LUMSA UNIVERSITÀ

LICAIM

LUMSA International Research Center for Artificial Intelligence Management

LICAIM Research Project Summary Sheet

1. Title of the Research Project

The Impact of Artificial Intelligence on Sustainability Reporting: Perspectives, Opportunities, and Risks

2. Synopsis

This research project investigates the transformative impact of artificial intelligence, particularly generative AI, on sustainability reporting processeswithinorganizations. The study addresses a critical gap in understandinghow AI technologies can enhance or potentiallyundermine the effectiveness, transparency, and reliability of socio-environmental reporting.

Research Problem: As sustainability reporting becomesincreasinglycomplex due to expandingregulations (such as the EU's CSRD) and standardization requirements, organizations face mounting challenges in data collection, processing, and report production. The project examineswhether AI can effectivelyaddressthesecomplexitieswhilemaintaining reporting integrity and authenticity.

Relevance: The researchishighlytimelygiven the proliferation of sustainability reporting obligations and the rapidadvancement of AI technologies. With companies required to processvastvolumes of sustainability data and produce increasingly sophisticated reports, understandingAI'srolebecomescrucial for bothregulatory compliance and stakeholder communication. The study addressescriticalconcernsincluding the risk of homogenized reporting, greenwashing detection, transparency challenges, and the need for new competencies.

ExpectedContribution: The project willadvance the emerging field of AI management in sustainabilitycontexts through mixed-methodsresearchincluding case studies, experiments, and expert interviews. Itwilldevelop a framework for responsible AI use in sustainability reporting, identifyessentialethicalprinciples, and design training curricula for AI-assisted reporting professionals. The researchwill produce bothacademic outputs (journal articles, conference contributions) and practicalguidelines, bridgingtheoreticalunderstanding with actionable insights for organizationsnavigating the intersection of AI and sustainability reporting.

3. Objectives

MainObjective

To investigate howartificial intelligence, particularly generative AI, can influence socio-environmental reporting processes, identifyingboth the potential benefits and the operational and ethical risks, whileunderstandingwhether and how AI can enhance the effectiveness, transparency, and reliability of sustainability reporting.

SpecificObjectives

- *Assess AI benefits and applications*: Determine which phases of the reporting process (management information, report production, assurance, and use) could benefit most from AI tools and evaluatehowthese impacts affectfirms' decision-making processes
- *Identifyimplementationrequirements*: Investigate the barriers, constraints, and necessaryconditions for artificial intelligence to effectivelycontribute to improvingsustainability reporting
- *Analyze risks and challenges*: Examine the mainoperational and ethical risks associated with applying AI to sustainability reporting, includingissues of transparency, data quality, privacy, and potential greenwashing
- *Developethical framework*: Establishprinciples for ethical and responsible use of artificial intelligence in sustainability reporting to guide organizations in implementation
- *Create practicalguidelines/policies*: Develop a preliminary framework and informational outputs for responsible AI use in sustainability reporting processes
- *Conductempiricalvalidation*: Execute case studies, experiments, and simulations to verify the applicability of AI in real-world sustainability reporting contextsacrossdifferentsectors

4. Theory and Methods

Theoretical Framework

The research draws on multiple theoretical foundations and literature streams. Stakeholder theory and legitimacy theory explain how sustainability reporting represents responses to stakeholder and institutional pressures, while serving as an ethical imperative for demonstrating accountability. The framework incorporates the four-phase sustainability reporting process model (management information, report production, assurance, and use) by De Villiers et al. (2024). Key concepts include AI applications in sustainability (pattern recognition, natural language processing, predictive analytics), regulatory frameworks (EU CSRD, international reporting standards like GRI, ISSRS, IFRSS), and emerging issues such as greenwashing detection and AI-driven compliance. The study builds upon nascent literature examining AI-sustainability intersections, contributing to both social accounting theory and the broader understanding of how digital technologies support planetary sustainability.

Methodology

Research Design:

Mixed-methods exploratory research combining qualitative and quantitative approaches with a normative orientation toward developing ethical principles

Data Collection:

Qualitative case studies: In-depth examination of AI implementation in sustainability reporting within single sectors or across different sectors using comparative logic

*Surveys***:** Structured questionnaires to gather broad perspectives on AI applications, benefits, and risks in sustainability reporting

Expert interviews: Semi-structured interviews with sustainability professionals, AI specialists, and reporting practitioners

Experiments and simulations: Testing AI applications in controlled settings where feasible

Data Analysis:

Comparative case analysis for identifying patterns across sectors, thematic analysis of interview transcripts, statistical analysis of survey data, experimental data evaluation, and framework development through iterative refinement

Sample/Cases:

Case studies selected either within single sectors or across multiple sectors for comparative analysis; expert participants from sustainability reporting, AI technology, and regulatory fields; survey respondents from companies of various sizes currently engaged in sustainability reporting

5. Current Status

Completed Activities

- [Literature review on generative Artificial Intelligence and Sustainability Reporting]
- [Planning of a working group composed of experts in sustainability reporting and Artificial Intelligence aimedatdeveloping a policy on the responsible use of AI for sustainability reporting]
- [Selection of a group of experts to whom a questionnairewill be sent to investigate perceptionsregarding the main benefits, criticalissues, and ethical challenges of AI applied to the field of sustainability reporting]

Ongoing Activities

- [Request for availability from stakeholders to participate in the working group composed of experts in sustainability reporting and Artificial Intelligence aimedatdeveloping a policy on the responsible use of AI for sustainability reporting]
- [Drafting of the questionnaire to be sent to experts]

Timeline Progress

[onschedule]

Preliminary Findings (if applicable)

Not applicable

6. Next Steps

Short-term (next 3 months)

- [Establish/convene the working group]
- [Submit the questionnaire to the panel of experts]
- [Begin writing a first paper]

Medium-term (3-6 months)

- [First draft of a policy on responsible use of AI and sustainability reporting]
- [Final writing of a first paper]
- [Identification of business cases to study]

Long-term (6-12 months)

- [Finaldrafting of the policy on AI and sustainability reporting]
- [development of atleast one case study and writing of a second paper]

Expected Outputs

- At least two Journal articles
- A guideline/policy about AI and sustainability reporting
- Presentations at conference, workshops, etc,

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