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Telconomics

Progress report 2021

May 2021

* Networks as a common good

Arcep publishes its annual market scorecard: the key figures

Operators' revenue
(retail market)

€35.2 billion €

- 0.4%
- 155 M€

Investments
(excl. spending on spectrum)

€11.5 billion

+ 8.1%
+860 M€

Number of broadband and ultrafast access lines

30.6 million **(of which 48% UF)**

+2.9%
+0.9M

Number of SIM cards

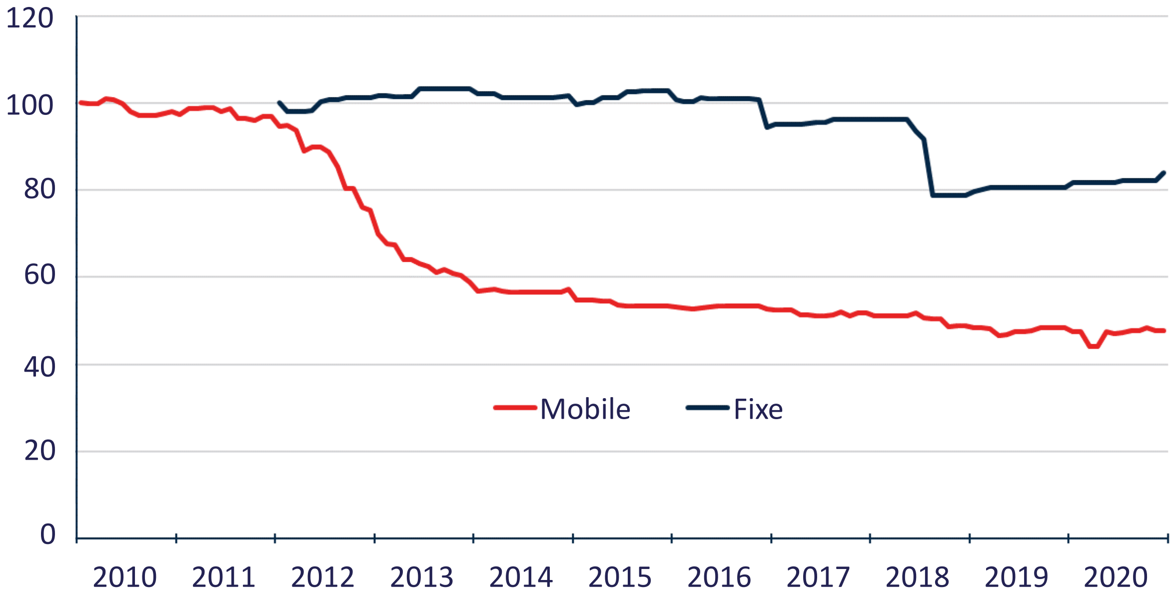
78.1 million **(of which 77% 4G)**

+ 1.2%
+ 0.9M

Fixed and mobile service prices

Slight drop in mobile service prices, while fixed service prices are climbing

Fixed and mobile consumer service price index in Metropolitan France



How society and the networks tackled the crisis

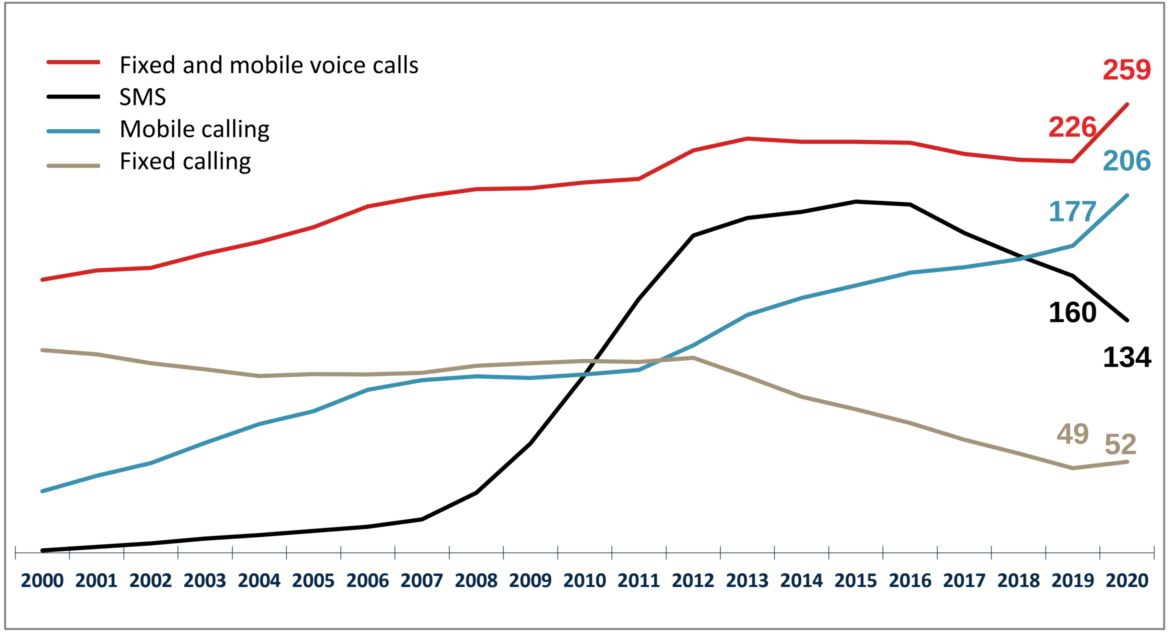
Thanks to digital services and resilient networks, businesses and schools have managed to maintain their activities, and social connections were still possible.
The main lessons learned from this period are outlined in the 2020 report on the State of the Internet, and will be presented in detail on 7 July 2021 with the publication of the 2021 edition of the report.

More than ever before, networks are a "common good".

- Despite a huge surge in traffic (+30% during the first lockdown), no major congestion was observed on telecommunications networks in France.
- This was thanks, on the one hand, to telecom networks' capacities and performance and, on the other, to the actions taken by the ecosystem's stakeholders (telecom operators, content providers, users, public authorities).
