CISAMS: Integrated Circularity and Sustainability Assessment of Manufacturing Systems

Deliverable 8 Communication and Dissemination activities report

Greece 2.0
Basic Research Financing Action
(Horizontal support of all Sciences)
Sub-action 1: Funding New Researchers

M22

Document control sheet

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Contents

1 EXECUTIVE SUMMARY

This **deliverable** provides a comprehensive overview of the physical progress of the CISAMS project, as regards activities related to communication and dissemination of CISAMS results. These activities involve the planning and implementation of a workshop to communicate the proposed methodology, as well as the submission and acceptance of one academic paper in a peer-reviewed journal, with a second journal paper in preparation. Moreover, a paper was presented at a conference related to sustainable manufacturing in 2025 and is expected to be available online soon. In addition, a second paper has been submitted to the GRICE 2026 conference and has been accepted for presentation.

2 PUBLICATIONS IN PEER REVIEWED ACADEMIC JOURNALS

This chapter provides an overview of CISAMS communication and dissemination progress with respect to peer-reviewed academic journal publications. In the project proposal, at least 2 publications in peer-reviewed journals were originally foreseen.

One paper has been submitted to the journal "**Circular Economy and Sustainability**" from the publisher **Springer Nature**. Following one round of peer review, the paper was accepted for publication. The journal is relatively new, having been established in 2021, it is classified as Q1 and was selected because of its obvious relevance with the CISAMS project, merging aspects of circularity with sustainability, thus being the natural choice for publication. As the journal has not yet completed a 5-year period, an impact factor is not available.

The accepted paper is titled "**A Comprehensive Framework for Circular Economy, Environmental, and Social Sustainability Indicators in Manufacturing**" (Authors: Eleni Aretoulaki, Athanasios Rentizelas, Kostas Florios, Efthymios Simos). The paper includes primarily material and project outputs related to D1, D2 and D3 of the project. It proposes a holistic sustainability assessment framework that integrates circular economy principles with environmental and social sustainability dimensions in manufacturing systems. Methodologically, the paper implements the CISAMS indicator-based framework and applies expert elicitation through an anonymized questionnaire, processed using a Multi-Criteria Decision Analysis (MCDA) approach based on the Bayesian Best–Worst Method (BBWM). The resulting weights quantify the relative importance of sustainability and circularity indicator categories, providing a structured and empirically grounded prioritisation of indicators. The keywords associated with the manuscript are: *sustainability indicators*, *circular economy*, *manufacturing*, *Bayesian Best-Worst Method (BBWM)*, *Multi-Criteria Decision Analysis (MCDA)*, *expert elicitation*, and *social sustainability*.

Additionally, a second paper was under development at the stage of an advanced draft at the time of writing of this deliverable (end of December 2025). The plan is to submit it to a peer-reviewed journal by the end of February 2026. This paper is related to project outputs reported in D4 & D5. Since this paper is also linked to the foreseen conference paper at the 2nd GRICE conference, an alternative outlet would be to submit it to the Special Issues of Journals linked to this conference.

Due to the short duration of the CISAMS project and the truncation of its duration by two months after funding (22 months instead of the 24 months foreseen in the proposal), it was not possible to complete all publication processes within the formal project duration. Although the peer-review process for the first journal paper was successfully completed and the manuscript was accepted for publication, the acceptance was received upon project completion, after the eligibility deadline for project-funded publication costs. As a result, the payment of open-access publication fees through the project was no longer possible. To ensure open dissemination of the research outcomes, the authors will make

use of the existing Springer–HEAL-LINK open-access agreement for the accepted paper in Circular Economy and Sustainability. For the second journal paper currently in preparation, the authors will similarly aim to submit to a publisher that offers an equivalent institutional open-access agreement.

3 PARTICIPATION IN ACADEMIC CONFERENCES

As outlined in the project proposal, the CISAMS team committed to participation in two academic conferences during the project period, one of which was completed successfully in Bologna in September 2025, while the second has been secured through abstract acceptance and is scheduled to take place in May 2026. The corresponding conference contributions associated with these dissemination activities are listed below:

- Rentizelas, A., Aretoulaki, E., Florios, K., & Simos, E. (2025). A method for assessing circularity, environmental and social sustainability of manufacturing systems. Proceedings of the 21st Global Conference on Sustainable Manufacturing (GCSM 2025), September 10–12, 2025, Bologna, Italy.

