

Copper switch-off: Telefónica's experience

Regulatory Framework, Milestones and Execution

Closing a century of legacy infrastructure with unparalleled success



8,532

local exchanges switch-off

>99%

Success rate in customer
migration

1924–2025

End of copper lifecycle,
consolidating a 100% fiber network

A transition enabled by comprehensive planning

Keys to Success



Early Regulatory Certainty

First EU country with a formal copper switch-off framework (2009).



Fiber First

Massive FTTH deployment before closures accelerated — customers always had a superior alternative.



Structured Procedure

Every exchange followed: Notification → Notice period → Guard → Final Shutdown.



Wholesale Protection

Longer notice periods where LLU/collocation was present — no competitive cliff-edge.



Intensive Communication

Up to 12 billing alerts per customer.
Migration rate: **>99%**.



Sustainability Gains

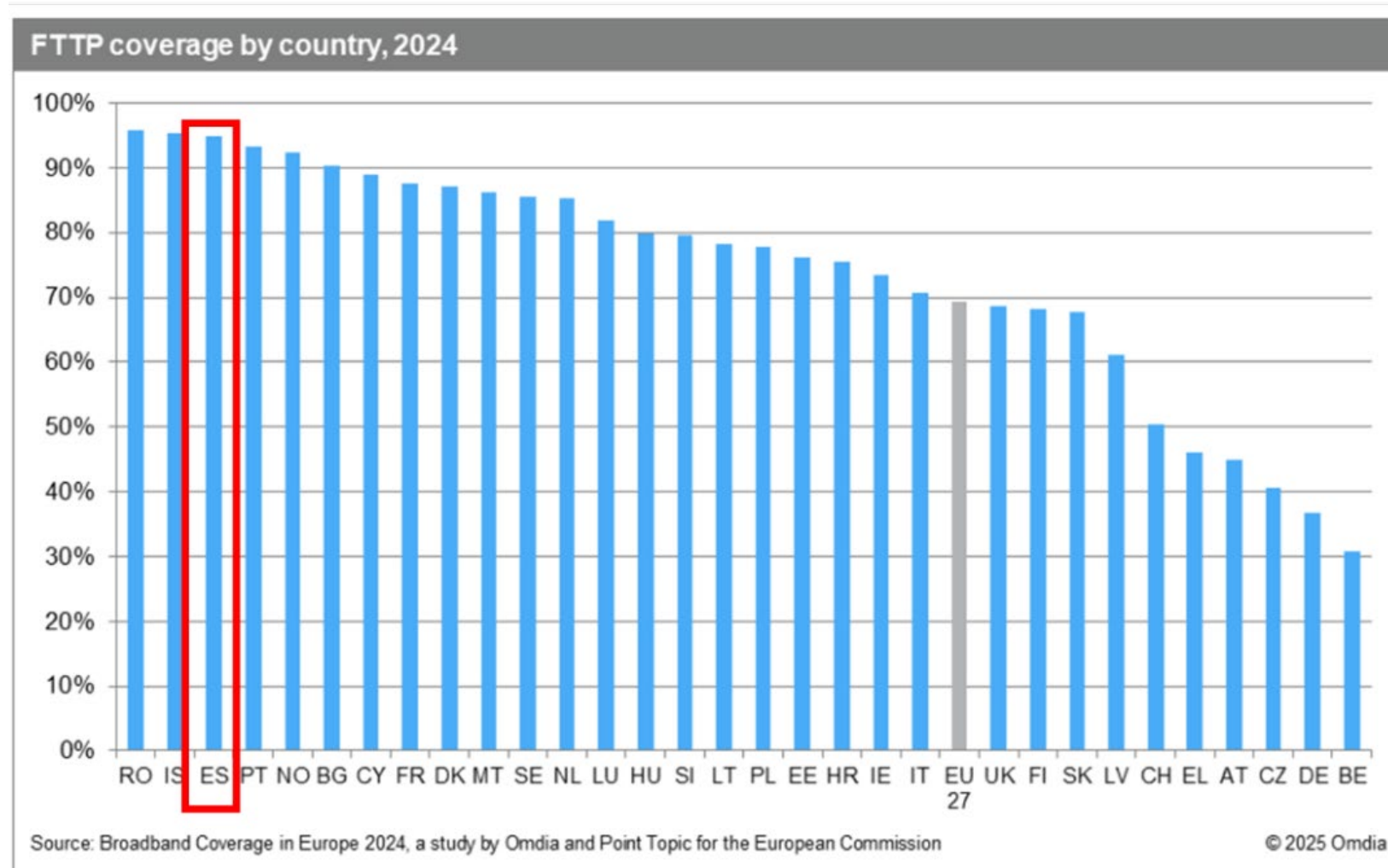
Significant energy reduction, large-scale copper recycling and reduction of real estate assets and associated maintenance costs.