- Despite the exceptional situation, the Open Internet regulation proved its ability to apply in any circumstances, and guarantee that net neutrality is upheld.

Usage: how the Covid crisis influenced usage habits

Fixed and mobile voice calling and texting levels (billion minutes and SMS)



Texting levels affected to some extent by a surge in voice calling

- Strong uptick in voice calling in 2020 due to the pandemic, and especially during the lockdown in Q2
- Drop in the number of SMS sent

The pro-investment doctrine

Regulation to improve
fixed and mobile connectivity

Connectivity nationwide: efforts stepped up in 2020

On fixed networks

2020 was a record year for FttH, ending with around 5.8 M premises passed, or 20% more than in 2019 and 80% more than in 2018

Close to 60% of fibre customers have a choice between at least four operators marketing passive solutions on the deployed networks (+20pts YoY)

On mobile networks

4G rollout efforts continue…

An average of 2,760+ sites upgraded to 4G* per year and per operator since the introduction of the *New Deal* for Mobile in 2018

As of end of December 2020, more than 96% of all cell sites were 4G-capable, versus 53% in mid-2018

… and being relayed by the launch of 5G

End of February 2021, three months after 3.4 – 3.8 GHz band frequency awards, 2,000 5G sites using these frequencies had been deployed

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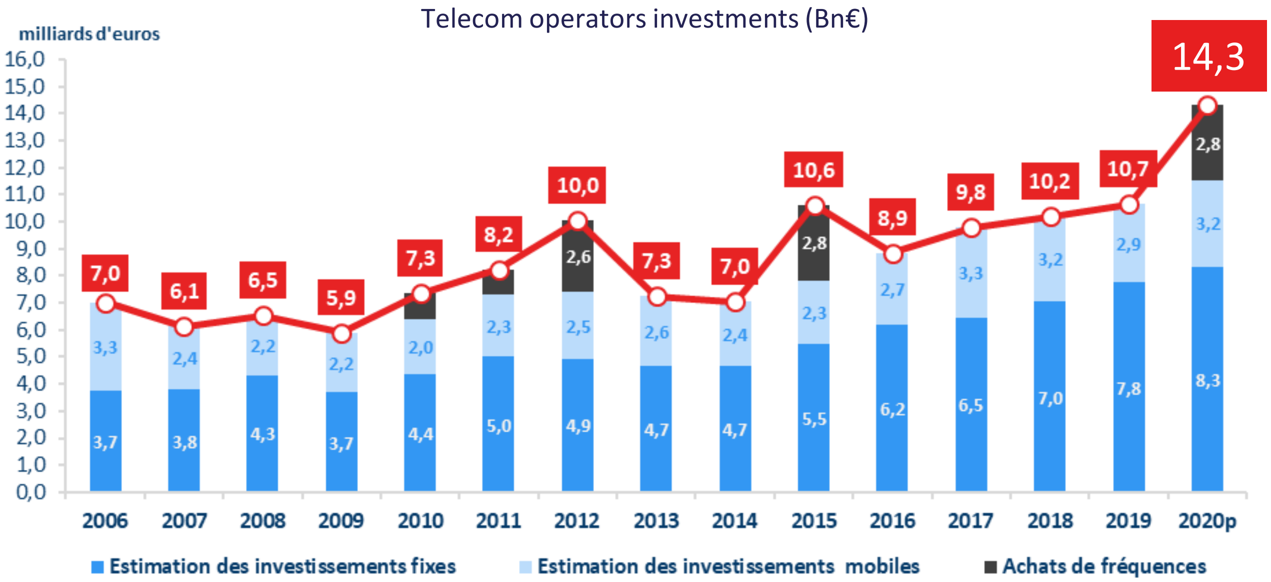
* Upgrading 2G/3G sites and installing new 4G cell sites

Investments: 14.3 billion euros in 2020



- ❑ Including 2.8 billion euros spent to acquire 5G spectrum
- ❑ Excluding frequencies, operator spending totalled 11.5 billion euros. The increase (+860 million euros) is due entirely to superfast fixed and mobile local loop deployments.

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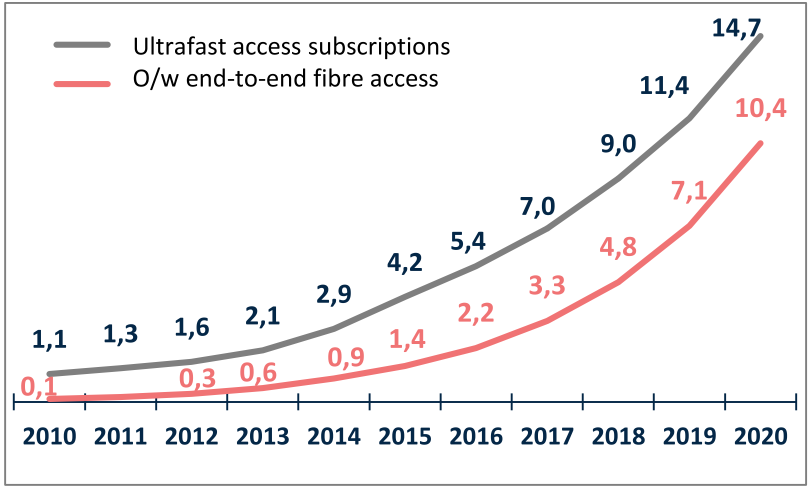
Equipment: record increase in superfast access take-up rates

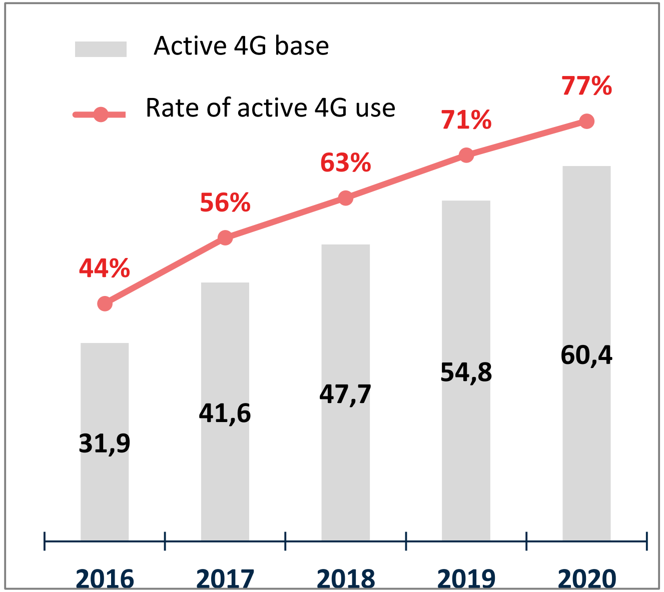
Number of end-to-end superfast and optical fibre subscriptions (million)



