

# CISAMS: Integrated Circularity and Sustainability Assessment of Manufacturing Systems



# CISAMS

## Deliverable 7: Project Visual Identity & Digital Presence

Greece 2.0

Basic Research Financing Action  
(Horizontal support of all Sciences)

Sub-action 1: Funding New Researchers

M3

## Document control sheet

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# 1 EXECUTIVE SUMMARY

This deliverable presents the results of the efforts made to establish a strong digital presence for the CISAMS project. It showcases the various actions taken to enhance visibility and engagement across multiple online platforms. The content is organized into key sections:

**Project Website:** Provides an overview of the project's website, featuring key pages and user navigation insights, to illustrate the website's effectiveness in disseminating information.

**Social Media Presence:** Highlights the project's activity and engagement on platforms such as ResearchGate and LinkedIn.

**Promotional Materials:** Displays the logo, posters, banner, and e-brochure created for the project, emphasizing their design, distribution, and impact on raising awareness about the project's objectives and achievements.

## 2 CISAMS’S WEBSITE

The following images present the official website of the CISAMS project, highlighting its structure, key sections, and digital resources designed to communicate the project's objectives and activities. The website is available at <https://cisams.eu/>

The **homepage** introduces the project’s focus on advancing circular economy principles and sustainability practices in manufacturing. Visitors can explore the site to learn more about the project’s goals, activities, and outputs.

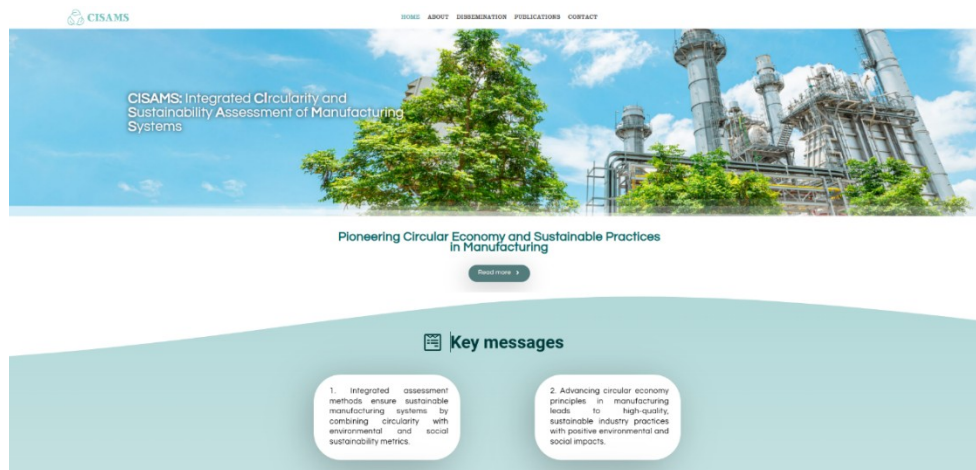
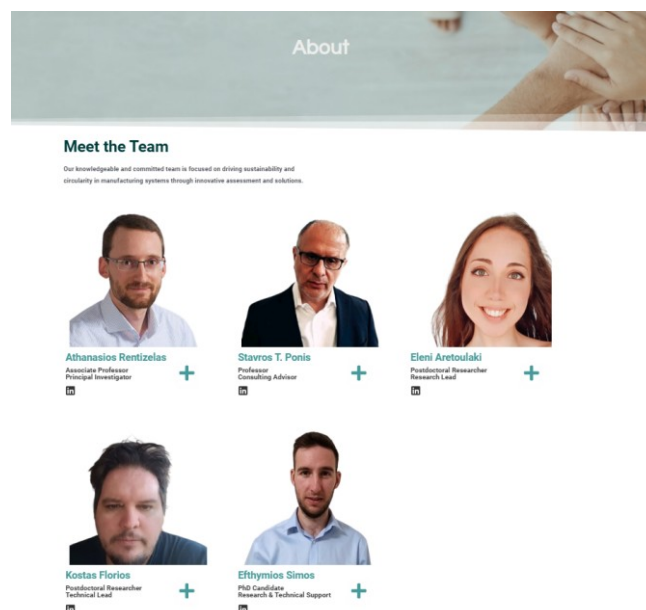


