Project Fact Sheet

Stargate
within EU Green Deal

eCMR

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement GA101037053

01 BASIC PROJECT INFORMATION

Project name	eCMR (Electronic Consignment Note)
Partners involved	ACB with participating trucking companies, ground handling agents and airlines
Implementing airport / site	BRUcargo, Brussels Airport (with Road Feeder Services operating between Brussels Airport and Liège Airport)
Period tested	Two-phased testing period in 2023 and 2024
Project lead / contact	Project lead: ACB Content owner/reviewer: Davide Scatorchia

02 OBJECTIVE

What are we trying to solve or tackle with this project?

The eCMR project evaluates the feasibility, added value, and operational impact of digitally replacing traditional paper-based consignment notes (CMR) in international road transport. The Proof of Concept (PoC) aimed to assess current implementation readiness, map operational and regulatory hurdles, and determine whether transitioning to electronic documentation is viable for road feeder services (RFS).

Success criteria

- Successfully test eCMR in a real-world RFS route
- Transition safely from a dual-document approach to an exclusive, paperless eCMR workflow.
- Eliminate paper handling, reduce administrative burdens, and enhance document security and traceability.
- Identify key technical, operational, and regulatory prerequisites required for wider community-wide adoption.

03 APPROACH (HOW WE TESTED)

Test set-up & method

The PoC was executed in collaboration with software provider Pionira and involved key stakeholders including Swissport (as consignor in Brussels and consignee in Liège), Hainan Airlines, and trucking operator Wallenborn.

Testing followed a structured two-phased approach:

- Phase one: Executed using both an eCMR and a physical paper backup to ensure legal compliance, build stakeholder familiarity, and stabilize core software functionalities.
- Phase two: Transitioned to the exclusive use of eCMR without paper backups for a full month to validate a purely digital workflow.

Data & measurement

KPIs:

The pilot monitored creation success rates and operational stabilisation across phases. Over 200 eCMRs were generated during Phase One (with over half successfully completed), followed by 41 eCMRs created during the exclusive digital phase. Qualitative metrics included stakeholder adjustment timelines, software stability reports, and feedback on user proficiency

Risks & mitigations

Risks:

- Low initial daily volumes making software familiarisation difficult,
- Software bugs and stability issues
- Out-of-office creation errors by planners, driver resistance or lack of mobile device proficiency
- Fragmented legal acceptance across European borders.

Mitigations: Providing user guides and continuous support by ACB, maintaining a phased transition with paper backups during early stabilisation, and raising operational awareness among drivers and reception desk personnel.

Limitations

The project was restricted to a specific RFS route between Brussels Airport and Liège Airport, involving a limited partner network and relatively low daily transaction volumes. Furthermore, broader international scaling was constrained because eCMR protocol ratification varies across European countries.

04 RESULTS & IMPACT

Key results

The eCMR proof of concept successfully demonstrated that transitioning to digital consignment notes is operationally feasible and delivers clear practical benefits. During the first testing phase, more than 200 eCMRs were created, with over half successfully finalised. In the second, fully paperless phase, an additional 41 eCMRs were generated.

The shift to digital documentation successfully eliminated physical paper handling and storage clutter. Digital templates made sure forms were filled out correctly every time, while digital signatures and encryption meant documents couldn't get lost, damaged, or altered.

Despite these clear advantages, widespread adoption still faces significant barriers. The lack of universal ratification of the eCMR protocol across European countries limits cross-border utility and makes transport companies hesitant to adopt it fully. Additionally, the presence of multiple commercial software providers risks adding administrative complexity, as planners, drivers, and reception staff would otherwise be forced to navigate various distinct applications.



05 RATINGS (QUICK ASSESSMENT)

Deployment Approach

How standardised is the solution: can it be deployed off the shelf, or does it require extensive customization?

Off The Shelf — Custom-Built

Investment Magnitude

From low-cost deployment to major investment.

Low Investment (less than €10k) — High Investment (more than €15mio)

OPEX ■ □ CAPEX

Sector Readiness

From non-existing or emerging standards, regulations, and certification pathways to fully established industry practices.

Emerging Framework — Established Framework

Innovation Maturity

How does the solution score in terms of maturity, from low TRL experimental/pilot-stage to high TRL market-ready.

Experimental — Market-Ready

Operational Impact

Does the innovation deliver targeted improvements or rather drastically transform processes and/or operations.

Incremental Improvement — Transformational Change

Notes

The PoC demonstrated clear paper and process benefits. For other airports, the critical success factors are common legal acceptance, interoperable solutions, clear responsibility for completing documents, connected mobile devices and sustained user onboarding.

06 NEXT STEPS / RECOMMENDATION

Recommendation

Scale progressively: expand eCMR at BRUcargo as legal acceptance, software maturity, standardisation and partner adoption improve.

Next steps

- Expand beyond the Brussels–Liège route as cross-border acceptance allows.
- Align partners on a standard process and interoperable tools.
- Define out-of-hours creation responsibilities.
- Provide practical guides/videos and ensure drivers have connected mobile devices.