



Pilot activity final report

Template for project partners

Activity 3.1, pilot actions implementation and monitoring.

Project identification

Project	Danube Digital transformation Network of Active SMEs training and knowledge transfer centres (Danube DNA)
Programme	Interreg Danube Region Programme 2021–2027
Activity	3.1 Pilot actions implementation and monitoring
Activity Leader	SERDA, Sarajevo Economic Region Development Agency
Lead Partner	University of Novi Sad, Faculty of Technical Sciences

Reporting partner

Project partner	ICT Cluster Bulgaria (PP3)
Country	Bulgaria
Pilot coordinator (name, email)	Todor Mitov, Project Manager, ICT Cluster Bulgaria todor_mitov@ictcluster.bg / todor_mitov@ictalent.org
Pilot activity title	WeldWise pilot implementation at MDC with COMICON technical integration
Digital solution validated	WeldWise (smart energy and production monitoring for industrial machines)
Pilot implementation period	2025-May 2026 (MDC pilot preparation, technical adaptation, installation, testing and reporting phase)
Date of submission	17 June 2026

Participating SME(s)

For the size breakdown, enter the number of SMEs in each category. A blank counts as zero, and micro, small and medium should add up to the total.

Number of participating SMEs	1
Of which micro	0
Of which small	0
Of which medium	1
Sector(s)	Manufacturing; metal processing; industrial production; machine-based production processes Participating SME: MDC

1. Description of the implemented solution

Describe the digital solution validated and which of the six jointly developed solutions it corresponds to. Outline the SME context, the scope of the pilot, and how the solution was deployed in the real SME environment.

This Pilot Activity Final Report covers only the pilot implementation of WeldWise at MDC in Bulgaria. The pilot was coordinated by ICT Cluster Bulgaria as the responsible Danube DNA project partner, while COMICON Ltd. acted as the technical developer and system integrator responsible for adapting and deploying the monitoring solution in the MDC production environment.

WeldWise is an Industrial IoT-based monitoring and analytics solution designed to provide machine- and process-level visibility of electricity consumption, machine activity and operational performance. In the MDC pilot, the solution was transferred and adapted to a broader industrial environment beyond the original joint development context, focusing on high-consumption and operationally relevant production assets.

The MDC pilot covered three main assets/processes: a powder coating oven, an industrial compressor and a laser cutting process. The technical setup included a local on-premises server based on Raspberry Pi 4 (8GB), energy monitoring devices for the selected assets and discrete signal monitoring for the laser cutting process. The pilot used Shelly Pro 3EM devices for energy monitoring and Shelly Plus i4 DC for monitoring three discrete laser cutting signals.

The pilot scope focused on validating whether the WeldWise monitoring logic can support structured operational and energy data collection, local visualisation and practical management decisions related to energy use, process transparency, cost awareness and future optimisation.

2. Results achieved

Complete each field below. Keep this narrative; report numeric indicators in the KPI table in Section 3 rather than repeating them here.

Expected result	Validate WeldWise as a practical digital solution in the MDC production environment by installing and adapting a modular monitoring architecture for selected industrial assets. The pilot set out to provide machine/process-level visibility of electricity consumption and operational activity and to demonstrate the usefulness of the data for management and optimisation decisions.
Achieved result	The WeldWise pilot was implemented at MDC with COMICON as technical integrator. The system architecture was adapted to the specific MDC environment and applied to a powder coating oven, compressor and laser cutting process. The pilot confirmed that WeldWise can be transferred to a broader industrial context and configured around different machines, measurement points and available signals.
Evidence supporting the achievement	COMICON technical implementation concept; WeldWise technical/manual materials; B2GreenHub solution and MDC pilot case materials; solution webinar presentation dated 27.04.2026; Digital Transformation Expo materials dated 13.05.2026; pilot monitoring information and SME feedback collected during the project.
Benefits for the participating SME(s)	MDC gained a clearer basis for understanding energy consumption and operational activity at machine/process level. The main value of the pilot was that the system turns technical measurements into information usable for analysis and management, not only technical reporting. The pilot also created a basis for future scaling to additional machines, better cost allocation, energy-efficiency planning and more data-driven operational decisions.

3. KPI values

Report the key performance indicators for your pilot. Add rows as needed. Complete the achievement rate where applicable ($\text{achieved} / \text{target} \times 100$); leave it blank for binary or qualitative indicators. Ensure values are consistent with the narrative above and supported by source of verification.

Indicator (KPI)	Baseline	Target	Achieved	Achievement rate (%)	Source of verification	Comment
Participating SME in pilot	0	1 SME pilot site	1 SME: MDC	100%	Partner pilot documentation	MDC only.
COMICON technical integration	No MDC deployment before pilot	Adapt WeldWise to MDC site	COMICON integrated the MDC pilot setup	100%	COMICON technical notes; project materials	Technical pilot role confirmed.
Industrial assets/processes monitored	0 selected MDC assets	3 assets/processes	Powder coating oven; compressor; laser cutting process	100%	MDC pilot case; technical configuration	Selected pilot scope.
Local monitoring architecture	No local WeldWise setup at MDC	Local data collection and visualisation	Raspberry Pi 4 local server and energy metering devices included	100%	Technical configuration notes	On-premises setup.
SME feedback included	No consolidated pilot feedback	Reflect feedback in final report	MDC feedback summarised in the report	100%	SME feedback; partner reporting materials	Feeds D.3.1.1 lessons learned.

4. SME feedback

Summarise the feedback provided by the participating SME(s), based on the responses submitted through the mandatory SME survey completed by the participating SME(s). Continuation and sustainability aspects are covered in Section 7.

Main strengths identified by SMEs	MDC valued the potential of the system to turn machine and energy data into usable information for analysis and management. The pilot showed that energy consumption can be linked to specific production assets and processes, supporting better cost awareness, process transparency and operational decision-making.
Main weaknesses identified by SMEs	The solution requires careful preparation of the pilot site: representative machines, reliable communication infrastructure, correct sensor placement and clear KPIs. The usefulness of the data depends on available machine/process signals and the SME capacity to interpret dashboards and reports.
Suggestions for improvement	Future versions should include more predefined dashboards and reporting templates, clearer SME-facing user guidance and a simple onboarding process for technical and management staff.
Would the SME(s) recommend the solution to another SME?	Yes
Reason for the answer above	The MDC pilot indicates that the solution is useful for manufacturing SMEs moving from general electricity monitoring to machine/process-level visibility. It is most valuable where the SME has energy-intensive assets, measurable production activity and interest in data-driven cost and energy analysis.

5. Challenges during implementation

List the main challenges encountered across the pilot phases (preparation, tender, contracting, implementation and monitoring). For Impact select Low, Medium or High; for Resolved enter Yes or No. Add rows as needed.

Challenge	Impact (Low / Medium / High)	Mitigation measure	Resolved (Yes / No)
Defining the MDC pilot scope and selecting meaningful assets	High	The pilot focused on three representative assets/processes: powder coating oven, compressor and laser cutting process.	Yes
Adapting WeldWise to MDC equipment and process reality	Medium	COMICON adapted the modular monitoring architecture to the MDC environment and configured the measurement points and signals.	Yes
Availability and quality of machine/process signals	Medium	The pilot used available signals, including three discrete laser cutting signals. Where deeper process data were not available, indicators were not overclaimed.	Partially
Limited time for long-term energy/cost savings measurement	Medium	The report focuses on validation, operational visibility and transferability. A longer baseline and post-pilot period would be needed for robust savings calculations.	Partially

6. Lessons learned

Provide up to three prioritised lessons from your pilot, using the structure below. A lesson is more than a challenge: it states what you would keep or change, and whether it transfers to other partners. Complete Lesson 1 as a minimum; Lessons 2 and 3 are optional.