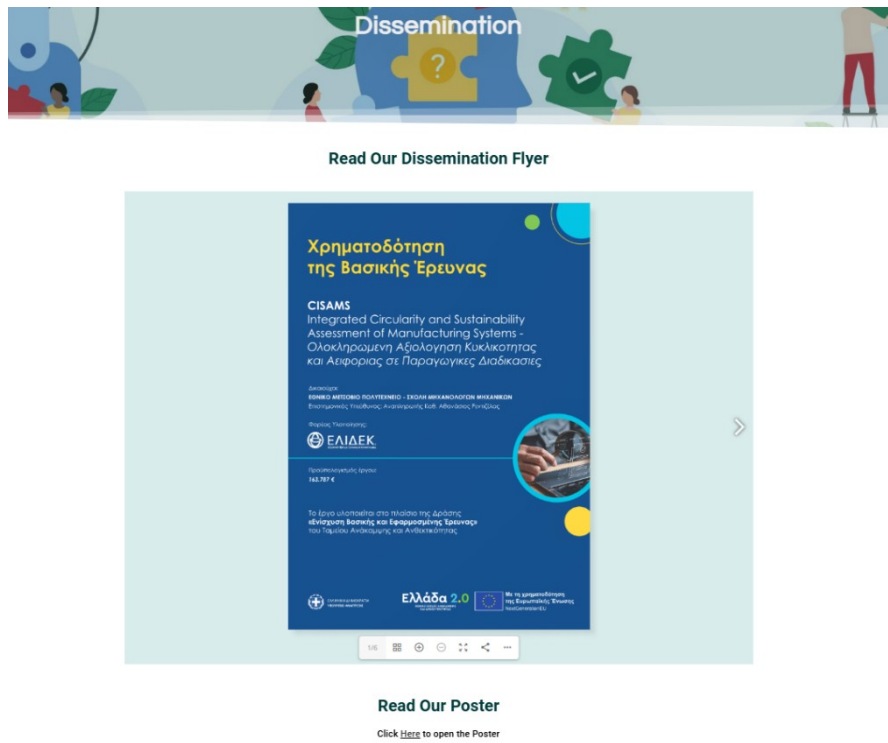
Figure 1: CISAMS’s Website – Home

The **Meet the Team** page introduces the dedicated individuals behind the CISAMS project, showcasing their expertise and contributions. This tab provides insights into the team’s background and their specific involvement in the project.



**Figure 2:** CISAMS’s Website – About

The **Dissemination** section provides access to promotional materials, including the project flyer and poster, which outline CISAMS’s goals, scope, methodology and funding details. This section is designed to share updates and key findings with a broader audience.



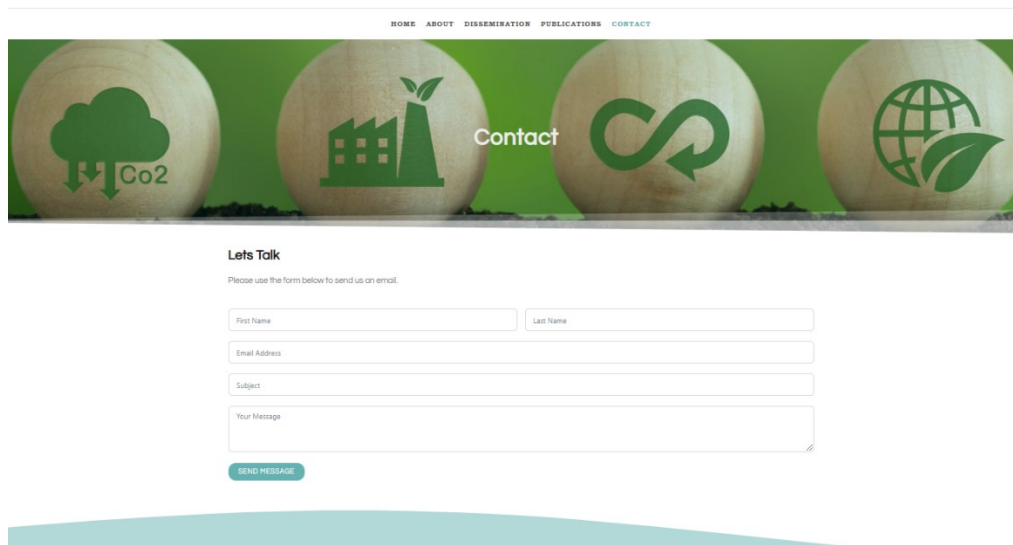
**Figure 3:** CISAMS’s Website – Dissemination

