

DATA RESEARCH

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Intelligent Management System for Cultural and Creative Organizations

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INTRODUCTION

In recent years, technological advancements have driven innovation, modernization and organizational growth within the Cultural and Creative Industries. Yet, the deployment of management systems has remained unnoticeable and undervalued within Cultural and Creative Organizations (CCOs) (Hagenhoff, 2016; Byrnes, 2009).

Striving to revolutionize and empower the Cultural and Creative Industries, this doctoral project introduces an **innovative architecture for an Intelligent Management System tailored to CCOs**.

This management system aims to alleviate longstanding setbacks, systemic problems, and structural challenges, which are inherent to these organizations, by:

- (i) Supporting the coordination and cross-departmental collaboration within these institutions.
- (ii) Preserving the symbolic integrity of creative work, artistic processes and cultural artifacts.
- (iii) Optimizing internal procedures via advanced technologies, such as AI, Big Data Analytics, IoT and Blockchain.

METHODS AND MATERIALS

Based on a Design Science Research Methodology (DSRM) (Peppers et al., 2007), this project is structured into four sequential phases:

Phase	Timeline	Description
01. Systematic Literature Review	May 2024 – