Welcome to the Telconomics press conference

The documents being presented are also available on the Arcep website (News > Press releases)

The press conference will begin at 9 am.

Please remember to identify yourself and to switch off your microphone and camera during the presentation

If you would like to ask a question after the presentation, we will invite you to switch you camera on, so that we can call on you and hand you the floor.

arcep les réseaux comme bien commun

Telconomics

Investor presentation 2023

25 May 2023

Electronic communications market: key facts and figures

2022

Key telecoms market figures for 2022

Operators' revenue
(retail market)

36.7 billion €

+ 1.8% ↗

Investments, including Towercos
(excl. spending on spectrum)

14.6 billion €

-1.8% →

Number of broadband and ultrafast access lines

31.9 million **(of which 57% are fibre)**

+1.4% ↗

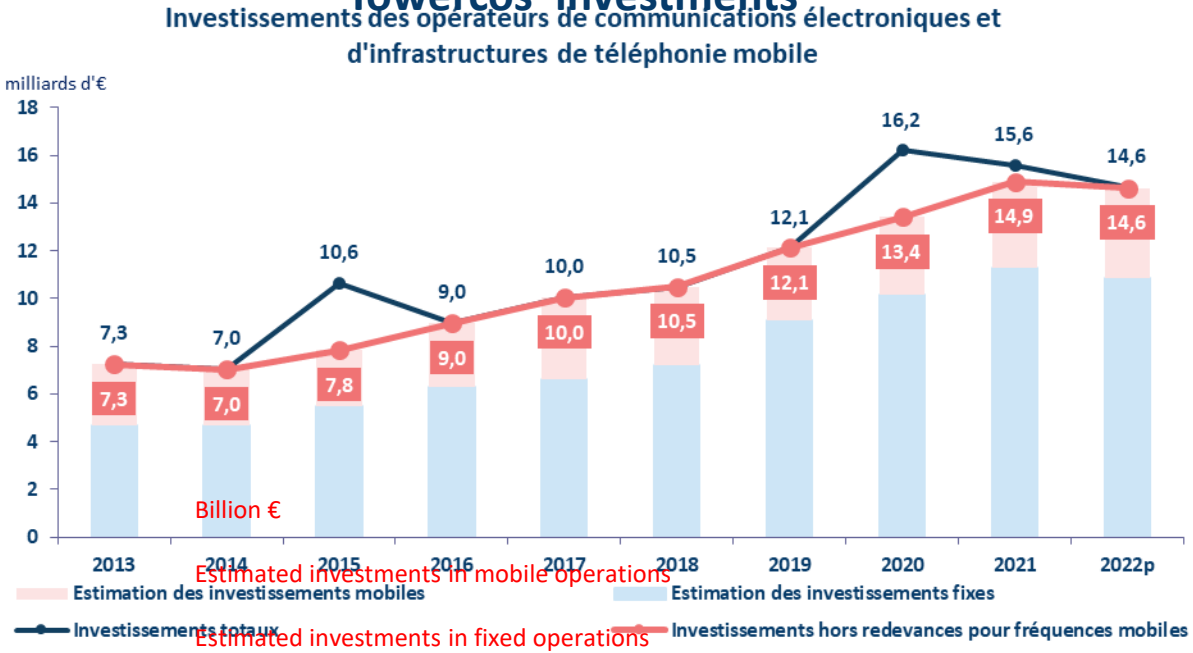
Number of SIM cards

82.7 million **(of which 8.2 million active 5G)**

+ 1.7% ↗

Investment levels remain high

Electronic communications operators' and Towercos' investments



Billion €

Estimated investments in mobile operations

Estimated investments in fixed operations

Total spending

Investments excluding frequency acquisitions

In 2022:

- **Excluding spending on frequencies, investments reached 14.6 billion euros (incl. Towercos):** -1.8% YoY
- Spending on broadband and superfast broadband local loop deployments (8.1 billion euros) decreased due to a drop in investments in fibre local loops, while still remaining well above pre-2021 spending levels

Stepped up efforts to increase regional connectivity in 2022

On fixed networks

Although below 2021 levels, progress on fibre network rollouts and subscription numbers in 2022 remained strong, with 4.7 million additional premises passed for fibre

Public-initiative networks (PIN) were once again the chief driving force behind this growth in 2022, and the four national ISPs now market their plans on virtually all of these PIN

On mobile networks

4G rollout efforts continue…

An average of 2,412+ sites upgraded to 4G* per year and per operator since the introduction of the *New Deal for Mobile* in mid-2018 (2,019 in 2022 and 1,936 in 2021)

As of 31 December 2022, 99.1% of all cell sites were 4G-capable, versus 75% in mid-2018

… and being relayed by the launch of 5G

At the end of 2022, after more than two years of 5G rollouts, between 5,600 and 16,000 5G sites deployed depending on the operator (including 4,000 to 5,000 using the 3.5 GHz band)

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

Arcep supports efficient investment: network sharing

Fixed network sharing: 75% of premises passed served by at least four operators

FttH network sharing has been legally required since 2009: every operator that deploys fibre lines must allow fellow operators to access them. Arcep's strategy since 2009 has been to promote risk sharing and enable the largest number of operators to participate in FttH network investments, through passive solutions for accessing the network through co-financing schemes.

Today, co-financing schemes are widely used by national operators to access FttH networks. As of Q4 2022, 75% of premises passed are served by at least four operators, connected to shared access points via passive sharing solutions.

Mobile network sharing: already a reality on 47% of cell sites in Metropolitan France

Arcep encourages operators to use passive infrastructure sharing, which helps streamline the number of towers, not least for the sake of better regional digital development and environmental protection

Arcep is also in favour of greater active sharing in rural areas, particularly if it helps improve coverage and quality of service, and reduces the environmental footprint

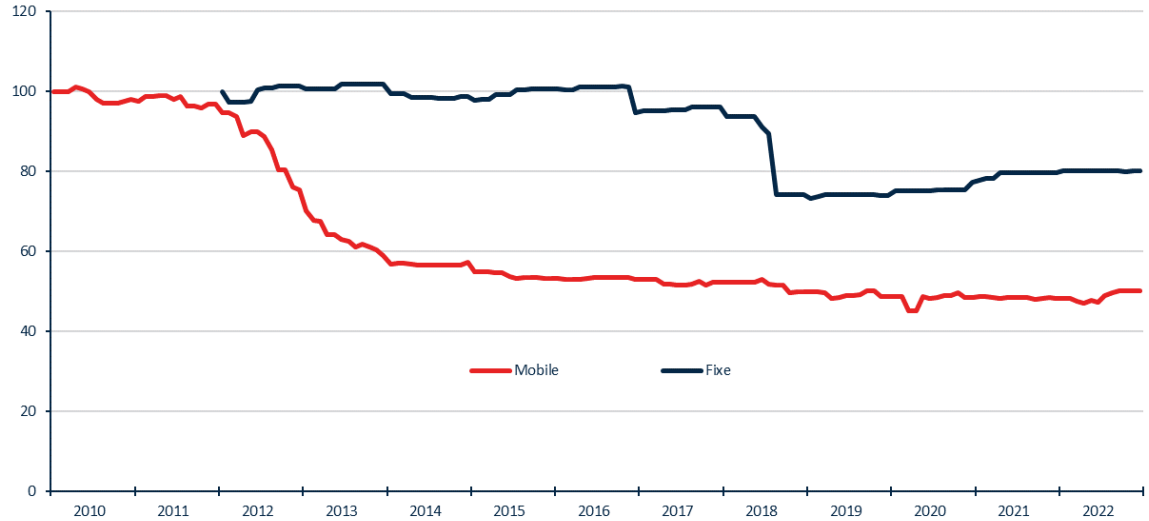
- In Metropolitan France, this scheme is already widely used in ultra rural areas and is increasing thanks to the targeted coverage scheme: + 3,000 sites shared by all four operators
- In addition to their obligations, some operators employ sharing schemes across a large portion of Metropolitan France: Bouygues and SFR via the "Crozon" agreement, covering 2G/3G/4G

Fixed and mobile service prices increased slightly in 2022

Fixed service prices rose in 2022, especially for DSL plans

Fixed and mobile consumer service price index in Metropolitan France

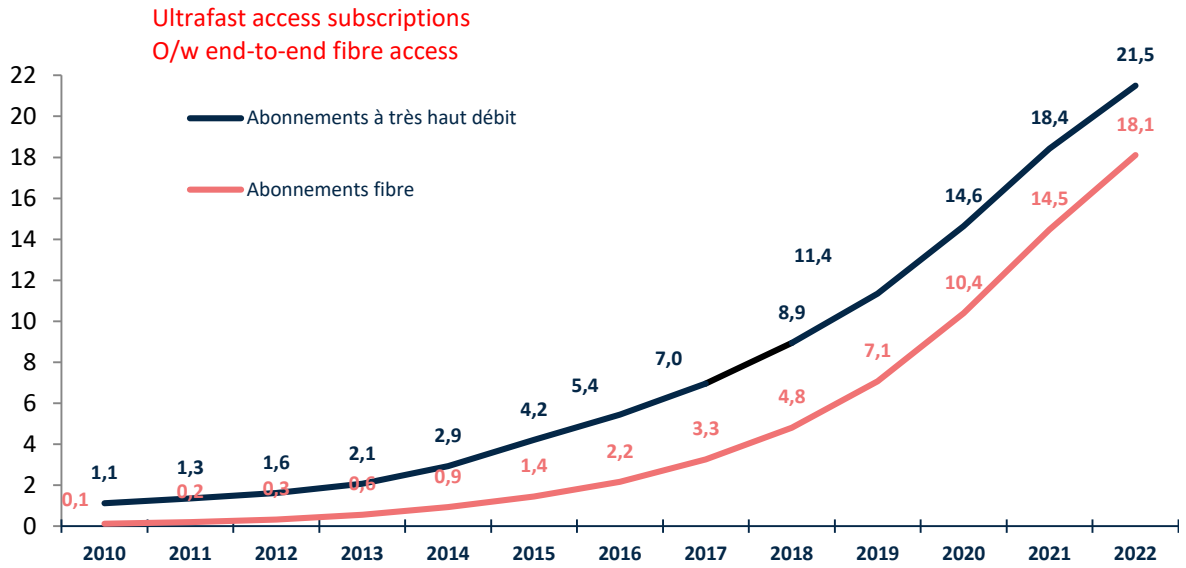
Indice des prix des services fixes et mobiles grand public en métropole



- Mobile service prices
  - +0.7% in 2022
- Fixed service prices
  - +1.2% YoY

Fixed internet take-up rates: fibre plan subscriptions continue to increase sharply

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

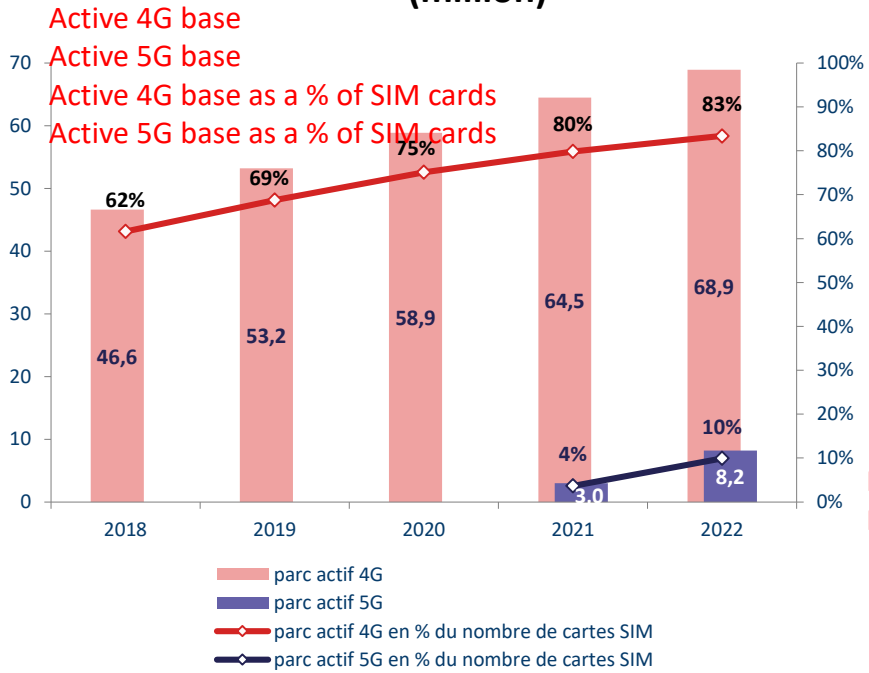


Ongoing strong growth of superfast access subscription numbers, albeit at a slower pace than in 2021