The **Publications** page is dedicated to showcasing academic contributions and outputs from the project. This section will be updated as research results and publications become available.



**Figure 4:** CISAMS’s Website – Publications

The **Contact page** allows visitors to connect with the project team through a form. It serves as a point of interaction for inquiries and collaboration opportunities.



**Figure 5:** CISAMS’s Website – Contact

Last, the **footer**, present on every page of the website, highlights the project’s key partnerships and funding under the Greece 2.0 framework, supported by the European Union’s NextGenerationEU initiative. It also includes links to external pages, such as LinkedIn, ResearchGate, and the ORLOG Laboratory for further engagement.



**Figure 6:** CISAMS’s Website - Footer

### 3 CISAMS’S SOCIAL MEDIA PAGES

This chapter presents the CISAMS project’s social media presence, showcasing its **ResearchGate and LinkedIn pages**, which serve as platforms for disseminating updates, engaging with stakeholders, and sharing research findings.

#### 3.1 CISAMS’S Page on Research Gate

**CISAMS: Integrated Circularity and Sustainability Assessment of Manufacturing Systems**  
 April 2024  
 Athanasios Rentizelas · Eleni Aretoulaki · Kostas Florios

Research Interest Score: 0.8  
 Citations: 0  
 Recommendations: 0  
 Reads: 12

**Description and figures**

The project is set to deliver an advanced method for assessing the sustainability of manufacturing processes and products, integrating evaluations of circularity, environmental impact, and social sustainability. This method will provide a composite score for manufacturing options, reflecting all three dimensions to facilitate comparison and decision-making. It will also reveal the trade-offs between these dimensions, offering essential insights for optimizing manufacturing practices. Developed through a multi-criteria decision analysis, the scoring system will combine both quantitative and qualitative indicators into a single, comprehensive metric. This will significantly aid manufacturers and policymakers in identifying the most sustainable and circular options. The method's effectiveness will be validated through programming in Python, case studies, and expert feedback, ensuring its practicality and accuracy in real-world scenarios. Acknowledgements: This project is carried out within the framework of the National Recovery and Resilience Plan Greece 2.0, funded by the European Union – NextGenerationEU (Implementation body: HFRI | Project Number: 16148).

**H.F.0 Hellenic Force Plan Research & Innovation**

Figure content uploaded by Eleni Aretoulaki (Author content)

Public File

CISAMS Methodology.png (Content uploaded by Eleni Aretoulaki)