Operational industrialization

Standardized processes from migration all the way to physical recycling

The Golden Rule: massive fiber coverage was an essential prerequisite



Wholesale and retail migration was only possible because the next generation network (NGA) was already deployed and commercially available. The copper switch-off cannot precede the maturity of fiber

Regulation evolved across three phases to balance wholesale protection with acceleration

Initial regulatory Framework

Creation of the first European framework.
Included a strict rule requiring 25% prior migration before notifying a closure. Strict protection.

Acceleration Reform

Crucial reduction of the guarantee period for exchanges with Local Loop Unbundling (LLU) from 5 years down to 2 years.

2009

2016

2021

Simplification

Elimination of the 25% prerequisite as FTTH deployment consolidated. Notice periods maintained.

The regulatory model provided an orderly, predictable process

Notification to the CNMC

Triggered without the need for explicit, individual authorization.

Notice Period

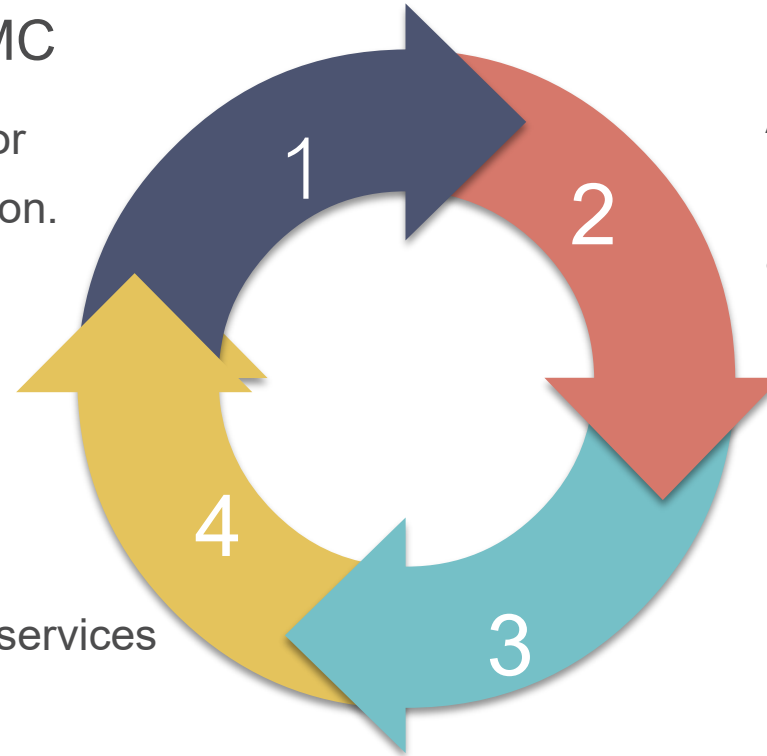
Active wholesale protection phase where regulated copper services remained fully available.

Guard Period (6 months)

Crucial buffer zone. Strict prohibition on new customer activations; only ongoing migrations are permitted to conclude.

Final switch-off

Total cessation of all copper services in the local exchanges.



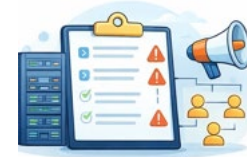
Notice period adapted dynamically to competitive reality and market maturity

	Before 2021	After 2021
Case A: LLU / Colocation Physical presence of operators in exchange.	5 years	2 years
Case B: Indirect Access No physical equipment in exchange.	1 year	1 year
Case C: No wholesale presence Only retail customers of Telefónica.	6 months	6 months

Transparent notification by Telefónica and Smart supervision by NRA replaced exhaustive individual authorizations



Technical code and geographic location



List of affected wholesale operators



Number of active lines (retail and wholesale)