Lesson 1 (required)

Lesson title	Keep joint development and pilot implementation clearly separated
Thematic area	Partnership and coordination
Priority	High
Situation	WeldWise had a joint development and validation pathway before the MDC pilot. For reporting purposes, it was important not to mix earlier development/testing activities with the actual pilot implementation case.
What happened	The MDC-COMICON case was defined as the pilot implementation case, while previous development/testing work was treated as part of the solution development pathway.
What worked or what you would do differently	Future reports should define the pilot case, participating SME and technical integrator at the beginning of the reporting process.
Transferability	High - transferable to partners that have both joint solution development activities and separate SME pilot implementation activities.

Lesson 2 (optional, complete only if applicable)

Lesson title	Start with a precise technical diagnostic of the SME site
Thematic area	Technical and digital solution
Priority	High
Situation	The MDC environment included different industrial assets with different electrical loads, signals and monitoring needs.
What happened	The pilot scope was focused on a powder coating oven, compressor and laser cutting process, allowing COMICON to adapt the monitoring architecture to concrete machines and available signals.
What worked or what you would do differently	Future pilots should start with a technical check covering machines, electrical loads, available signals, connectivity, local server needs and expected management KPIs.
Transferability	High - transferable to manufacturing SMEs where Industrial IoT solutions must be adapted to site-specific equipment.

Lesson 3 *(optional, complete only if applicable)*

Lesson title	Monitoring data must become management information
Thematic area	Data collection and monitoring
Priority	Medium
Situation	Machine-level energy data are useful, but their business value depends on whether they support practical decisions by the SME.
What happened	The pilot showed that the strongest value for MDC comes when technical measurements are connected to operational context, reporting and management analysis.
What worked or what you would do differently	Future versions should include simple dashboards, predefined reporting templates and guidance for interpreting the data for cost allocation, energy planning and process optimisation.
Transferability	High - transferable to other SMEs and partners implementing monitoring solutions where the main challenge is converting technical data into decision support.

7. Sustainability and future use

Set out whether and how the solution will continue to be used beyond the project. This is a key consideration for Interreg and for the consolidated lessons learned.

Will the SME(s) continue using the solution after project completion?	Yes
Reason for the answer above	The pilot created a basis for continued use because the system provides actionable information on electricity consumption and operational activity for selected assets and supports future scaling.
Resources required for continuation	Technical maintenance of hardware and local server; COMICON/equivalent support for updates and configuration; MDC staff to review dashboards and reports.

Main barriers to long-term adoption	Scaling time and cost, reliable machine/process signals, local connectivity, staff training and integration into routine management.
Overall sustainability outlook	High

8. Recommendations for future projects

Set out forward-looking recommendations for upscaling the solution and for other partners planning similar pilots. Focus on what would improve feasibility, sustainability and transferability across the Danube Region.

Future pilots should start with a short technical diagnostic of the SME site, including the machine list, electrical loads, available signals, communication infrastructure and management needs. The pilot case should be defined clearly from the beginning, distinguishing between joint development activities and the actual SME pilot implementation.

A small number of management-relevant indicators should be agreed before installation, such as energy use by asset, operating time, idle time, event count, energy per process or cost allocation by machine. The core solution should remain modular so that it can be transferred to different machines without redesigning the complete system.

Energy-saving or cost-reduction percentages should not be claimed unless the pilot includes a sufficiently long baseline and post-implementation measurement period. To improve SME uptake, future projects should prepare simple dashboard guidance and reporting templates that help companies turn monitoring data into practical decisions.

Completed by

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Organisation	ICT Cluster Bulgaria
Date	17 June 2026

Note: This completed version reports only the MDC pilot implementation and COMICON technical integration. Joint solution development/testing activities are not treated as pilot participation in this report. Quantitative energy-saving or cost-reduction percentages are not claimed where no verified long-term measurement data were available.