors; for example, the extended vehicle and neutral server concepts that are being developed in the automotive sector could be used in other sectors with original equipment manufacturers (OEMs) (e.g. agricultural equipment). Barriers to the free flow of non-personal data both within and outside the EU should be removed and the use of pseudonymised communications metadata under the ePrivacy Regulation for data analytics opportunities, such as for smart cities, should be allowed on the same basis as in the General Data Protection Regulation. Finally, demand-side policies, such as the opening-up of data by governments to support industries, as set out in the new Common Agricultural Policy proposals, should be encouraged.

Trust by design: empowering citizens

Establishing the same rules for digital services, everywhere in Europe

As the economy becomes digitised, digital, communications and content services are converging and in most areas, sector-specific rules are no longer needed. Consumers should have the same rights throughout Europe for all digital services. This principle has not been applied to date in relation to audiovisual media and communications services, which still creates artificial regulatory divergence between services. In the event that the eCommerce Directive is reviewed, it provides an opportunity to address any gaps which exist, such as barriers to switching across different services. As a result, overlapping regulation can then be removed from sector-specific regulation, for example, in the European Commission review of the Code in 2021. This would also allow for one set of regulations and possibly one regulator for digital services.

Creating regulation fit for the digital age

Regulation today struggles to keep up with the pace of technology, which both holds back traditional services and results in gaps in protection for consumers. New regulation should be smarter and principles-based, replacing the prescriptive approach we have today that results in information overload for consumers. At the same time, such principles-based regulation should incentivise companies to take more responsibility, using AI and data to empower consumers rather than relying on static and overly detailed regulation.

Secure by design

Without trust in the safety of digital services, the digital ecosystem will not be able to thrive. Secure networks are the backbone of the digital economy and the telecoms industry has to meet excessive obligations laid down in the Code, the ePrivacy Regulation and the NIS Directive, the directive on security of network and information systems. However, with the rapid increase of connected devices, products, services and businesses from a wide range of sectors, vulnerabilities can manifest anywhere and a more horizontal approach is needed. In order to achieve this, Europe needs the same rules for digital as well as traditional services, common security standards and certification schemes, which should be proportionate and harmonised across Europe.

Introduction: Connecting Europe for a better future

Europe faces significant challenges. The security environment is increasingly complex and volatile, ranging from malicious cyber threats to online disinformation campaigns that undermine the very basis of our democracies. Global competition is healthy, but European companies risk falling behind. None of the top 15 digital companies by market cap are European. Europe also faces many societal challenges: an ageing population, climate change, lack of digital skills and social and regional divides in levels of digitisation, to name but a few.

However, digitisation and new technologies also offer new solutions to these problems. Digitisation in areas such as health, mobility, industry and science can address many societal and environmental challenges and contribute to Europe's future competitiveness and growth.

Over the last five years, the European Commission has been successful in getting Europe closer to a digital single market. It has created the right conditions and a level playing field for digital services to flourish and for investment in infrastructure, levelling the playing field in telecoms services and updating regulation for the digital age. It has ensured better access for consumers and businesses to digital goods and services and addressed gaps in consumer protection, for example, in relation to digital content. And, finally, it has addressed some of the barriers to growth of the digital economy by

removing unjustified data localisation laws and supporting an inclusive society. New laws still need to be transposed and implemented in an effective and harmonised way across the EU. The challenge for the next European Commission is to use these solid foundations as a springboard for creating a strong framework to drive European success. Indeed, as far as we have already managed to come in the last five years, we are still only at the start of this journey. In relation to infrastructure alone, an additional €155 billion of investment over and above typical levels of investment is needed to meet the European Commission's 2025 connectivity targets¹. These targets would deliver high-gigabit connectivity in urban areas for schools, universities and digital economy businesses, as well as access to an internet speed of at least 100 Mbps – whether you are in the city or the countryside – and 5G access.

Europe has the opportunity to become a world leader in digital transformation by investing in new technologies, such as AI, 5G and IoT. Governments and industry need to work together to create policies to increase investment in best-in-class infrastructure and digital skills, grow the data economy and ensure trust. Now is the time to complete and deepen the digital single market to enable businesses to scale up and trade across borders and ensure that technology can flourish in a trusted, secure and responsible environment.



¹ [http://www.europarl.europa.eu/ReqData/etudes/BRIE/2019/633171/EPRS_BRI\(2019\)633171_EN.pdf](http://www.europarl.europa.eu/ReqData/etudes/BRIE/2019/633171/EPRS_BRI(2019)633171_EN.pdf)

Turbo-charged investment in Gigabit networks:

achieving sustainable infrastructure competition



Turbo-charged investment in Gigabit networks: achieving sustainable infrastructure competition

Europe urgently needs to leverage its strengths in higher education, R&D and advanced manufacturing more effectively in order to thrive in the next wave of digital transformation. Innovation in IoT, automation and AI goes to the heart of Europe's economy, society and industrial base. Europe cannot afford to be left behind.

Helping European digital champions to develop will provide two core benefits to European businesses. First, infrastructure providers of scale can invest in the next-generation networks that are essential for the rollout and scaling-up of new products and services for European consumers and businesses. Second, developing cutting-edge platforms and business services providers will allow European industry to seize the opportunities of the next wave of digital transformation.