Proposed Guarantee and Guard schedule



Confirmation of FTTH availability

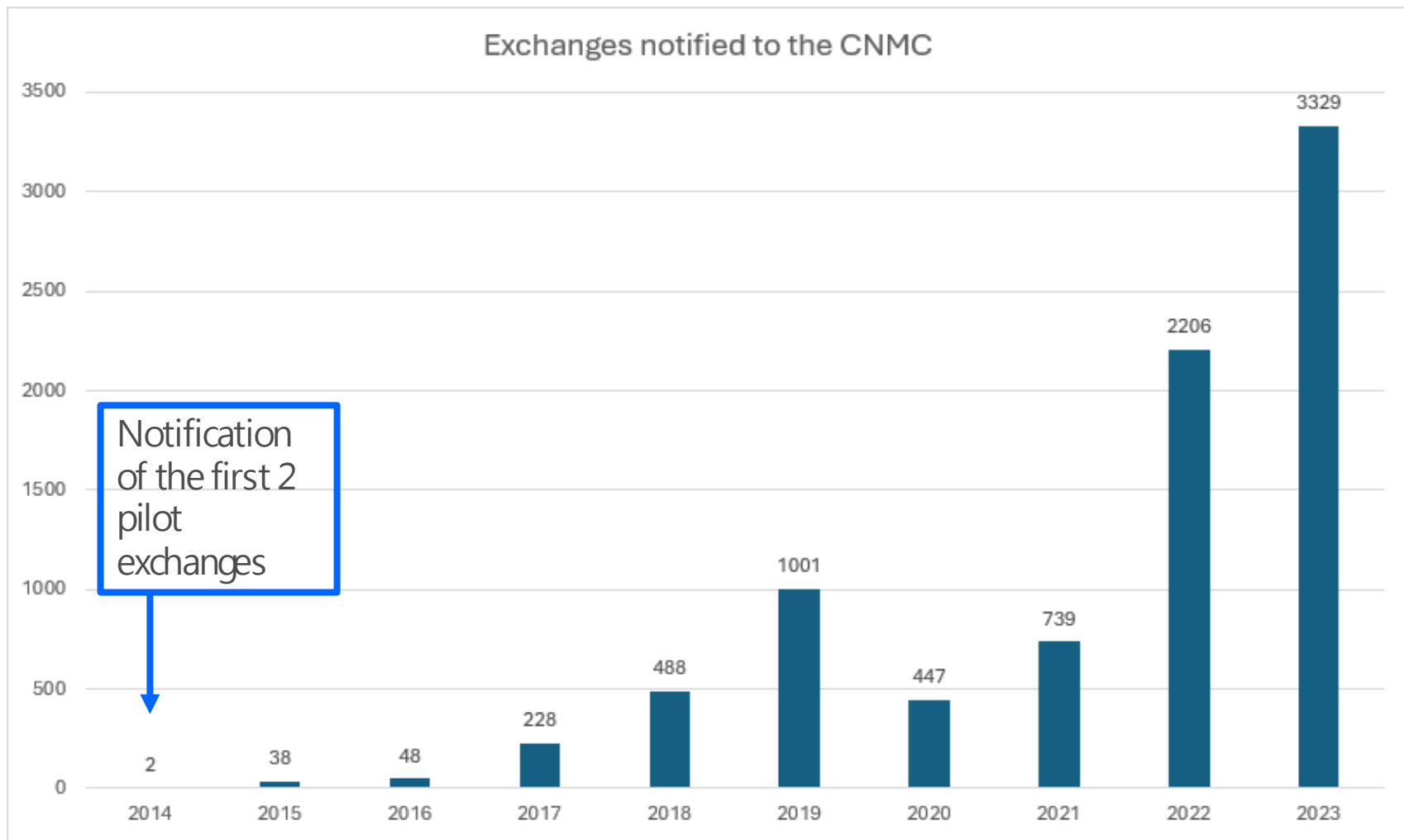
(complemented by FWA or satellite for low-population-density areas).



Status of the migration plan

This model reduced the administrative burden while providing complete operational predictability and ensuring wholesale competition in fiber

A decade of methodical execution culminating in the May 2025 wholesale shutdown



April 19, 2024



Vast majority of retail copper services switch-off, coinciding with the Centenary of Telefónica

May 27, 2025

The final regulatory wholesale switch-off

An intensive communication strategy transformed disconnection into a guided transition