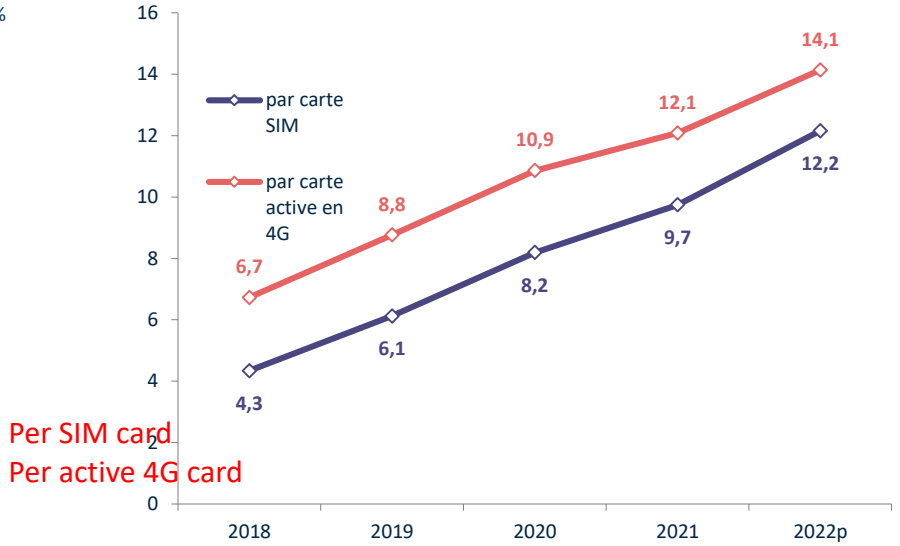
- +3.1 million YoY
  (+3.8 million in 2020)
- Growth due entirely to FttH subscription growth
  (18.1 million, + 3.6 million YoY)
- **Fibre plans** have accounted for the majority of internet subscriptions in France since Q2 2022**. They represent 57% of all broadband/superfast broadband subscriptions at the end of 2022**

Mobile take-up rates: 10% of mobile service consumers use 5G

Number of active cards on 4G networks (million)



Average monthly data traffic (Gb)



Core workstreams for the sector

Underway and upcoming

Fixed access

- Preparing new period of market analysis (2024-2028)
- Monitoring and supervising the copper network switch-off
- Fibre as the infrastructure of reference
- Business market competition must continue to develop

Preparing a new period of market analysis (2024-2028)

Facilitating the switchover from copper to fibre

Supporting the switchover from the legacy copper network to fibre

- Overseeing the copper network switch-off
- Maintaining a satisfactory level of quality on the copper network
- Facilitating the completion of fibre deployments while ensuring proper access to civil engineering infrastructures
- Bolstering competition in the business market

Factoring likely developments in competition dynamics into regulation

- Relaxing price supervision of copper in places where fibre has been deployed and where the main commercial operators are providing services
- Maintain cost-based pricing in less competitive areas

Monitoring and supervising the copper switch-off

Safeguarding competition and end users' interests during the transition

Regulatory framework established by Arcep

- Ensuring that end users have an alternative solution: impose a criterion of an available alternative superfast access service (typically fibre) and tailored solutions, including for businesses
- Limiting information asymmetries: mandatory prior notice periods (typically 36 months), and information sharing with other operators, notably making a timetable file for the switch-off available on the Orange website

Gradual entry into a more industrial phase

- The first trials are ongoing: copper network already switched off in seven municipalities, and new trials in very high-density areas have just begun in Vanves (92) and the city centre of Rennes (35)
- Prior notice for the first very large batch (close to 210,000 premises) issued in December 2022, for a technical closure in January 2025. A second batch of close to one million premises currently being defined, for a technical closure in November 2025
- Batches will become increasingly large over the course of the period
- Nationwide commercial closure planned for **January 2026**, with the switch-off plan due to be complete **in 2030**