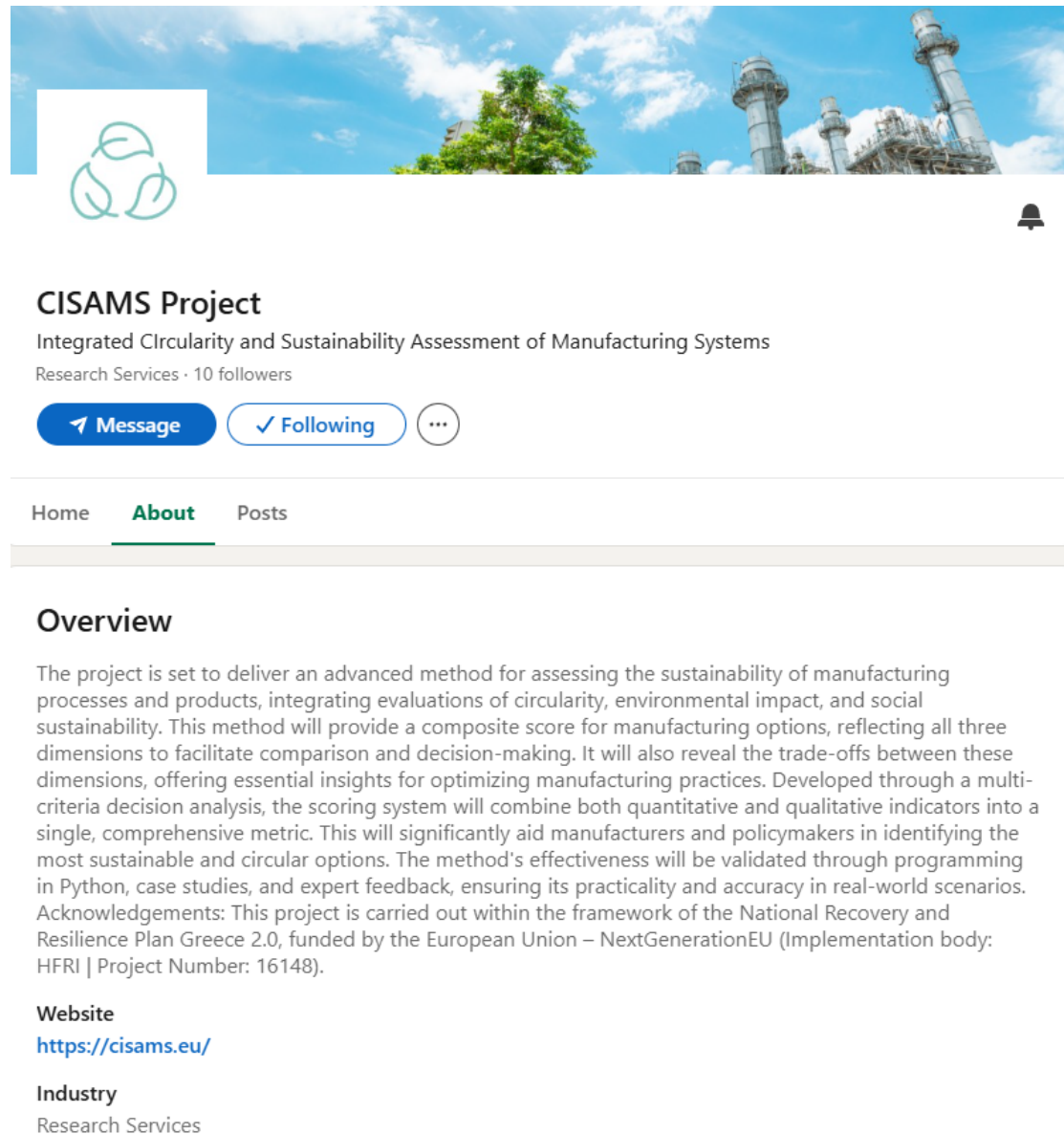
**Methodology Flowchart:**

- WP 1: Circularity assessment**
  - Longlist of circularity indicators
  - Assessment
  - Shortlist of circularity indicators
  - WP 1: Circularity scoring (MCDA 1)
  - Single circularity index
- WP 2: Environm. sust. assessment**
  - Longlist of environmental sustainability indicators
  - Assessment
  - Shortlist of env. Sust. indicators
  - WP 2: Environm. Sust. scoring (MCDA 1)
  - Single env. sustainability index
- WP 3: Social. sust. assessment**
  - Longlist of social sustainability indicators
  - Assessment
  - Shortlist of social Sust. indicators
  - WP 3: Social. Sust. scoring (MCDA 1)
  - Single social sustainability index
- WP 4: Integrated C&S assessment**
  - A. Integrated C&S assessment:** Criteria & Weight definition (AHP) → MCDA 2 → Integrated circularity and sustainability assessment
  - B. Analytical C&S trade-offs assessment:** Visualising and quantitative assessment of trade-offs → Trade-offs assessment between circularity and sustainability

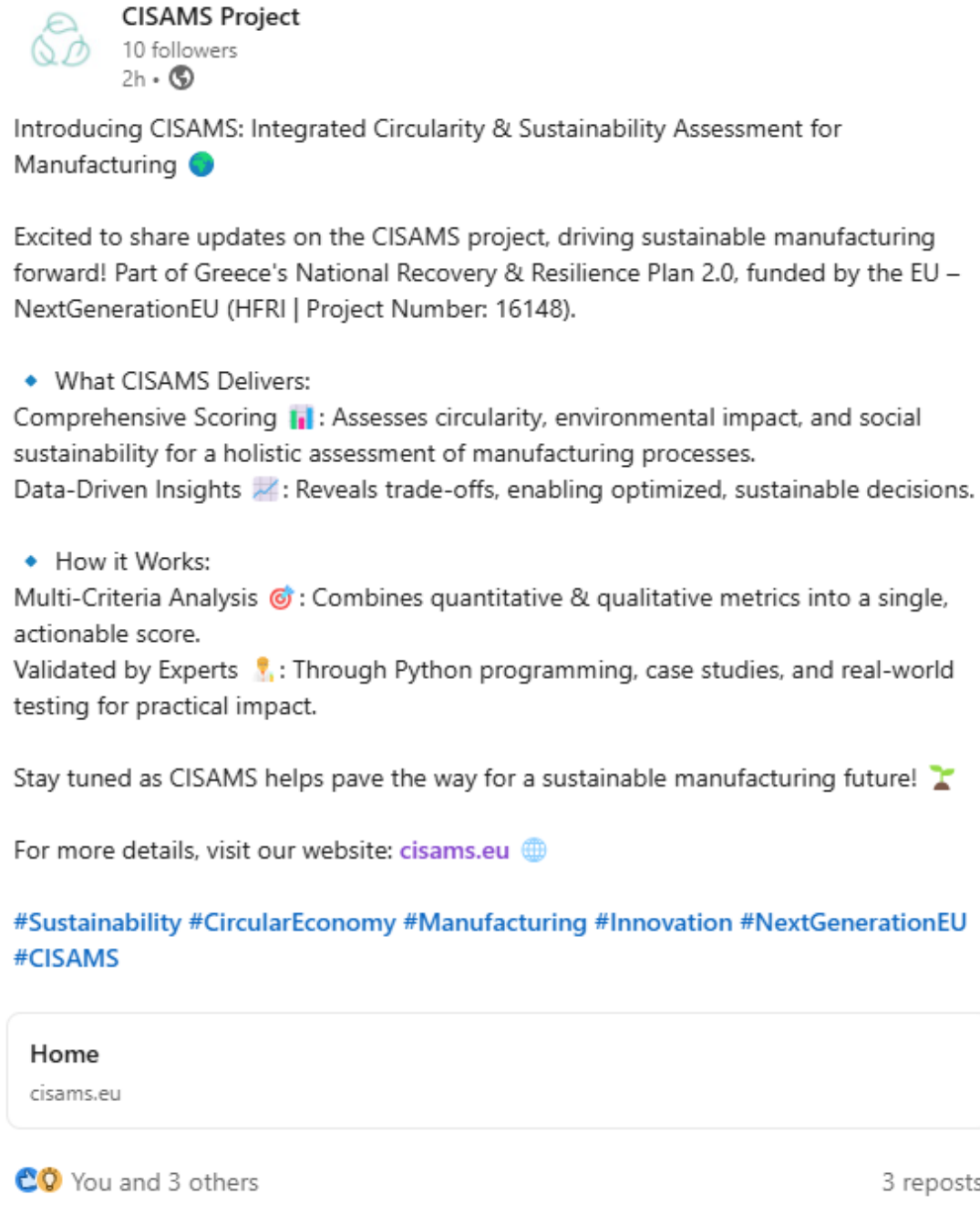
Figure 7: CISAMS’s Digital Presence on Research Gate