- Rentizelas, A., Florios, K., Aretoulaki, E., & Simos, E. (2026). "Integrating Circularity, Environmental, and Social Sustainability in Manufacturing: An Expert-Validated Multi-Criteria Framework and Trade-off Analysis". Proceedings of the 2nd International Conference on Green Innovation & Circular Economy (GRICE 2026) (In progress).

3.1 21st Global Conference of Sustainable Manufacturing, Bologna, Italy

Within the framework of dissemination activities, the 21st Global Conference of Sustainable Manufacturing (GCSM) was selected as a key venue for the presentation of CISAMS research outcomes. The conference was held in Bologna (Italy) from September 10 to 12 of 2025. At this conference, Dr. Eleni Aretoulaki presented a paper written by the project team. The conference was selected based on its strong thematic relevance to the CISAMS research and its international orientation. Specifically, the GCSM delves into sustainable manufacturing and industrial engineering in both emerging and developing economies, within a complicated environment shaped by climate change and uneven distribution of labor and resources. It represents an endeavour to communicate sustainability issues and provide solutions to challenging problems regarding sustainability. In addition, it constitutes a multi-stakeholder conference targeting both industry and the academic community, as well as representatives of official institutions.

The paper presented at the abovementioned conference in Bologna was relevant to the GCSM framework, as it proposed an analytical framework for assessing integrated circularity and sustainability for multiple alternative processes in the heavy industry. Thus, it enables decision makers to select the most sustainable and circular production route, based on the Markov Chain Monte Carlo BWM and PROMETHEE II. The former was utilized in order to assess the weights for the categories of sustainability and circularity indicators, while the latter facilitated the ranking of alternative process routes. In addition, a working example was considered, namely alternative scenarios of performing End-of-Life (EOL) tyre recycling, to demonstrate a tangible view of the proposed framework.

3.2 2nd International Conference on Green Innovation and Circular Economy, Athens, Greece

The second conference in which the CISAMS team is going to participate is the 2nd International Conference on Green Innovation and Circular Economy (GRICE), which will be held in Athens from 10 to 13 May 2026. It is a suitable dissemination venue due to its broad audience, which includes both academia and industry. Besides being an acclaimed conference, organised by the National Technical University of Athens, it offers the ability to publish accepted papers in one of two peer-reviewed journals, "Discover Sustainability" (Springer Nature) and "Sustainable Futures" (Elsevier), both classified as Q1 journals. The former has an impact factor of 3.6 over the last 5-year period, while the latter has an impact factor of 5.6 for the corresponding period.

GRICE is highly relevant to the CISAMS project as it envisages the topics of circular economy and sustainability, particularly in sustainable production and consumption, addressing climate change effects. Moreover, the conference places strong emphasis on circular economy, especially when it comes to viable utilization of natural resources and water resources. It should be highlighted that the paper submitted to GRICE and going to be published, addresses most aspects of GRICE, as the categories of sustainability indicators cover parameters like circular design, water management and waste management.

The paper titled "**Integrating Circularity, Environmental, and Social Sustainability in Manufacturing: An Expert-Validated Multi-Criteria Framework and Trade-off Analysis**" (Rentizelas, A., Florios, K., Aretoulaki, E., and Simos, E.) will be presented at the 2nd GRICE conference. It is based on the project outcomes presented in Deliverables D4 & D5. The keywords selected, to accompany the paper, reflecting the core contributions of the paper are: "Circular Economy", "Sustainability Assessment", "Manufacturing Systems", "Multi-Criteria Decision Analysis", and "Trade-off Analysis". This paper builds on the previous scientific work of the authors presented in the GCSM 2025 conference and the Circular Economy and Sustainability journal paper, which resulted in weights for all categories of indicators. Subsequently, the indicators are aggregated to construct the three composite indices for each pillar of circularity and sustainability. Next, the three pillars are compared with each other by examining them under a trade-off assessment, to construct a Pareto front of optimal, non-dominated alternative solutions. This is achieved through an AUGMECON2 algorithm, employing in this way a Multi-Objective Integer Programming (MOIP), to maximize conflicting sustainability indexes.