Completion of the digital single market is a matter of European necessity. A more harmonised digital single market will bring enormous benefits to society – from building smarter cities to reducing environmental impact to improving personalised medicine and the treatment of chronic conditions. Digitisation offers new opportunities to address environmental and climate change challenges and companies should be incentivised to use digital solutions that have such wider impact. These benefits will only accrue if the underlying infrastructure and networks are best in class and secure and citizens and businesses are able to use communication and data services confidently and securely.

What Vodafone can deliver

Vodafone has invested €59.5 billion in Europe over the last five years. We have 90,000 mobile masts and nearly 400,000 kilometres of cable and fibre across Europe. Every year, 770,000 terabytes of data are transferred over our European networks. The vast majority of our global revenue is generated in Europe, while 37,000 people earn their living as members of the Vodafone team, including at our R&D centres in Spain and Germany.

We are deepening our European presence through the joint venture in the Netherlands and our acquisition of Liberty Global's networks in Germany, Hungary, Czechia and Romania. This acquisition demonstrates our support for a single market in telecoms and our ambitions to build the first pan-European digital telecoms company.

This is only the start. Vodafone is determined to be a key architect of Europe's digital future. We are constantly upgrading and expanding our fixed and mobile networks. This means our consumers and business customers get faster, more reliable and more secure connections. We are investing significantly in next-generation networks: extensive fibre networks in Spain and Portugal and 5G launches in all major EU markets where Vodafone operates in Europe. We have established our 5G centre of excellence in Milan, which is pioneering 5G trials in robotics and connected ambulances. At the same time, we have committed to reduce our greenhouse gas emissions by 50% and to purchase 100% of the electricity we use from renewable sources by 2025. This 5G investment underpins the IoT revolution and the transformative new digital services that this will enable.



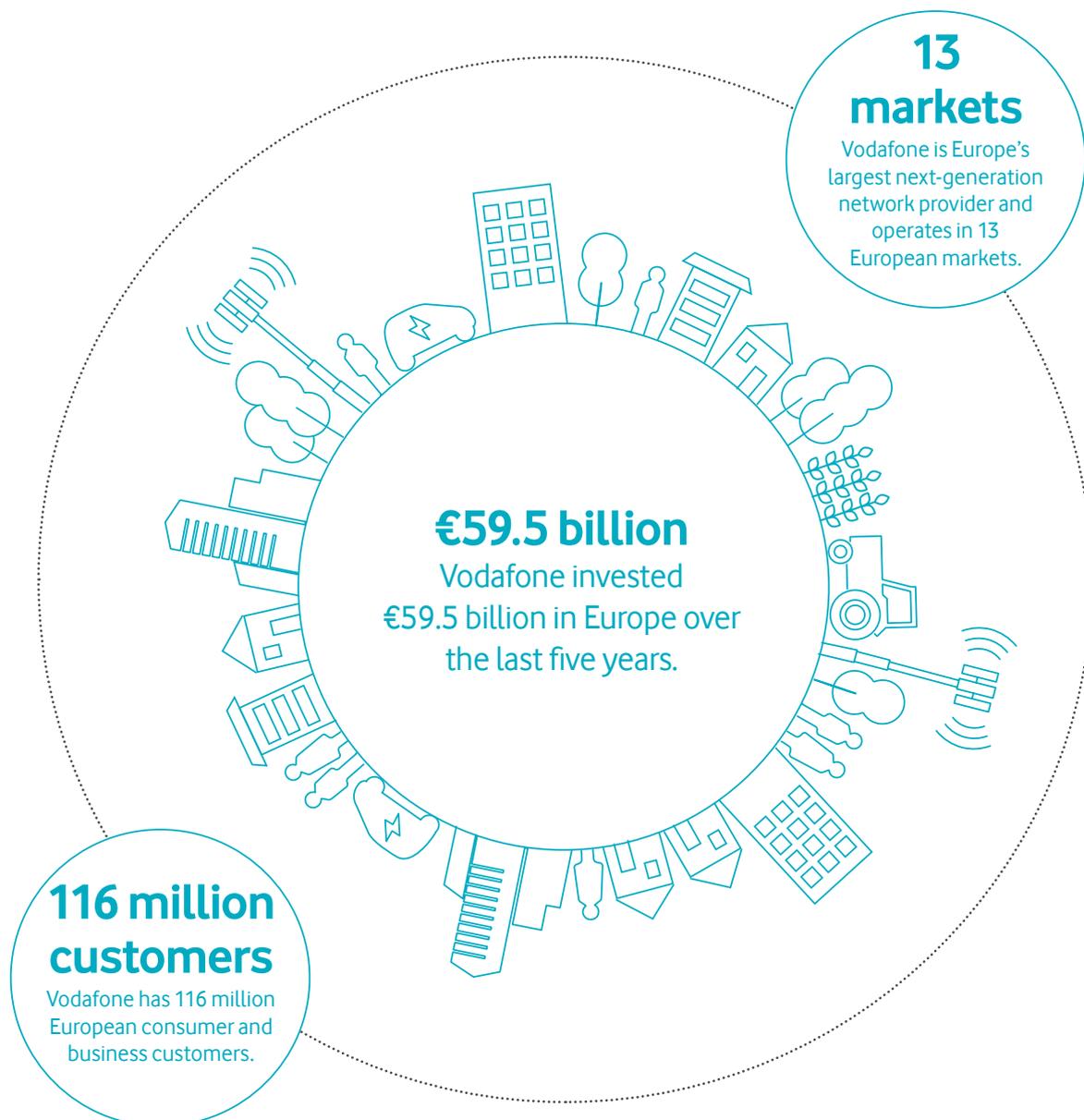
Over half of our global revenue is generated in Europe, while 37,000 people earn their living as members of the Vodafone team, including at our R&D centres in Spain and Germany.



In total, it is estimated that rolling out 5G and fibre infrastructure across Europe has a €155 billion investment shortfall. This is huge. Telecoms is one of the globe's most capital-intensive industries.

Europe needs a decade of high investment if we are to retain our global competitiveness. However, this will not be achieved unless and until companies are able to construct a sustainable business model with a sustainable return on investment and stability and predictability for investors. Regulation has a vital role to play in this mission: Europe urgently needs to make itself a better place to invest.

Over the next five years, Analysys Mason estimates that **over 40 million households in Europe will move to next-generation network services** within Vodafone's European footprint².



² https://www.vodafone.com/content/annualreport/annual_report19/downloads/Vodafone-strategic-report-2019.pdf

Vodafone's policy recommendations

1. Spectrum licensing must be coordinated and non-discriminatory and must encourage competitive investment

Ensuring that the European mobile sector is globally competitive and attracts international capital investment requires spectrum regulators to carefully balance a range of conflicting macroeconomic aspects, including market structure, investment obligations and spectrum fees. More than just a means of delivering mobile services, spectrum and its licensing is critical in determining these more fundamental aspects of the mobile sector and whether it is viable and sustainable for investors. Failing to ensure this balanced response has in practice led to discriminatory results, such as unsustainable new entrants, unreasonably high licence costs and onerous obligations. In order to achieve a more balanced approach, the following three key policy drivers should be considered:

- there should be **no discrimination**, for example, towards new entrants or by designing auctions in such a way that leads to unreasonably high fees, which distorts the market. Similarly, while voluntary sharing of spectrum should be encouraged, the reservation of spectrum for local licences for industrial use should be avoided as this could lead to fragmentation, discrimination and inefficiencies (e.g. large areas where spectrum is unused or under-used);
- **spectrum fees should be reinvested back into the digitisation of the industry** to create a virtuous circle, supporting further network investment, R&D and digital skills and helping small and medium-sized enterprises (SMEs) to become digitised; and
- in order to support the development of the digital single market, there should be an increased focus on conditions that encourage the **management of spectrum both within and across borders**, such as the alignment of spectrum bands in order to facilitate European services. As anticipated under the Code, the RSPG should take a stronger peer-review approach, with a clear scorecard for adherence to consistent licensing best practice, including transparent award procedures and level playing field treatment of all applicants. This should be complemented by additional guidance by the European Commission towards spectrum harmonisation across Europe.

2. Faster delivery of 5G networks

5G networks will be the backbone of our entire economies. Building them requires a market environment that works for critical infrastructure investments. Competition and industrial policies are key enablers of this, as guarantors for long-term competition among efficient operators. They should neither induce re-monopolisation nor artificially create new entrants that cannot be sustainable given underlying cost and demand structures. There is no doubt that network sharing is essential in order to achieve the connectivity targets for 5G. In particular:

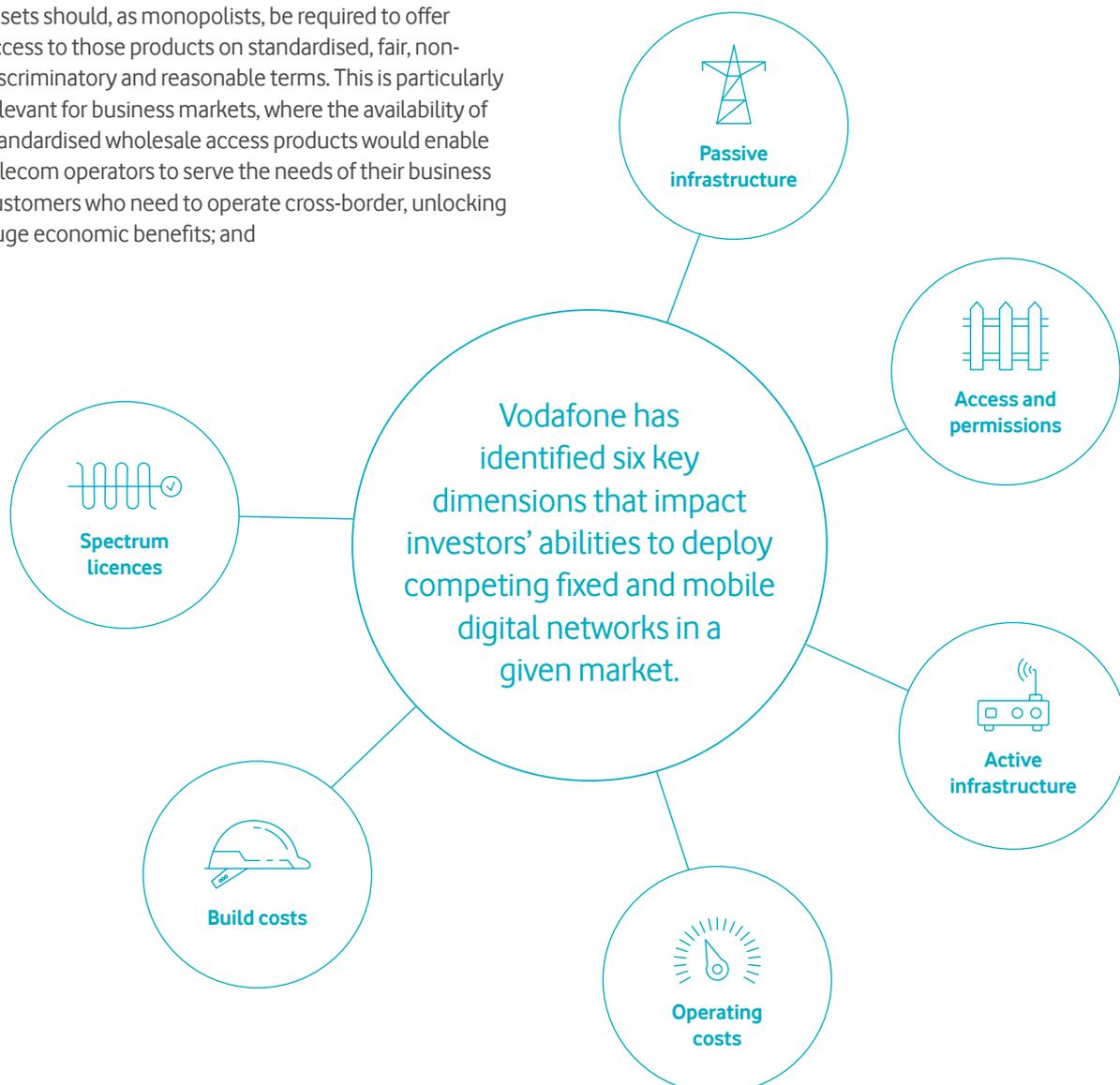
- proactive assistance from regulators and governments will be essential in supporting **network sharing**, which allows the industry to cover more areas through a collaborative approach and reducing the environmental impact of network rollout without impacting on competitive outcomes for end users. This should include guidance from the European Commission to ensure consistency;
- where **state aid** is provided, it must be allocated in a pro-competitive manner. Public subsidies should be primarily directed at rolling out open fibre connections, including to base stations in unprofitable areas to speed up 5G coverage in less accessible areas, helping Europe to end the digital divide that so many policymakers regularly recognise as a challenge;
- in relation to **5G spectrum**, governments and regulators should avoid inflating prices (e.g. through artificial scarcity or excessive reserve prices or annual fees) as this would risk limiting network investment and driving up the cost of services. In this regard, they should make available by 2020 sufficient spectrum (80–100 MHz per operator) to exploit the full capability of 5G, as required under the Code; and
- in relation to **security**, Vodafone strongly supports the EU initiative for a common 5G security risk assessment and the plan to draw up EU-wide measures to mitigate the risks. Setting the right standards and establishing robust evaluation regimes will be critical to success. International standards should be applied in relation to electromagnetic fields in order to ensure quality is not impaired.

3. Addressing barriers to deployment

More generally, in order to achieve the digital single market and the EU connectivity targets, there is a need for considerable and competitive investment in very high capacity networks. Unnecessary cost and red tape must be addressed if we are to meet the growing digital needs of business and consumers. In particular, fast, consistent and effective implementation of the Code is essential, especially in relation to duct and pole access. In order to achieve this, the following policy changes are needed:

- national administrations must ensure that **duct access** is unrestricted, available on a non-discriminatory basis and combined with effective dispute resolution procedures. We welcome that this spirit is reflected in the Code, but further work needs to be done by national regulators and BEREC to eliminate complexity and ensure consistency;
- European Commission guidance would be helpful in ensuring **harmonised passive (and potentially active) access products**. The operators of fixed bottleneck assets should, as monopolists, be required to offer access to those products on standardised, fair, non-discriminatory and reasonable terms. This is particularly relevant for business markets, where the availability of standardised wholesale access products would enable telecom operators to serve the needs of their business customers who need to operate cross-border, unlocking huge economic benefits; and

- **a review of the Broadband Cost Reduction Directive is needed.** Vodafone has completed a full review of all of its deployment costs, which has shown that there is an inconsistent implementation of the Broadband Cost Reduction Directive and a need to speed up deployment and reduce unnecessary cost and red tape. In this regard, there is a need to include better access to relevant public facilities (e.g. buildings and remote emergency services network passive infrastructure) together with more consistent enforcement. In addition, there should be an easing of planning restrictions (e.g. increases in maximum permitted tower heights, simpler approval procedures). We welcome the initiative under the Code to introduce a light deployment regime for small-area wireless access points (small cells), which is critical to the rollout of 5G.





Made in Europe:

creating the conditions for Europe to lead in digitisation of the economy

Made in Europe:

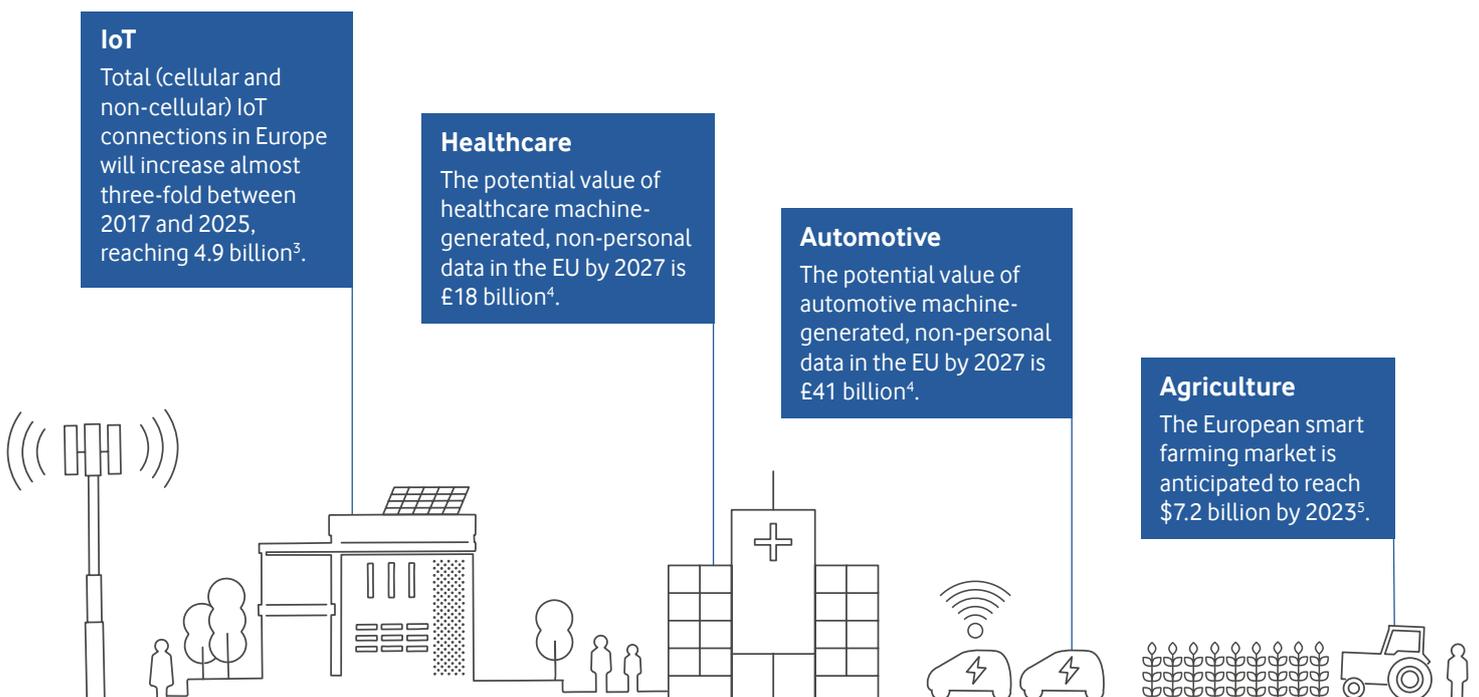
creating the conditions for Europe to lead in digitisation of the economy

At the core of Europe's challenge is the issue of scale. European companies are at a competitive disadvantage. Chinese and American companies benefit from vast, harmonised markets, which allow them to grow, mature and then expand internationally. While the digital single market has made some progress, Europe's telecoms regulation and much of digital regulation remains fragmented and national, meaning that European companies struggle to operate across borders and therefore to grow.

What Vodafone is doing

At Vodafone we strive to enable European organisations to fully embrace and reap the benefits of the digital age by providing fast, reliable and seamless coverage to deploy transformative digital solutions. For example:

- in logistics, digitisation is enabling greater efficiency, simplification and a better use of resources in complex and globalised supply chains to create customer value. New technologies can optimise productivity of logistic systems both financially and environmentally;
- in healthcare, the integration of digital technologies will speed up the development of new healthcare solutions, reducing the timeframe for clinical trials and improving return on investment;
- in the automotive sector there has been early recognition of the benefits that connectivity can bring, from improving car maintenance to enabling better use of roads. We strive to ensure that the digitisation of cars is done in a way that builds on existing cellular infrastructure and puts European car producers at the forefront of this revolution; and
- in the farming sector, increased digitisation could bring huge benefits: from enabling new production methods that were not previously feasible to ensuring precision farming and the ability to grow more food with fewer resources on less land.



³ <https://www.gsmainelligence.com/research/?file=884c77f3bc0a405b2d5fd356689be340&download>

⁴ Deloitte: Realising the economic potential of machine-generated, non-personal data in the EU Report for Vodafone Group

⁵ Europe Smart Farming Market: Focus on Solutions (Hardware Systems, Software, Services) and Applications (Precision Crop Farming, Livestock Monitoring and Management, Indoor Farming and Aquaculture) - Analysis and Forecast 2018-2023

Vodafone has invested in innovative technologies to support the European digital revolution. Our joint venture with IBM will ensure that our customers receive cutting-edge services in AI, cybersecurity and cloud. Vodafone's IoT platform enables European businesses to track their products across the globe and to run applications processing real-time data. This can be transformative for Europe's manufacturing, logistics and service industries, which can constantly monitor, enhance and innovate their products and services. In addition, it provides a route to market for Europe's developers and data industry to provide cutting-edge applications to serve the growing IoT market.



Analysys Mason estimates that the number of IoT connections is expected to grow from fewer than 600 million in 2018 to around 2.7 billion by 2023⁶.

Through our IoT platform we have worked with a wide range of European companies – big, small, new, old, services, manufacturing, logistics – to upgrade their digital competitiveness and transform the products and services they provide to European citizens and consumers. We have worked with Italian agricultural association Cia-Agricoltori Italiani to digitise its farming practices. KONE, the Finnish elevation provider, has chosen Vodafone's platform to remotely monitor and improve maintenance of lifts. TomTom, the Dutch mapping and transportation company, has used Vodafone's IoT platform to partner with Zenith Hygiene Group to monitor fleet performance, reducing accident and insurance costs.

We believe SMEs are the backbone of Europe's thriving economy. As the next wave of digitisation takes place, the ability of SMEs to digitise will secure their future and the jobs of the people they employ. Our ambition is to provide first-class connectivity and IoT services for Europe's SMEs so that they can make a success of digitisation and provide competitive services to global customers.