Exceptional rise in superfast access subscription in 2020

- +3.3 million YoY (+2.4 in 2019)
- Entirely driven by the rise in FttH subscription numbers, which exceeded 10 million at the end of 2020

Number of active cards on 4G networks (million)



Active 4G base doubled in five years

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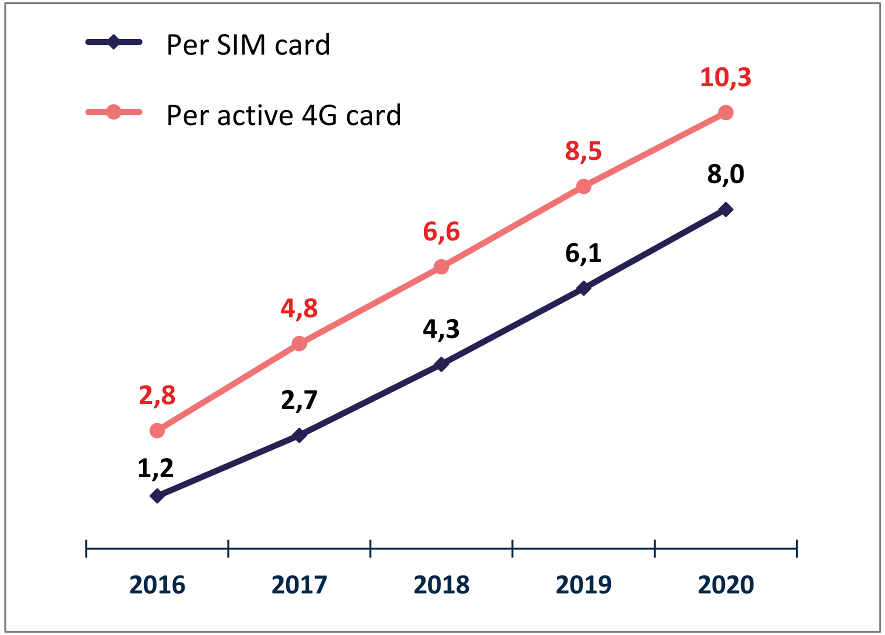
Usage: how the Covid crisis affected usage levels

Average monthly mobile data consumption (GB)



Monthly data service use on mobile networks

- Ongoing sharp rise in usage
- 4G users' average monthly consumption exceeds 10 GB

Actions carried out this year

Several core initiatives for the sector

A new period of fixed market analysis

Preparing for the switchover from copper to fibre
Accelerating businesses' digital transition through "symmetric and asymmetric" decisions

Maintaining pro-investment regulation to make fibre the new fixed infrastructure of reference

- Creation of a separate civil engineering market to future-proof access for operators wanting to deploy networks

Facilitating the transition from the legacy copper network to fibre, with a view to complete replacement within ten years

- Particular attention paid to work done on preparing the copper network's shut down
- Maintaining copper network quality, especially in areas not yet covered by fibre

Bringing fibre to businesses and developing competition in this market

Fibre as the infrastructure of reference

Reiterating the core principles of FttH regulation, introduced more than 10 years ago

- Two dispute settlement procedures, regarding the pricing terms of operators' access to FttH networks in private-initiative areas, provided an opportunity to recall several principles whose aim is to ensure:
  - The reasonable nature of the prices
  - Long-term access
  - Ongoing co-financing incentives

Safeguarding balance and deployments

- Work to ensure FttH network quality, notably when commercial operators intervene on these networks (providing connections through sub-contracting arrangements)
- Examination begun of the long-term economics of public-initiative networks (PIN)

Growing competition in the business market

Bringing fibre to businesses and developing competition in this market

- Sustain the strategy of developing a dynamic market for activated wholesale fibre solutions
- Development of wholesale passive solutions with increased QoS (guaranteed fault repair times of 10 and 4 hours) from every operator on their FttH network, whose quality will be monitored by Arcep

Several operators helping to create a dynamic market

- Major operators that have revived their commitment (Bouygues) or recently entered the market (Iliad)
- Business market specialists increasing their spending on the retail market and on infrastructures for enterprises (Adista, Céleste, Altitude, Ielo, arrival of Eurofiber)
- Structural commitments imposed by the European Commission, on the acquisition of Covage by Altice and its co-investors, should help safeguard large-scale dedicated optical local loops offering alternatives to Orange and Altice, which will bolster retail market competition