Up to 12 distinct warning notices included on customer invoices



Proactive calls from the Call Center



Direct postal letters



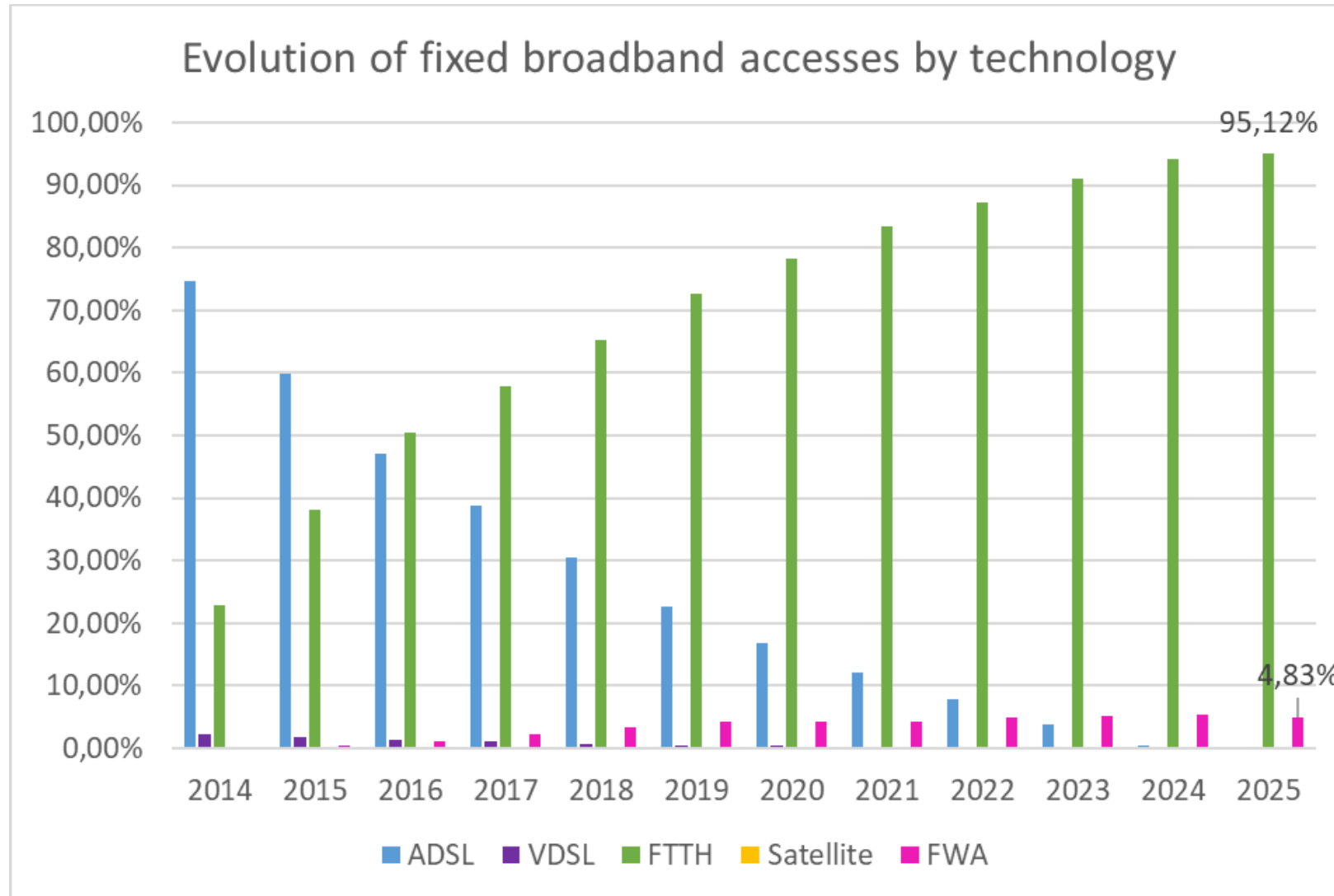
SMS & e-mail campaigns



Formal legal notice sent by registered mail one month before the MDF switch-off

- Customer communication campaigns began one year before the exchange switch-off date
- Migration to fiber was totally free, installation was included, and phone number retention was guaranteed for 30 days post-disconnection
- Customers were migrated to plans comparable to their previous copper tariffs

The result: successful migration of the customer base to new technologies



Physical and operational obstacles to achieve a >99% success rate

→ Wholesale Legacy Obligations

Managing LLU, bitstream access and leased-line services required careful sequencing across thousands of exchanges.

→ COVID-19 (2020)

Temporary operational slowdown. Process was suspended and later resumed without structural disruption.

→ Lengthy administrative procedures to grant permits

Overcoming delays related to obtaining permits from public authorities for network deployment.

→ Rural Complexity

Some areas required fixed wireless alternatives.

→ Late Adopters

Unreachable customers required legal notifications and escalated outreach.

Modernization was achieved without weakening market competition

Did it generate stranded assets?

No. Long initial notice periods (up to 5 years) allowed alternative operators time to amortize investments.

Did it weaken competition?

No. Wholesale fiber access and guaranteed access to physical infrastructure ensured market competition. Upfront fiber wholesale connection charges were small (up to 68.17€) and unlikely to deter wholesale ordering.

In fact, Spain has become one of the most highly competitive broadband markets in the EU.

Did it force customer migration?

Migration was mandatory in the sense that copper ceased to exist, but it was free, well-communicated, and number retention was guaranteed. Ultra broadband alternatives were guaranteed without forcing price hikes on the consumer.

The European Blueprint: Four fundamental lessons

1

Prerequisites matter

The shutdown of copper must never precede the full maturity of FTTH coverage and the availability of wholesale alternatives.

2

Regulation must be dynamic

Rigid protection periods ultimately stall modernization; regulation must evolve alongside the market (as seen in the 2021 reform).

3

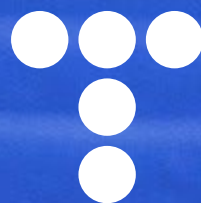
Active communication is vital

True consumer protection requires intensive, multichannel notifications and strict guarantees for number retention.

4

The shutdown alters the regulatory paradigm

Eliminating copper removes the structural justification for legacy rules; competition policy doesn't end, but legacy obligations lose their relevance.



Telefónica