Fibre as the infrastructure of reference

Ensuring FttH network quality of service

- Arcep has statistics of failure rates as reported to infrastructure operators, by infrastructure operator: around 2% of lines have a high failure rate
- Rehabilitation plans for certain networks notified to Arcep by Altitude and XpFibre in autumn 2022 and action plan notified by Free OI in January 2023
- Hosting an inter-operator working group since 2019
- Sector stakeholders' commitment to the Minister and Arcep Chair in September 2022
- Arcep monitors stakeholder commitments and rehabilitation/action plans

Safeguarding balance and deployments

- Ongoing examination of the balanced financial operation of PIN, notably as the PFTHD scheme only subsidised the network's initial construction
- Ongoing investigation of last-mile connection pricing following the public consultation in January 2023 on a summary of this work (publication of the final version scheduled before summer 2023)

More competition needed in the business market

Bringing fibre to businesses and developing competition in this market

- **Ongoing strategy of developing a dynamic market for activated wholesale fibre solutions:** Arcep estimates the percentage of FttH lines eligible for at least one activated wholesale solution has gone from 7% in Q1 2017 to 93% at the end of 2022

- **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. Most FttH networks now offer both of these options

Several operators fuelling a dynamic market

- Major operators that have revived their commitment (Bouygues) or entered the market (Iliad)

- Business market specialists increasing their spending on the retail market and on infrastructures for enterprises (Adista, Céleste, Altitude, Ielo, Eurofiber, Linkt)

- But there is less liquidity than in the consumer market due to longer contractual commitments

Mobile

- New advances in 4G connectivity
- Frequencies for businesses

New advances in mobile connectivity

2022, continued implementation of the *New Deal for Mobile*

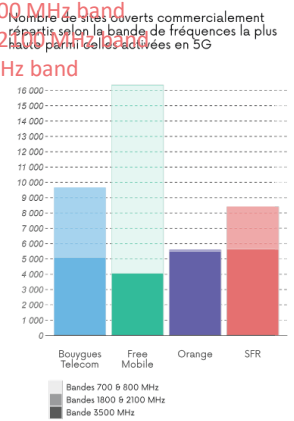
- Targeted coverage scheme: 2,179 sites in service at the end of 2022 and more than 4,000 areas identified by Order since the scheme's introduction in 2018
- Almost every site upgraded to 4G as of 31 December 2022
- At the end of December 2022, operators provided between 99.5% and 99.7% of the population with "good coverage" for voice/texting services, compared to 99.1% and 99.6% at the end of December 2021
- Fixed 4G extension scheme: 427 sites put into service by the end of 2022
- 99.8% of priority roadways with theoretical outdoor 4G coverage

Increased 5G rollouts

- Between 4,045 and 5,621 sites deployed, depending on the operator in the 3.5GHz band in 2022 (target set in frequency licences = 3,000)
- Next milestones: 8,000 sites in 2024, 10,500 sites in 2025 per operator

Number of commercially open 5G-ready sites broken down by the highest frequency band

700 – 800 MHz band
1800 – 2100 MHz band
3500 MHz band



Frequencies for businesses

Giving businesses the means to be competitive and to innovate

Long-term frequencies already available for ultrafast professional mobile networks in the 2.6 GHz band

- 33 sites authorised (as of Q2 2023) in the energy (EDF, Total), transport (HubOne), logistics and manufacturing (ArcelorMittal, Butachimie) sectors

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 which comes into effect at the end of 2023

Trials to enable exploration of verticals’ future needs

Since 2019, **26 GHz frequencies** have been awarded for 14 open “5G trial platforms”

Since March 2022, **3.8-4.0 GHz band frequencies** have elicited around 50 requests for testing the technology and use cases, from a wide variety of economic sectors, and from across the country

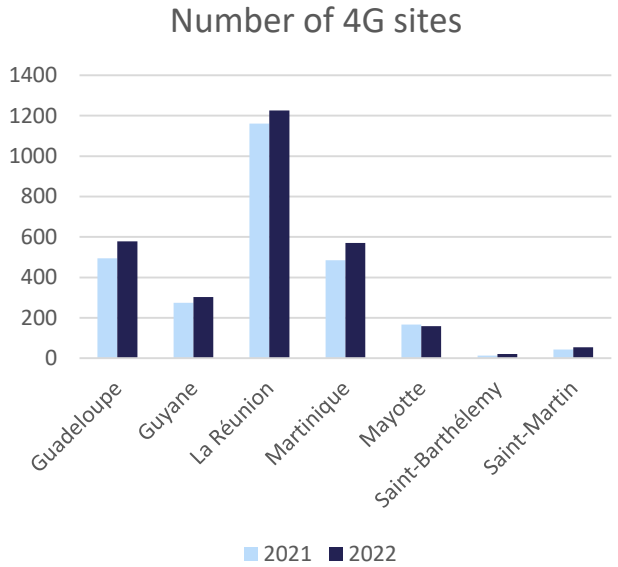
This band is in the process of being technically harmonised, with a view to its long-term allocation in the near future.

Focus on the overseas departments and territories

The situation in the French overseas territories

Mobile market

- **Deployments progressing:** in 2022 the number of 4G sites increased by 10% in the overseas departments*
- **5G rollout in Réunion in** 2022 by Orange and SRR
- **Commercial launch of Free Caraïbe in mid-2022**
- **Awards procedures for new frequencies** (700 MHz and 3.5 GHz bands) **underway in** Guiana, Saint-Barthélemy and Saint-Martin, to improve existing services and develop new ones
- **Preparations for the award of these same frequencies in** Guadeloupe and Martinique



Fixed market

- **FttH rollouts accelerated in 2022: close to 150,000 lines deployed (*2x YoY)**
- Réunion has the second highest coverage rate, after the Ile de France (Paris region)
- Average FttH coverage of 65% (+10 pts YoY)

*Guiana, Martinique, Guadeloupe, Réunion, Mayotte, St-Martin, St-Barthélemy

Focus on the digital environmental footprint

Focus on the digital environmental footprint

Arcep measures the digital environmental footprint…

- **Fixed and mobile networks' energy consumption totalled 3.9 TWh in 2021, 3% more than in 2020**
- Mobile access networks consume two times more than fixed access networks
- A fibre access line consumes four times fewer kWh than a copper line

… and anticipates a possible surge in the medium to long term…

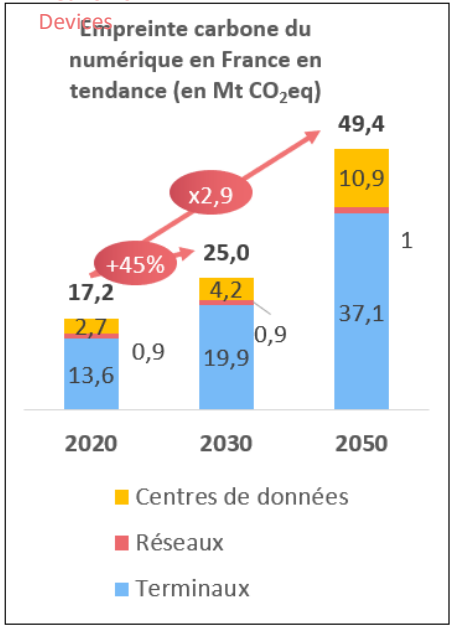
- **The digital carbon footprint in France: 17 Mt CO2 eq., 2.5% of the national footprint**
- **Hardware manufacturing (devices, servers, STBs, internet boxes…) accounts for 78% of the footprint**
- **The issue of metals and strategic resource availability,** most of which are sourced outside of Europe and used by other sectors

…which requires an action plan

- **The need for sobriety plus the drive for greater energy efficiency, while making all stakeholders accountable**
- A holistic approach: lifecycle analysis of networks, devices, data centres and services
- Work being done at the European level on harmonised impact measuring methodologies

Forecast trend for the digital carbon footprint in France (in Mt CO_2 eq.)