An Authority that remains vigilant

- About the proper enforcement of new symmetric and asymmetric obligations
- About the QoS of regulated access products
- About the risks of discrimination

Concrete strides in mobile connectivity

2020, a banner year for the *New Deal* for Mobile

- Targeted coverage scheme: close to 600 sites in service at the end of 2020 (first two deadlines)
- Almost every site upgraded to 4G as of 31 December 2020 with the exception of white areas – small towns centres which are 80% equipped with 4G (vs. 10% to 16% at the end of December 2019)
- More than 99.5% of priority roads with theoretical 4G coverage at the end of December 2020

***New Deal* for Mobile will continue on through the coming years**

- Bringing 4G coverage to the last white areas- small towns centres sites
- Targeted coverage scheme: 600 to 800 sites per operator* upgraded to 3G and 4G each year, with an ultimate target of 5,000 sites per operator*
- Increased network density: deadlines for providing “good coverage” starting in 2024
- In-vehicle coverage on priority roads between 2022 and 2025, depending on the operator
- Full coverage of railway lines in 2025

New obligations to undergird the 5G rollout

- 2022: Increase speeds with obligations of 4G+ at 75% of cell sites in 2022
- 2027: Expansion of the list of roads to be covered
- 2030: All operators providing on-board coverage in trains

* Some sites are shared

Awarding new frequencies for 5G

5G creates the ability to improve mobile services and make businesses more competitive
The deployment of 5G with the core 3.4 – 3.8 GHz band is already underway,
and use of the 26 GHz band will further improve services

2020

310 MHz of spectrum awarded in the 3.4 – 3.8 GHz band for 2.8 Bn€

- Metropolitan France's four mobile operators were all awarded spectrum during the procedure
- The winning candidates paid between €602 billion and €854, i.e. between 13 and 14.4 €cents/MHz/capita. The average in France thus stands at **13.6 €cents**/MHz/capita
  (Germany: **15.29 €cents**, adjusted for the same duration as France; Italy: **30.79 €cents**, idem)
- The frequency licences were awarded in November 2020

2021

Commercial deployments begin

- Operators have opened their 5G networks commercially
- Mid-2021: more than 11,000 cell sites open commercially, including close to 2,000 in the 3.4–3.8 GHz band

…

Prepare the award procedure for 26 GHz band spectrum

- Procedure to be tailored to this frequency band's particular characteristics: large capacity enabling unprecedented mobile speeds, but limited coverage
- Factoring in environmental concerns

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Frequencies and mobile solutions for businesses

Giving businesses the means to be competitive and to innovate

Long-term frequencies already available for ultrafast professional mobile networks

- 2.6 GHz TDD spectrum available for the deployment of mobile networks designed to meet businesses' specific needs
- Six frequency licences awarded in Q1 2021: EDF and its power plant in Blayais, HubOne for Paris airports, Vedecom for autonomous vehicle solutions…

The 3.4-3.8 GHz band will open the way for other 5G solutions for "verticals"

- Mobile operators' frequency licences include an unprecedented mechanism geared to satisfying "verticals'" stated requirements

Ongoing trials in the 26 GHz band exploring 5G use cases with "verticals": logistics, smart city, mobility, etc.

- Arcep has been awarding 26 GHz band frequencies to "open 5G trial platforms" since 2019, for a period of up to three years (port in Le Havre for logistics uses, train station in Rennes for passenger applications, velodrome in St Quentin in the Yvelines for special events needs…)
- New projects are also being designed, with support from Arcep, and could be awarded trial licences

Mobile network sharing

A local concern

Arcep pays close attention to reports from local officials and citizens, and their questions about the deployment of cell towers that are not being shared between mobile operators.

Network sharing: already a reality in certain cases

- Widespread active network sharing in very rural areas, and increasing thanks to France's targeted coverage scheme. Also implemented by two operators over a vast expanse, outside of urban areas in Metropolitan France. And a new agreement initiative in the overseas territories.
- Passive infrastructure sharing: several mobile operators can install their equipment on the same cell site. This system has already been adopted nationwide. In very rural areas, close to 58% of cellular installations host several operators' equipment.

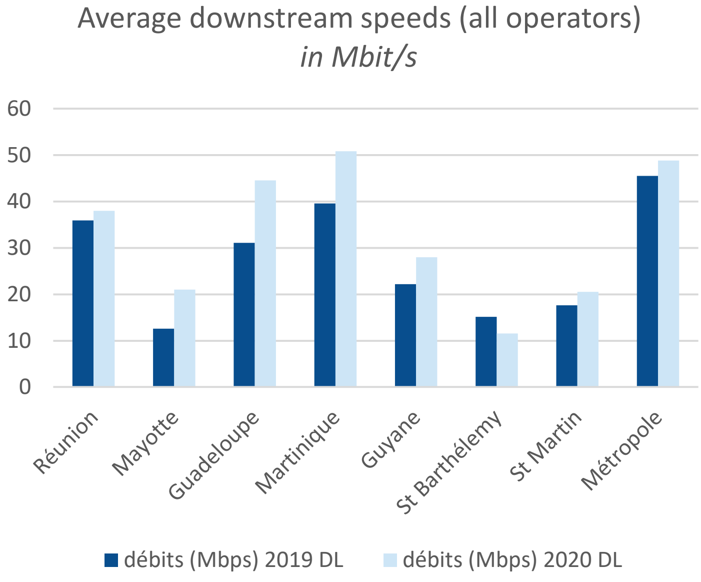
Increased sharing still possible in rural areas

- Mobile network sharing could provide environmental benefits.
- Arcep is convinced that operators must increase passive sharing in rural areas, once it it is technically relevant. The towerco market's development could increase passive sharing opportunities.
- The Authority examines active sharing agreements between mobile operators, and is authorised by law to request changes in certain instances.

The situation in the overseas territories

Mobile market

- **Deployments progressing:** Arcep's field measurement campaign in 2020 revealed a significant improvement in calling quality; average speeds continue to increase
- **Preparation for the award of new frequencies** (700 MHz and 3.5 GHz) to improve existing services and develop new ones (2021-2022)



Fixed market

- **FttH rollouts progressing:** 90,000 lines deployed in 2020

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Data-driven regulation

Improving the tools for helping users make informed choices and guiding regulatory actions

Complete version of the "ma connexion internet" site on fixed internet

- Collaborative process with data and regional development experts
- Improved address databases and data processing algorithms, overall improvement of the user experience
- Publication of the complete version in April 2021

Development of "turnkey" tools for elected officials and regional digital development stakeholders

- Publication of new 4G coverage maps for all 96 departments in Metropolitan France, and the overseas departments and territories
- Publication of the Observatory of 5G deployment in France
- Publication pf new departmental maps of superfast and decent coverage stats

"J'alerte l'Arcep" expanding to include new reports and make the regulator's processing of alerts more efficient

- Platform opened up to new groups of users
- The pathway for filing a report and processing data revised to make the process smoother and more efficient

Environmental issues and challenges

Long-term endeavour, working in concert with government, private sector players and users

Effective mobilisation of public authorities

- Gathering information from operators
- Identifying shared methodologies for measuring digital's environmental footprint
- Proposal for a Green Barometer of digital industry players (legislative work in progress)
- Coordinated approach at the national (with ADEME, the government roadmap, the Climate bill, Article 13 of the AGEC Act) and European levels

Learning and working together with digital industry and environmental players, via the "Achieving digital sustainability" collaboration platform

- Each contributing their views, practices, tools, skills and knowledge to the collective thinking process
- Fruit of this dialogue: a progress report, including 42 written contributions from stakeholders

Championing these issues at the European level, notably within BEREC

- Co-chair of the BEREC experts working group on sustainability

Europe: homogeneous regulatory framework opening up to digital

Revised telecom framework that now delivers a long-term outlook

- European Electronic Communications Code adopted and currently being transposed
- BEREC guidelines adopted
- Commission's comments confirm France's regulatory framework
- France gets a "good grade" on 5G deployment

A digital strategy that can help create more open ecosystems

- Combination of DMA/DSA/DGA: a regulatory framework for digital for years to come, serving European citizens and businesses
- DMA: guarantee the contestability and fairness of digital ecosystems. Arcep and BEREC want to strengthen the European Commission's proposal on the following:
    - Introduce bespoke remedies
    - Introduce quick resolution mechanisms so business users can exercise their rights and resolve disputes with platforms
    - Involve stakeholders across the board, to find more robust solutions and reduce information asymmetries
- Digital's environmental impact: a new European action campaign

Thank you for your attention

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