Summary of Agile Pilot CircularBucks

Company name	**AI Core SRL (brand: CircularBucks)**
Company location	**Reșița, Caraș-Severin, Romania**
Domain	**Circular economy · Reverse logistics · Digital services**
Municipality	Reșița, Caraș-Severin, Romania
Project period	November - December 2025, 2 months
Solution	CircularBucks is an AI-powered web platform that digitally connects small generators of waste batteries (SMEs, car-service shops, workshops, retailers) with authorised transporters and recyclers. The platform automatically maps generators, computes optimised collection routes using TOPSIS and Graph Attention Network algorithms, and creates traceable generator → transporter → recycler connections compatible with Regulation (EU) 2023/1542 (the future "battery passport"). Crucially, this pilot tested the digital orchestration and matching layer — not physical smart bins. No bins were physically installed; instead the pilot validated whether a software-only, asset-light layer could activate generators and orchestrate collection logistics in a real, mountainous setting (DN58/DN6) during a winter consumption peak.
Stakeholders	Small waste-battery generators (platform users), recyclers and transporters (Ecowes, Pajurca Metal Group, RoRec / SLC Timiș), the local municipality, and an independent external expert. The intended spectrum of actors was key to understanding what small generators and recyclers realistically need; however, recyclers/transporters engaged only on an ad-hoc basis and the municipality was largely unresponsive, which itself became a central finding of the pilot.
Lessons learned	Overall, the Agile Pilot is considered successful in validating the digital orchestration concept and in surfacing the real-world barriers to broader implementation. The main barrier is not technological but organisational and regulatory: • Regulatory burden — classifying batteries as hazardous waste (handling, fire-risk storage, Reg. (EU) 2023/1542 traceability) raises the operational threshold and slows partner commitment. • Recycler/transporter reliability — all partners preferred ad-hoc collaboration due to a lack of visibility over volumes, undermining any commission-per-tonne logic. • Adoption — behaviour change among small generators is slow; onboarding exceeded target, but conversion to recurring transactional activity lags.
KPI 1 Adoption & usage	Target 45 / Achieved 48 (107%). The platform onboarded 48 small generators against a target of 45, confirming real demand on the generator side with no hardware deployed (asset-light model validated). Conversion from onboarding to active, recurring use remains gradual.

KPI 2 Time savings	Target ≥ 12% / Achieved 14%.

	Route optimisation delivered 14% fuel savings versus standard routes. This is the strongest technically validated result, achieved in mountainous terrain (DN58/DN6) even without physical bins, demonstrating algorithm robustness. Savings are expected to grow with generator density at scale.
KPI 3 User experience	Target 100 / Achieved 124 (124%). The platform orchestrated 124 traceable generator → transporter → recycler connections, proving the matching function at scale and the ability to produce records compatible with the battery passport. Physical volume (kg) was not tracked, because battery stocks at generators varied and partners operated ad-hoc without firm volume commitments — so orchestrated intent was validated, while conversion into measured tonnage remains dependent on commercial commitment.
Evaluation of the business model focusing on its viability and potential for growth	Pre-pilot, the model combined a per-transaction commission, SaaS licensing (2026+) and sales of anonymised aggregate insights, targeting post-industrial cities and waste operators / EPR schemes. Validated strengths: real generator-side demand (48 > 45) and a quantifiable logistics value proposition (14% fuel saving) that supports a SaaS / fee-per-transaction model. Identified weaknesses: no volume commitment from recyclers/transporters (all ad-hoc, due to missing volume visibility) and the hazardous-waste regulatory burden. Adjustment: shift the value proposition from "commission per tonne collected" toward a "SaaS orchestration + volume-visibility" subscription — monetising the very gap the pilot exposed — plus a turnkey traceability/compliance package as a differentiator.
Impacts	Impact on the territory: a digital, asset-light pathway for integrating the ~43% of small generators currently outside the formal collection chain, with measurable logistics efficiency in difficult mountain terrain. Impact on CircularBucks: validation of the demand hypothesis and early, low-cost identification of the true commercial barrier (volume visibility) before committing capital to hardware — reorienting the business model ahead of scaling.
Suggestions for future actions, especially focusing on sustainability and replication	• Engage recyclers/transporters early with explicit volume-commitment expectations, not ad-hoc collaboration. • Add volume aggregation and forecasting so recyclers gain the visibility they lacked, converting ad-hoc links into contracted flows. • Provide a turnkey hazardous-waste compliance/traceability layer to lower the regulatory threshold for partners. • Require a designated municipal point of contact at project kick-off, given the unresponsiveness observed. • Track measured tonnage (kg) per match in future pilots as an explicit KPI.
Next steps	2026: extend across Caraș-Severin and into neighbouring counties (Timiș, Hunedoara); launch volume-visibility functionality and the compliance package. 2027–2028: explore Danube-region replication via the SaaS model, conditional on validating recurring volume commitments. Pursue grants for urban innovation / circular economy and a seed round gated on demonstrated volume recurrence.

Provider's Reflection	We view this agile pilot as a decisive step that cleanly separated what is mature in our solution from what depends on external factors. The digital orchestration layer worked at scale and above target (48 generators, 14% fuel saving, 124 connections). The real obstacle is not the technology but the recyclers' volume commitment and the hazardous-waste regulatory burden. Running the pilot without installing physical bins proved, paradoxically, an advantage: we validated the asset-light hypothesis before committing capital to hardware. The results form a strong reference point and a clear basis for reorienting the business model toward orchestration and volume visibility.
Municipality's Reflection	Engagement from the Reșița municipality was limited during the pilot. Despite repeated outreach by the solution provider, the local authority's responsiveness was low and no designated contact could be established, so an attributable municipal statement is not available. This is itself a relevant finding: limited public-sector responsiveness was one of the pilot's main operational difficulties, and future piloting models should require a designated municipal contact at kick-off.
Expert's Reflection	External expert: Raul Pop — Secretary of State, Ministry of Environment, Waters and Forests; Associate Professor, Bucharest University of Economic Studies (ASE); co-founder of the Circular Economy Coalition (CERC); 15+ years in integrated recyclable-waste management and environmental policy. Assessment: the pilot addresses a real, under-served segment (small, informal generators). Validation of the digital orchestration layer is solid and relevant to Reg. (EU) 2023/1542. The most valuable finding is systemic: in the current Romanian context the barrier is recyclers' volume commitment and the hazardous-waste regulatory burden, not technology. Recommended next steps: structure volume commitments with operators, clarify traceability procedures, and commission an independent methodology review at scale-up.