



POLICY BRIEF

POSTAL NETWORKS: BACKBONE OF THE CIRCULAR ELECTRONICS ECONOMY

By turning their nationwide all-reach routes, depots and payment rails into a platform for collecting, financing, tracking and redistributing used electronics, postal operators can simultaneously revive falling letter revenues, help governments hit mandatory e-waste collection, recycling and repair targets, and give consumers affordable, lower-carbon devices – using infrastructure they already own today, profitably.

WHY ACT NOW

Domestic letter-post volumes have already shrunk to roughly **73% of their 2012 baseline**, eroding the revenue that underpins universal service mandates and placing designated operators under mounting fiscal strain (UPU, 2023). At the other end of the consumption chain, the **Global E-waste Monitor** reports a record **62 million tonnes of discarded electronics in 2022 – up 82% since 2010 – and forecasts 82 million tonnes by 2030**; yet only 22.3% of that material is formally collected and recycled (Forti et al., 2024). Governments are reacting: **46 countries now set statutory e-waste collection targets**, signalling a clear regulatory trend toward mandatory take-back (Forti et al., 2024).

Market forces align with this policy push. The **reverse logistics economy for electronic devices is already worth about 85 billion USD (2024), and is projected to expand**

by 18% annually between now and 2033, outpacing conventional freight growth and creating a premium for networks that can handle high-value, high-volume returns efficiently and safely (Grand View Research, 2024). In parallel, the **global trade in refurbished and second-hand electronics is valued at roughly 94 billion USD (2023) and expected to exceed 430 billion USD by 2034**, driven by cost-conscious consumers, right-to-repair rules and growing recommerce platforms (Transparency Market Research, 2024).

The conjunction of **shrinking mail revenue, surging reverse flows and tightening circular economy legislation** therefore creates a narrow but actionable window for postal operators to repurpose their nationwide assets – or risk being sidelined in the fastest-growing segment of the electronics value chain.



OPPORTUNITY: TURNING POSTAL ASSETS INTO THE BACKBONE OF A CIRCULAR ELECTRONICS CHAIN

Designated operators already drive to every settlement, run nationwide depots, operate trusted payment rails, and steward item-level tracking codes. When those physical, financial and data capabilities are deliberately stitched together, a postal network becomes much more than a convenient drop-off point: it functions as **core infrastructure for collection, repair, refurbishment, recommerce and, only as a last resort, recycling.**

First-mile capture is financed, not merely collected. In Switzerland, noting that an estimated 10 million e-cigarettes were sold in the market in 2022 alone, the take-back scheme led by SENS eRecycling uses 10-centime advance recycling contributions to pay Swiss Post for home collection bags and for routing of full sacks through normal parcel rounds to specialist processors – proof that extended producer responsibility (EPR) fees can fund postal logistics without new public subsidies (UPU, 2025b). Belgium's Recupel Retour pilot showed the same logic: piggy-backing e-waste and used electronics device pick-ups on existing night routes cut marginal costs and demonstrated that producer responsibility organizations (PROs) will underwrite the service when a reliable network is available (UPU, 2025b).

Once devices enter the network, Posts can steer them toward the highest-value outcome rather than straight to shredders. Uruguay's CEIBAL laptop programme illustrates the point: the national Post collects units from schools, logs each one against its student-paired serial number, moves them to refurbishment hubs, and redeploys them within three days, keeping roughly 600,000 devices in productive use and harvesting spare parts for future repairs. Such turnaround times are only possible because

transport, warehousing and data exchange sit inside a single institutional envelope (UPU, 2025b).