4 SOCIAL MEDIA AND OTHER DISSEMINATION ACTIVITIES

In addition to conference participation and publications in peer-reviewed journals, digital channels play an important role in supporting the dissemination of project results beyond the academic community. To support this objective, a project webpage was developed to communicate CISAMS outcomes to a broader audience (see Deliverable 7). In parallel, a LinkedIn page was created to disseminate key project activities and updates. As of the reporting date, the CISAMS LinkedIn page has attracted 28 followers and four posts have been published. The posted content includes an invitation for expert participation in the BBWM process, dissemination of CISAMS participation in the 21st Global Conference on Sustainable Manufacturing, and communication related to the organisation of the project workshop. The workshop-related posts focused on the application of the proposed methodological framework to a real-world case study from the plastics extrusion industry in Athens, presented to an audience consisting primarily of academics from Greece and abroad. To further extend dissemination reach, selected posts were also reposted through the personal LinkedIn account of the Principal Investigator, as well as the official accounts of the ORLOG Laboratory and the School of Mechanical Engineering of NTUA.

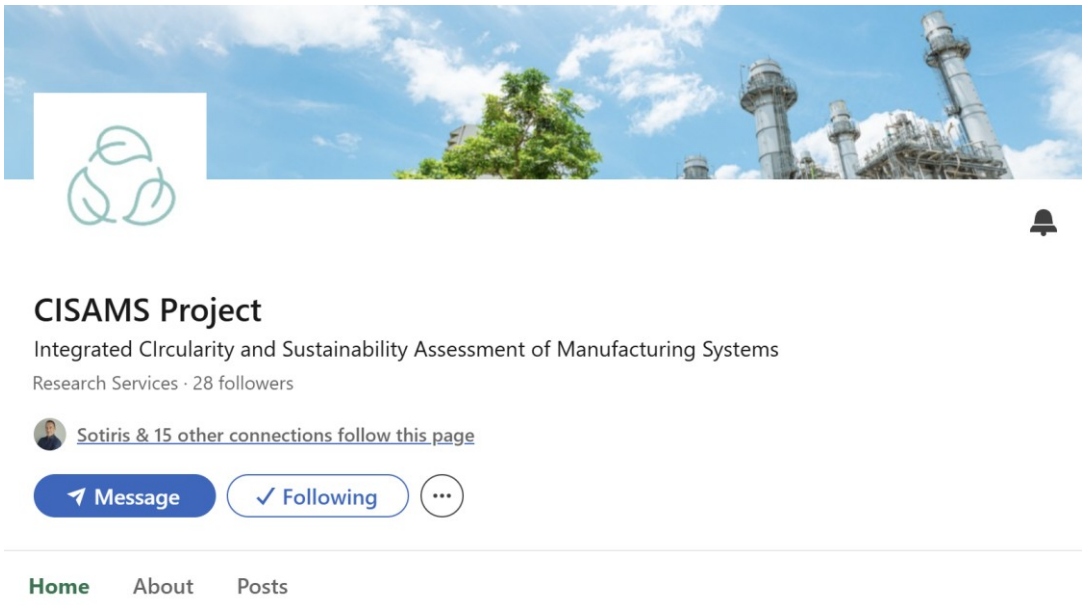

Figure 1. CISAMS LinkedIn Page

The LinkedIn analytics presented in Figures 2, 3 and 4 provide a quantitative overview of the page's activity during the reporting period from February to December 2025. Figure 2 summarises engagement-related metrics, while Figure 3 illustrates the evolution of impressions over time, and Figure 4 reports visitor-related indicators, including page views. All recorded activity is exclusively organic. It is observed that a notable increase in engagement and impressions occurs in December 2025, coinciding with dissemination activities related to the CISAMS workshop held on 17 December 2025. Overall, these figures

document the level of visibility and interaction achieved through the project's LinkedIn page during the reporting period.