The Research Gate CISAMS Page is available on the following URL:  
[https://www.researchgate.net/publication/379827037\\_CISAMS\\_Integrated\\_Circularity\\_and\\_Sustainability\\_Assessment\\_of\\_Manufacturing\\_Systems](https://www.researchgate.net/publication/379827037_CISAMS_Integrated_Circularity_and_Sustainability_Assessment_of_Manufacturing_Systems)

### 3.2 CISAMS’s Page on LinkedIn



**Figure 8:** CISAMS’s LinkedIn Page Overview



**Figure 9:** CISAMS’s First LinkedIn Post

The LinkedIn CISAMS Page is available on the following URL:  
<https://www.linkedin.com/showcase/cisams/?viewAsMember=true>

## 4 CISAMS'S VISUAL COMMUNICATION MATERIAL

This chapter presents CISAMS's visual communication materials, including an overview poster (in Greek), a research poster (in English), a project banner, an e-brochure, and the official logo, all designed to effectively convey the project's identity and objectives.


### 4.1 CISAMS's Overview Poster (Greek)

The poster features a dark blue background with yellow and light blue circular accents. The main title is in large yellow Greek characters. Below it, the project name 'CISAMS' is written in white, followed by its full name in English and Greek. The funding source 'ΕΛΙΑΔΕΚ' is prominently displayed with its logo. A circular inset image shows a person's hands interacting with a laptop. At the bottom, logos for the Greek government, the 'Ελλάδα 2.0' program, and the European Union are included.

**Χρηματοδότηση  
της Βασικής Έρευνας**


**CISAMS**  
Integrated Circularity and Sustainability  
Assessment of Manufacturing Systems -  
Ολοκληρωμένη Αξιολόγηση Κυκλικότητας  
και Αειφορίας σε Παραγωγικές Διαδικασίες

Δικαιούχοι:  
ΕΘΝΙΚΟ ΜΕΤΣΟΒΙΟ ΠΟΛΥΤΕΧΝΕΙΟ - ΣΧΟΛΗ ΜΗΧΑΝΟΛΟΓΩΝ ΜΗΧΑΝΙΚΩΝ  
Επιστημονικός Υπεύθυνος: Αναπληρωτής Καθ. Αθανάσιος Ρεντζέλας

Φορέας Υλοποίησης:  
 **ΕΛΙΑΔΕΚ**  
Ελληνικό Κέντρο Έρευνας & Καινοτομίας

Προϋπολογισμός έργου:  
**163.787 €**

Το έργο υλοποιείται στο πλαίσιο της Δράσης  
**«Ενίσχυση Βασικής και Εφαρμοσμένης Έρευνας»**  
του Ταμείου Ανάκαμψης και Ανθεκτικότητας

 ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ  
ΥΠΟΥΡΓΕΙΟ ΑΝΑΠΤΥΞΗΣ

**Ελλάδα 2.0**  
ΕΘΝΙΚΟ ΣΧΕΔΙΟ ΑΝΑΚΑΜΨΗΣ  
ΚΑΙ ΑΝΘΕΚΤΙΚΟΤΗΤΑΣ


 Με τη χρηματοδότηση  
της Ευρωπαϊκής Ένωσης  
NextGenerationEU

Figure 10: CISAMS's Overview Poster (Greek)

The overview poster is printed in A3 size and available in publicly accesses spaces of the National Technical University, as required by the Communication and Dissemination guidelines of HFRI (Fig. 11).



**Figure 11:** CISAMS's Overview Poster in A3 format in public space of the NTUA

## 4.2 CISAMS’s Research Poster (English)



### Integrated Circularity and Sustainability Assessment of Manufacturing Systems



### Background

Circular economy, as outlined by the Ellen MacArthur Foundation, advocates for a **shift from linear resource usage to sustainable, circular pathways**, emphasizing **renewable energy** and **waste reduction**. Initiatives, such as the European Green Deal, reflect global recognition of the need for integrating circularity with sustainability in economic practices. Tools such as Circulytics and the Material Circularity Indicator have been developed to quantify circularity, but there is an **increasing demand for methodologies that encompass also both environmental and social sustainability**. This need points to a crucial gap: true sustainability encompasses **environmental impacts** as well as **social implications**, necessitating comprehensive assessment methods in manufacturing and industry. In order to ensure that increased circularity in the industry and manufacturing systems actually leads to positive environmental and social impacts, there is a need for novel assessment methods that will include **all three dimensions of analysis**, rather than just circularity in isolation

### Objectives

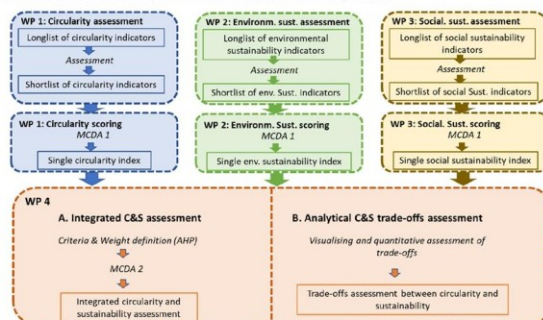
The project aims to develop a comprehensive assessment method for the manufacturing sector, focusing on understanding the environmental and social impacts of circular economy practices beyond their circularity. Objectives include:

1. Identifying **key indicators** for **circularity, environmental, and social sustainability**.
2. Creating an **integrated assessment method for comparing manufacturing options**, highlighting trade-offs between circularity, environmental, and social sustainability.

### Research Methodology

The research methodology for assessing circularity, environmental, and social sustainability in manufacturing unfolds in key stages:

1. **Indicator Identification:** Through desk research, a comprehensive list of indicators from scientific literature and existing models is compiled, evaluated, and refined with expert input to create a shortlist for each sustainability dimension.
2. **Scoring System Development:** A scoring mechanism, based on Multi-Criteria Decision Analysis (MCDA), calculates composite scores for each dimension, integrating quantitative and qualitative indicators.
3. **Integrated Assessment and Trade-off Analysis:** Two main methods are developed: one for a holistic assessment across all dimensions and another to examine trade-offs between circularity, environmental, and social sustainability.
4. **Implementation and Validation:** The assessment methods are programmed in Python and validated through case studies and expert feedback via surveys, workshops, and conferences.



### Expected Results

The project is expected to result in a nuanced assessment method that integrates circularity with environmental and social sustainability for manufacturing processes and products. This method will allow for the **ranking of various manufacturing options** based on a **composite score** that **reflects all three dimensions—circularity, environmental, and social sustainability**. Additionally, it will facilitate a deeper understanding of the **trade-offs** involved between these dimensions, providing essential insights for decision-making in the manufacturing sector. The composite scoring mechanism, developed through a **multi-criteria decision analysis approach**, will simplify the evaluation process by **combining a range of quantitative and qualitative indicators into a single, actionable metric**. This will enable manufacturers and policymakers to identify the most sustainable and circular options effectively.

### Acknowledgements

This project is carried out within the framework of the National Recovery and Resilience Plan Greece 2.0, funded by the European Union – NextGenerationEU (Implementation body: HFRI | Project Number: 16148).



Figure 12: CISAMS’s Poster (English)

## 4.3 CISAMS’s Banner



### Integrated Circularity and Sustainability Assessment of Manufacturing Systems

#### Background

Circular economy, as outlined by the Ellen MacArthur Foundation, advocates for a shift from linear resource usage to sustainable, circular pathways, emphasizing renewable energy and waste reduction. Initiatives, such as the European Green Deal, reflect global recognition of the need for integrating circularity with sustainability in economic practices. Tools such as Circulytics and the Material Circularity Indicator have been developed to quantify circularity, but there is an increasing demand for methodologies that encompass also both environmental and social sustainability. This need points to a crucial gap: true sustainability encompasses environmental impacts as well as social implications, necessitating comprehensive assessment methods in manufacturing and industry. In order to ensure that increased circularity in the industry and manufacturing systems actually leads to positive environmental and social impacts, there is a need for novel assessment methods that will include all three dimensions of analysis, rather than just circularity in isolation.