The data spine is what makes these flows bankable and compliant. Universal S10 barcodes still anchor every parcel, but they are now being augmented with GS1 Electronic Product Code Information Services events, and can be advanced for decentralized identifiers and verifiable credentials so that a phone, router or other collected device travels with a tamper-proof passport covering battery chemistry, repair history and secure data-wipe status (UPU, 2025b). Each hand-off adds verified details, creating one digital trail that satisfies producer responsibility audits, unlocks deposit refunds, and can even feed life-cycle-analysis engines that generate carbon credits. Finally, service diversification that generates revenue – collection fees, resale commissions, data subscriptions, incentive-wallet management – means reverse flows become a profit centre rather than a corporate social responsibility project. The UPU study shows that Posts can layer these revenue lines onto their existing cost base with minimal capital expenditure, provided they sequence three steps: map high-leakage products; secure a producer responsibility organization or retailer contract; and activate the digital layer that proves compliance at every hand-off, while building value-added service offers.

In short, by integrating transport, money and information in one trusted channel, postal networks can capture value throughout the circular electronics chain – keeping devices in use longer, meeting tightening policy targets, and replacing shrinking letter revenues with durable, green growth.



POLICY LEVERS AND NEXT STEPS

Realizing the circular electronics opportunity demands concerted action across portfolios that rarely sit around the same table. Environment ministries command the chief fiscal lever for circular electronics: EPR fees. Allocating a defined share of those funds to designated operators – through agreements that also involve PROs – would give e-waste and used electronics collection a stable, nationwide budget instead of sporadic grants. The need is acute in countries that are import hubs for used electrical and electronic equipment yet capture only a fraction of the fees due; uncollected EPR revenue in such markets is estimated at 340–380 million EUR (UPU, 2025b). Redirecting even part of this “missing” EPR stream to postal networks would support them in setting up reliable, countrywide take-back capacity. Those same authorities should certify post offices as safe collection nodes and a trusted repair and recommerce network, and endorse lithium battery segregation and fire-resistant storage protocols already codified in best practice guidance, thereby removing a major barrier that derailed earlier household pickup pilots.

Ministries responsible for communications and the digital economy need to treat refurbished devices as integral to inclusive connectivity strategies. Every low-income student who receives a reliable, low-cost laptop – as in Uruguay’s CEIBAL programme, where 600,000 school machines circulate through rapid postal repair loops – joins the digital economy faster and at lower public cost (UPU, 2025b). By embedding postal reverse logistics capacity into broadband and device-access programmes, and by fast-tracking the domestic rollout

of product and device information-sharing programmes such as digital product passports based on decentralized identifiers and verifiable credentials, they create the audit trail that producers, Customs and financiers now require, while unlocking repair-while-in-transit services. From a monitoring perspective, such data infrastructure allows the creation of higher quality national and sectoral aggregate statistical data and impact analysis. The same verified data can later feed carbon-credit or impact-bond mechanisms that monetize every extra year of device life, reinvesting savings back into digital inclusion budgets.

Postal regulators should resist premature tariff or licensing prescriptions. Belgium’s Recupel Retour experience shows that rigid labour and night-driving rules can stall promising services; a more useful contribution is to convene sandbox arrangements in which designated operators, PROs and insurers can prototype pricing models, safety regimes and rural aggregation schemes before they are frozen into regulation.

Designated operators themselves must map their depots, retail counters and milk-run routes against e-waste generation hotspots, then negotiate guaranteed-volume contracts with PROs that cover collection, repair and refurbishment, as well as end-of-life recycling. They should deploy parcel traceability schemes covering device information, to give Customs the transparency they now seek. Staff must also be trained to isolate damaged batteries and issue certificates of data destruction so that refurbished goods re-enter the market with consumer trust restored.



For producer firms and e-commerce platforms, the immediate ask is operational transparency: share barcode data and forward-return forecasts so the postal network can pre-sort volumes, and earmark a portion of eco-modulated EPR or deposit-refund fees to reward high-recovery routes. Lastly, local governments can amplify these efforts through public awareness campaigns that list post offices and parcel lockers as official drop-off points, normalizing

repair and recommerce alongside recycling and ensuring that rural citizens are not left behind.

Aligned in this way, policy nudges across finance, data, safety and public engagement will allow postal corridors once dominated by shrinking letter volumes to become circular lifelines – closing material loops, opening revenue ones, and anchoring the Post as a resilient instrument of sustainable development.

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