Data centres
Networks
Devices



Cross-cutting workstreams

- Data-driven regulation
- European regulatory framework
-

Data-driven regulation: Improving the tools for helping users make informed choices and guiding regulatory actions

"Ma connexion internet": map of available fixed technologies and speeds

- Maps and open data published every quarter; audience of around 10,000 visitors/day
- Site continuously enhanced, including the addition of information on the copper network switch-off and its impact on users' access to copper-based services

Mon réseau mobile" incorporating QoS indicators from crowdsourcing apps

- 200,000 new crowdsourced mobile network QoS measurements added in February 2022

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

- Departmental mobile internet coverage maps (Metropolitan France and overseas)
- Publication of the Observatory of 5G deployment in Metropolitan France
- Publication of departmental scorecards for broadband and superfast broadband coverage

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

European regulation: a framework for opening ecosystems

European electronic communications framework providing a long-term view

- A future-proof system: European code transposed, Open Internet regulation, roaming regulation extended
- Ambitious connectivity targets that benefit everyone: Europe's Digital Decade policy and Declaration of Digital Rights and Principles
- Adaptation of existing texts: *Gigabit Infrastructure Act* and the *Gigabit Recommendation*
- Forward-looking: public consultation on the future of connectivity

A digital strategy to create more open ecosystems

- A digital regulatory framework for the coming years, serving the interests of European citizens and businesses: a combination of the DMA/DSA/DGA/DA/*Artificial Intelligence Act*
- Arcep and BEREC will be involved, lending their expertise to ensure the successful application of the DMA
- Unleash the potential of data by making sharing more fluid through trust and openness via the DGA (*Data Governance Act*) and the DA (*Data Act*): Arcep will contribute

Q&A

Do you want to ask a question?

Please turn on your camera to identify yourself, and allow us to give you the floor.

Thank you for attending the conference!

You can find the press release, Observatory and presentation on our website.

Annexes

- Arcep’s work on “Achieving digital sustainability”
- The digital environmental footprint: a new focus of European and international action

Arcep's work on "achieving digital sustainability"

Collection and publication of data on the digital environmental footprint: annual "Achieving digital sustainability" survey

- **April 2022 and 2023 editions of the survey** covering telecom operators
- **Third edition of the survey (late 2023) will be expanded to include** device manufacturers and data centre operators
- **Outlook on future collection campaigns**: expanded to include network equipment suppliers

Assessing the digital environmental footprint

- **ADEME-Arcep study: Analysis of the digital environmental footprint in France in 2020** (published in January 2022) **and in 2030 and 2050** (published in March 2023)
- **ADEME-Arcep-Arcom study** on the environmental impact of different audio-visual media broadcasting services (publication H1 2024)
- **Recommendation aimed at informing audio-visual service users about their energy consumption and greenhouse gas equivalent consumption generated by these services' data traffic** (Arcom & Arcep in association with ADEME, publication planned in H1 2023)
- Report on **assessing the environmental impact of ICT:** methodological gap analysis by the measurement Experts Committee (published in March 2023)
- **ADEME-Arcep Observatory on the digital environmental footprint** (H2 2023)

The digital environmental footprint: galvanising European and international action

Progress at the European level to accelerate digital's Green transition

- Energy efficiency directive reviewed in 2023. Collecting data on data centres' environmental footprint;
- European Commission proposal on the "right to repair" and the battle against greenwashing (2023);
- European Commission's ongoing work on introducing a Code of conduct for telecom networks and services

Arcep a driving force in Europe and internationally (OECD and ITU):

- French Presidency of the EU in 2022: sharing Arcep's environmental experience during the *Digital Assembly*
- **OECD:** Participation in several committees and working parties: Committee on Digital Economic Policy (**CDEP**), Working Party on Communication Infrastructures and Services (**CISP**) and the Network of Economic Regulators (**NER**)
- **ITU:** Participation in ITU-T SG 5 (Environment and Climate Change) notably with a view to updating recommendations for measuring the digital environmental footprint;
- BEREC, co-chair of the *Sustainability* working group since 2020 and vice-chair in 2022;
    - First report in June 2022 submitting a roadmap for BEREC and electronic communications regulators for curbing the digital environmental footprint
    - Second report in 2023 focused on relevant environmental indicators for measuring the carbon footprint of telecom networks and services