Despite the digital opportunities, many businesses of all types and sizes are struggling to fill a wide range of digital technology roles that are critical for future growth. At the same time, youth unemployment rates remain a challenge. As a leading global innovator in the deployment of digital technologies, we believe we are well placed to support young people to prepare and access these digital opportunities, ultimately narrowing the digital skills gap. To address this gap, Vodafone has worked with psychologists, human resources professionals, training providers and young people to develop a free smartphone service called Future Jobs Finder. This simple yet comprehensive gateway allows users to gain and practise new skills, understand more about their strengths, discover digital job opportunities and access digital training.

⁶ https://www.vodafone.com/content/annualreport/annual_report19/downloads/Vodafone-full-annual-report-2019.pdf

Vodafone's policy recommendations

1. Creating an IoT framework that is fit for purpose

Traditional person-to-person communications regulation is not fit for purpose for IoT, where national telecoms regulation is holding back new European services. Europe needs proportionate regulation 'designed for IoT' – ensuring that regulatory rules relate to actual risk of harm based on communications between machines as opposed to people. For example, there is no need for number portability for a location tracker where the number is never used or displayed. Similarly, consumers should be protected whether they are using cellular or non-cellular IoT, which is not the case today as different rules apply. A technology-neutral approach is required, to ensure both cellular and non-cellular IoT services are treated equally and customers are equally protected. In particular, we recommend:

- **proportionate European regulation 'designed for IoT'** ensuring that regulatory rules (e.g. number portability, emergency calling, lawful interception, data retention, ePrivacy) relate to actual risk of harm based on IoT use cases, as opposed to rules designed for 'traditional' voice/data services;
- **harmonised rules** ensuring that IoT achieves true economies of scale across Europe, without having to adapt services to different regulatory regimes across the European member states;
- **technology neutrality** ensuring that citizens are protected and competition remains undistorted whether using cellular or non-cellular IoT;
- **a joined-up approach to industrial policy** given IoT is being rolled out in heavily regulated areas. Regulation is currently being drafted by policymakers in each of the automotive, aviation and energy sectors, which needs to ensure that the benefits of cellular and 5G can be realised and to provide a consistent approach. For example, in the automotive space, cellular vehicle-to-everything should be allowed – from day one – for cooperative intelligent transportation systems (C-ITS) deployed under the ITS Directive. Similarly, in aviation, operators should be able to connect drones in existing licensed spectrum consistent with the regulation emerging under the new civil aviation basic regulation; and
- **policies should stimulate digitisation demand:** for example, the 'network readiness' of smart buildings should also be recognised as a 'smart readiness indicator' under the Energy Performance of Buildings Directive.



2. Moving from an ‘innovation by permission’ to an ‘innovation first’ approach

5G networks, through a combination of AI and new technologies such as network slicing and multi-access edge computing, will create new opportunities for a range of sectors, enabling quality differentiation in agriculture, media, healthcare, entertainment, automotive and many other areas. More efficient use of networks is of critical importance at a time when data use is increasing exponentially. An innovation-first approach requires room for experimentation. The new BEREC guidelines on net neutrality, which are due to be published in 2020, should create the foundations for this innovation-first approach, allowing service providers to use quality differentiation in new and innovative services. Similarly, in relation to AI, we are strongly supportive of the ethical framework proposed by the High-Level Expert Group on Artificial Intelligence appointed by the European Commission, as regulating too early in this area could chill innovation. In particular, competition and innovation can be stimulated by the following policy changes:

- while the Open Internet Regulation itself is fit for purpose, **the current implementation of net neutrality rules is overly cautious and risks creating barriers to this innovation.** The new BEREC guidelines on net neutrality should make clear that operators and European businesses can set up services requiring a specific level of quality without prior approval, based on service and end user needs, and should encourage a ‘sandbox’ approach to enable innovative new services to emerge. They should also ensure that operators can dynamically share resources across network slices in the most efficient way in order to deliver the best possible quality for consumers;
- companies should implement AI in compliance with an **ethics-based framework agreed at EU level.** AI is likely to become part of virtually all digital solutions and tools. AI can solve key societal challenges, supporting ageing societies, achieving a sustainable welfare system, food security and combating climate change. Taking a ‘regulate first’ approach may slow down innovation in Europe in this area;
- **vertical specific licences for 5G** could lead to fragmentation and inefficient use of spectrum, and voluntary sharing of spectrum should be encouraged instead to ensure this resource is maximised; and
- **mandatory divestment of business contracts and an obligation to re-tender long-term contracts on a regular basis.** Long-term business contracts create strong incumbency advantages and constitute a powerful barrier to entry. These problems are reinforced at expiry by arrangements for re-tendering that favour the existing service provider or by contracts being automatically renewed, circumventing competition requirements. Given that incumbents appear to have a very high market share in business markets in many EU countries, this creates a vicious circle: one where incumbents retain their customers because challengers are unable to enter the market and establish a presence. This policy enabler would break open business markets, stimulating competition and reducing barriers to cross-border expansion. A similar approach is taken in the UK, where FTSE 350 companies must put their statutory audit engagement out to tender at least every 10 years (audit services market).



Vodafone launched its AI Framework which focuses on five areas: transparency and accountability; ethics and fairness; the preservation of privacy and security; human rights, diversity and inclusivity; and maximising the benefits of AI while managing the disruption of its implementation.

3. Stimulating the data economy through voluntary data sharing

Huge amounts of data are generated throughout the internet value chain. It is imperative that the value of the data can be realised (in conjunction with AI techniques) to contribute to our societies, for example, via smart cities, optimised healthcare, greater efficiency of business and a greener environment. In relation to non-personal data, Vodafone supports the European Commission's guidance⁷ on private sector data sharing. In a report commissioned by Vodafone, Deloitte estimated €1.4 trillion⁸ of value could be unlocked with a more progressive approach to sharing of machine-generated non-personal data. These new opportunities could be unlocked by a coherent approach to data sharing across Europe and by developing additional targeted policy measures that can facilitate and incentivise non-personal data sharing such as:

- **accreditation** to ease sharing between organisations without an established commercial relationship;
- the promotion of **appropriate data-sharing models** across sectors that drive standardisation; for example, the extended vehicle and neutral server concepts that are being developed in the automotive sector could be used in other sectors with OEMs (e.g. agricultural equipment);
- removing barriers to the **free flow of data** both within and outside the EU;
- allowing the use of **pseudonymised communications metadata** under the ePrivacy Regulation for data analytics opportunities, such as for smart cities. This would allow European companies to provide competitive data analytics, stimulate the data economy and develop responsible AI in full compliance with high EU privacy standards; and
- the **opening up of data by governments** to support industries, as set out in the new Common Agricultural Policy proposals⁹.

4. At the services layer, focus should be on reform of competition law and monitoring of online intermediaries

One of the last initiatives of the Juncker Commission was to publish the results of a detailed independent study carried out for Competition Commissioner Margrethe Vestager on shaping competition law for the digital age¹⁰. While the authors do not think there is a need for a fundamental reformulation of the goals of EU competition law to suit the digital age, they agreed that there are a number of features of the digital economy that are novel and justify a concerted review of the effectiveness of current policy and instruments at the disposal of enforcement agencies. Notably, data benefits from extreme returns on investment and powerful network effects. The positive externalities of data accrued by large digital platforms has also tested the limits of traditional competition law assessments. While the report is non-binding, it is an important input for the next Competition Commissioner. In particular, we support the following recommendations, which should be implemented in the form of new European Commission guidance:

- platforms acting as 'regulators' of their own ecosystem have a **special responsibility** to ensure competition in the market, especially when they also supply competing consumer services or goods on the platform;
- in relation to access to data and APIs, we are supportive of a case-by-case assessment being taken on issues in relation to the potential exclusionary effects of lack of access and ensuring access on a fair and reasonable basis is provided where the data or application programming interface (API) is an '**essential facility**' to allow others to compete;
- antitrust enforcement in digital markets should be implemented more quickly. We would be particularly in favour of **interim measures** to ensure that anticompetitive behaviour can be remedied in a timely manner; and
- finally, the Platform-to-Business Regulation creates for the first time the opportunity to monitor online intermediaries in relation to **unfair business practices and discrimination**. This monitoring should be comprehensive and should feed into the new European Commission initiatives to address these issues.

⁷ <https://ec.europa.eu/digital-single-market/en/guidance-private-sector-data-sharing>

⁸ https://www.vodafone.com/content/dam/vodafone-images/public-policy/reports/pdf/Realising_the_potential_of_IoT_data_report_for_Vodafone.pdf

⁹ https://ec.europa.eu/info/news/new-tool-increase-sustainable-use-nutrients-across-eu-2019-feb-19_en

¹⁰ http://ec.europa.eu/competition/information/digitisation_2018/report_en.html

Trust by design:

empowering citizens



Trust by design: empowering citizens

The digital single market agenda has established the EU as the world's premier digital regulator. The General Data Protection Regulation is considered the gold standard globally, demonstrating how the EU can make an impact when it acts together to protect citizens' rights and to create a genuine digital single market.

In a more harmonised digital market, European consumers will not only benefit from the faster connectivity and access to products and services from a new cadre of innovative European companies, but these same European companies will be able to set global industry standards for the rollout of new technologies.

However, digitalisation also presents challenges. According to the European Commission, security (including cybercrime) features among the top concerns for EU citizens¹¹. Ensuring trust in new technologies by developing strong cybersecurity measures and instruments will remain a key priority.

When consumers use innovative services, they want to trust that the services are safe to use and that any sensitive data that may be transmitted remains secure. The EU should continue to lead in this area by incorporating big data and AI into the way in which it regulates to better empower consumers in the future.

What Vodafone can deliver

Vodafone is one of the world's largest telecommunications companies and provides a range of services including voice, messaging, data and fixed communications.

Consumer confidence is the lifeblood of our business. Vodafone has deep expertise in both network and device security, including secure-by-design for IoT solutions and services. We have strict governance and controls in place to ensure we protect our customers' personal data and communications, respect their privacy and proactively manage the cybersecurity risks that face businesses today. Our commitment to ensuring privacy and security is a vital part of our responsibility to customers and fundamental to the success of the digital economy.

We are already building safeguards into our IoT platform by design so that consumers are protected from day one. Our V by Vodafone range of consumer IoT products comply with Trust by Design principles co-created with the global consumer association Consumers International¹², which include security, privacy, transparency, ways to protect vulnerable customers, complaint handling and the environment. Vodafone provides practical materials, training and workshops for IoT developers to ensure that they can comply with these principles.

At Vodafone, we are using AI to help improve our products and services and to run our business as effectively as possible. As AI grows in usage and impact across geographies and industries, Vodafone has a responsibility to consider how our use of this technology affects our customers, our employees and wider society. We believe it is critical our AI technology respects the privacy and security of our end users' data and their fundamental rights. Vodafone's AI Framework¹³ sets out our approach to working with AI technologies and outlines how we intend to develop and employ it in a responsible manner across our international business. This framework embeds the following principles into all uses of AI: transparency and accountability, ethics and fairness, privacy and security, and human rights, diversity and inclusivity.

As of 31 December 2018, Vodafone Group had approximately 700 million mobile customers and 21 million fixed broadband customers, including all of the customers in Vodafone's joint ventures and associates.

¹¹ http://europa.eu/rapid/press-release_IP-19-2309_en.htm

¹² <https://www.consumersinternational.org/media/239715/trust-by-design-guidelines.pdf>

¹³ <https://www.vodafone.com/content/index/about/policy/artificial-intelligence-framework.html>

Vodafone's policy recommendations

1. Establishing the same rules for digital services everywhere in Europe

Consumer rules, especially sector-specific requirements, are fragmented and overly complex, which can make them difficult to understand and result in information overload for consumers. For businesses, this approach adds costly compliance burdens. As the economy becomes digitised, digital, communications and content services are converging, and in most areas, sector-specific rules are no longer needed. There is a core set of regulation in relation to transparency, contractual rights and switching, which should be the same for all services and should be subject to maximum harmonisation across Europe. We would recommend the following changes:

- for digital services, consumer regulation should be harmonised across Europe and horizontal, ensuring the **same protection applies to digital services** on a technology-neutral basis;
- the eCommerce Directive should be updated to address any gaps that exist in this core regulation, such as barriers to switching across different services by improving cross-service data interoperability, advertising rules, liability for content and provision of information summaries and to ensure that regulation across all digital services is harmonised. This can form the basis of a **'new digital deal'** for consumers;
- **overlapping regulation should be removed**, whether under horizontal or sector-specific regulation. Under the Code, BEREC is required to publish an opinion on end-user rights by 21 December 2021, and the European Commission, taking the BEREC report into account, must also publish a report and, if necessary, a new legislative proposal to amend these rights, which creates an opportunity to align and remove duplication; and
- in relation to oversight, a **'telecoms lite' approach** can be implemented, with one regulator for all digital services at EU level, who is responsible for monitoring of ex ante regulation and effective enforcement. Service providers operating both within the EU and providing services to citizens in the EU should provide one point of contact in Europe for such a regulator.

2. Creating regulation fit for the digital age

Regulation today struggles to keep up with the pace of technology, which both holds back traditional services and results in gaps in protection for consumers. Principles-based, horizontal consumer rules, enforced in a smart way using behavioural theory and digital tools, would both empower

consumers and be able to adapt more quickly to issues as they arise. A **principles-based approach** will provide more freedom to differentiate in terms of how companies comply with these principles. To complement this, Vodafone recommends that businesses are incentivised through regulation and digital policies to take on more responsibility towards consumers. This has the advantage of driving higher levels of compliance but also being more flexible in addressing harms. For example, there is a growing focus on the spread of illegal and harmful material online and the underlying role of online platforms in enabling access to this material. The exemption from primary liability for online intermediaries is enshrined in the eCommerce Directive. Vodafone supports reopening the Directive to clarify the definition and obligations of 'active' hosting providers, who should be subject to additional obligations in relation to their roles and responsibility for such content, in order to benefit from exemptions from liability.

3. Secure by design

Without trust in the safety of digital services, the digital ecosystem will not be able to thrive. Citizens should be able to trust that all communications, rather than just traditional calls and messages, should be confidential, and these rights should be enshrined in the new ePrivacy Regulation. Secure networks are the backbone of the digital economy, and the telecoms industry has to meet high obligations as laid down in the Code and the NIS Directive. However, with the rapid increase in connected devices, products, services and businesses from a wide range of sectors, vulnerabilities can manifest anywhere in the system, not just the network. In order to achieve security by design, the following changes are needed:

- **effective cybersecurity** requires measures that produce the same effect right across the digital ecosystem. To increase resilience, all actors in the value chain must become part of the solution and continue to raise their security standards; and
- for a **successful European security approach**, we need to prevent further fragmentation in the EU regulatory landscape: certification schemes based on common security standards are a step in the right direction, but schemes need to be pitched at the right level, i.e. provide protection appropriate to the risk while allowing space for innovation. Overly prescriptive measures need to be avoided.



Conclusion

A concerted effort will be needed over the next five years to ensure that the digital single market initiatives, such as the Code, the Platform to Business Regulation and the various new consumer protection initiatives are implemented in a coherent and consistent way and that reviews take place in a timely manner to ensure that the intended outcomes are achieved.

Going forward, a better balance needs to be achieved through governments and industry working together to ensure that European companies have the best foundations, networks and conditions to compete globally. This requires three things. First, a policy framework which incentivises investment in communications networks and ensures sustainable competition. Second, policies which encourage the digitisation of industry, from the smallest SMEs to the largest companies, leveraging cutting-edge technologies to become global leaders. Third, empowering citizens by ensuring trust is built in by design, through smart regulation which can keep pace with the speed of technological change.

As a key European technology provider and partner, we have a stake in ensuring European competitiveness. When Europe succeeds, we succeed and vice versa. With our investment plans, clear commitments to our consumers and partners and purpose-led business goals, we believe we have what it takes to embrace the next phase of digital transformation and create a platform for the ultimate success of the European digital economy.



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