#### Objectives

The project aims to develop a comprehensive assessment method for the manufacturing sector, focusing on understanding the environmental and social impacts of circular economy practices beyond their circularity. Objectives include:

1. Identifying key indicators for circularity, environmental, and social sustainability.
2. Creating an integrated assessment method for comparing manufacturing options, highlighting trade-offs between circularity, environmental, and social sustainability.

#### Research Methodology

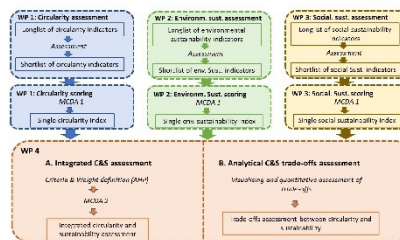
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Figure 13: CISAMS’s Banner

## 4.4 CISAMS’s E-Brochure

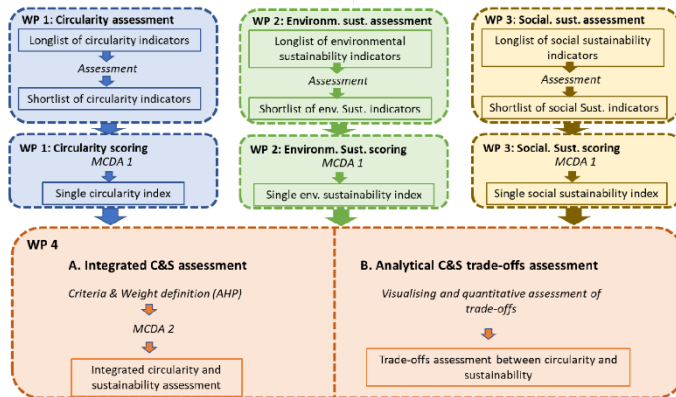


### Integrated Circularity and Sustainability Assessment of Manufacturing Systems

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Figure 14: CISAMS’s E-Brochure (INSIDE)

#### Objectives

The project aims to develop a comprehensive assessment method for the manufacturing sector, focusing on understanding the environmental and social impacts of circular economy practices beyond their circularity. Objectives include:

- Objective 1:** Identify relevant **key indicators** for assessing **circularity**.
- Objective 2:** Identify relevant **key indicators** for assessing **environmental sustainability** aspects.
- Objective 3:** Identify relevant **key indicators** for assessing **social sustainability** aspect.
- Objective 4:** Develop the **integrated circularity and sustainability assessment method**. The method will have a two-fold scope: to perform a **ranking of alternatives for manufacturing systems or products** based on an integrated circularity and sustainability assessment; while at the same time offering insights into the **trade-offs** between the key dimensions of **circularity, environmental and social sustainability** performance.

#### Meet the Team

**Principal Investigator:** Athanasios Rentizelas, Associate Professor of Sustainable Supply Chains  
**Research Team Members:** Prof. Stavros T. Ponis  
 Dr. Konstantinos Florios, Dr. Eleni Aretoulaki



#### Acknowledgments

This project is carried out within the framework of the National Recovery and Resilience Plan Greece 2.0, funded by the European Union – NextGenerationEU (Implementation body: HFRI | Project Number: 16148).



#### Setting the Context

Circular economy, as outlined by the Ellen MacArthur Foundation, advocates for a **shift from linear resource usage to sustainable, circular cycles**, emphasizing **renewable energy and waste reduction**. Initiatives, such as the European Green Deal, reflect global recognition of integrating circularity with sustainability in economic practices. Several tools have been developed to quantify circularity, but there is an **increasing demand for methodologies that encompass both environmental and social sustainability**. This need points to a crucial gap: true sustainability encompasses **environmental impacts** as well as **social implications**, necessitating comprehensive assessment methods in manufacturing and industry. In order to ensure that increased circularity in the industry and manufacturing systems actually leads to positive environmental and social impacts, there is a need for novel assessment methods that will include **all three dimensions**.

Figure 15: CISAMS’s E-Brochure (OUTSIDE)

## 4.5 CISAMS's Logo

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**Figure 16:** CISAMS's Logo