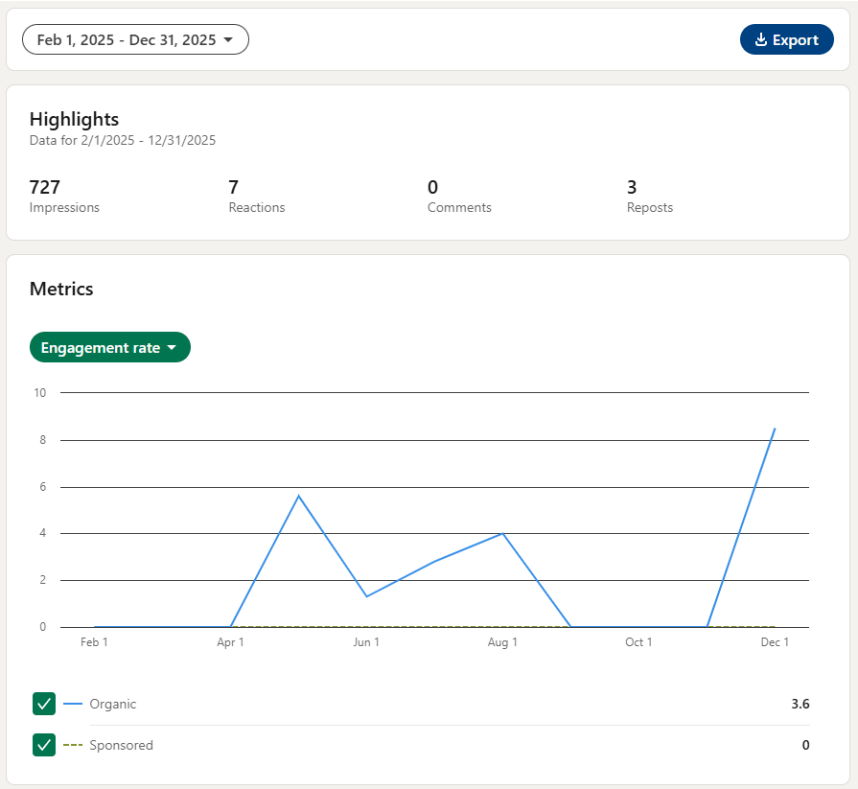

Figure 2. CISAMS LinkedIn Page – Engagement Rate

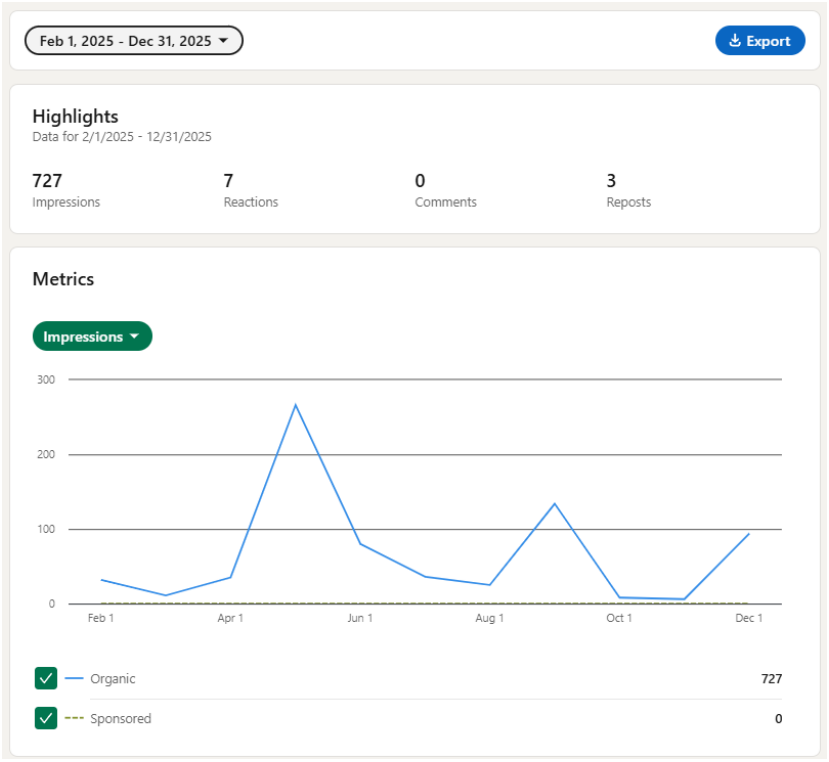

Figure 3. CISAMS LinkedIn Page - Impressions

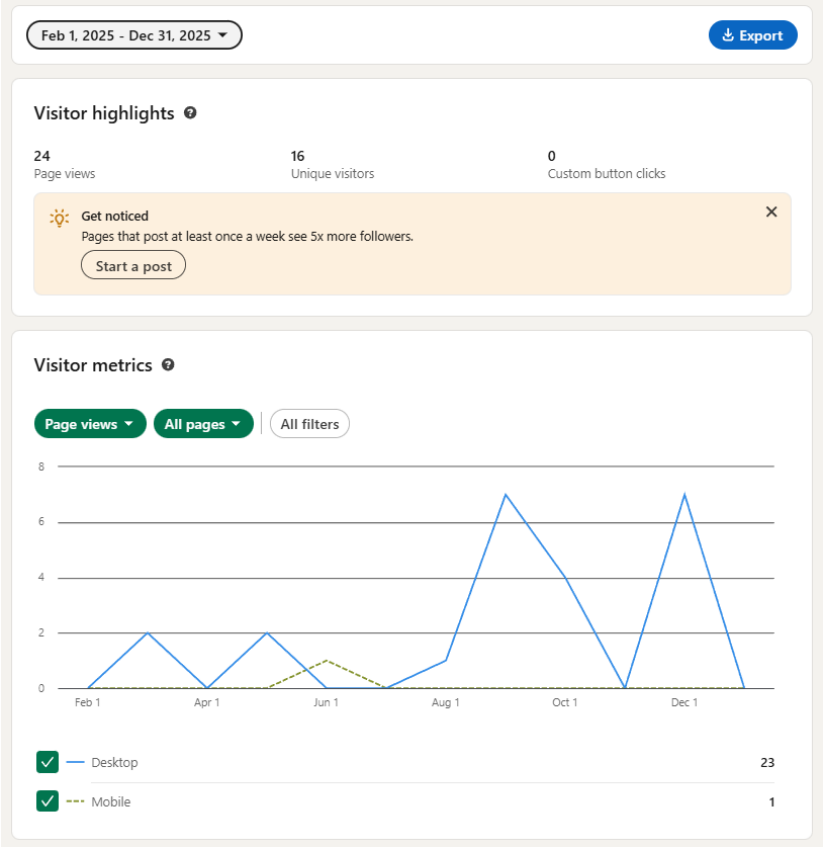

Figure 4. CISAMS LinkedIn Page – Visitor Metrics

The ResearchGate page of CISAMS has attracted 43 reads over the project duration.

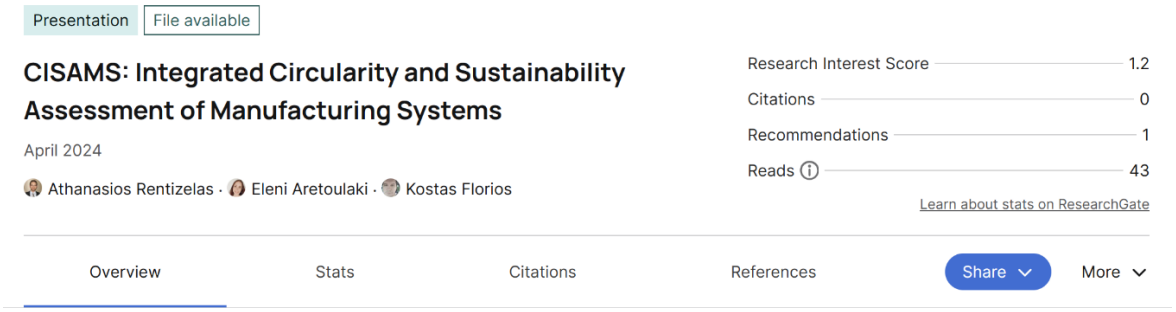

Figure 5. CISAMS ResearchGate Page

Finally, the CISAMS poster has been printed in colour in A3 format and is available in public spaces of the School of Mechanical Engineering of the National Technical University of Athens.

The CISAMS e-brochure/flyer and CISAMS research Poster have been available electronically for download through the CISAMS website since M3.

5 PROJECT WORKSHOP

The final workshop of CISAMS aimed, among other aims, to disseminate further the final project outcomes. It was organised as an online event on 17 December 2025, from 11:00 to 13:00 (EET, Greece), using Microsoft Teams. Registration was managed through Eventbrite, ensuring transparent tracking of interest and attendance. A total of 34 registrations were recorded, with 28 participants joining the live session, indicating a strong engagement rate. The working language of the workshop was English. Dissemination and outreach were carried out through a combination of LinkedIn posts and direct email invitations to relevant academic and industrial stakeholders. Since the workshop is explicitly described in a dedicated deliverable (D9), the reader may find more detailed information in D9.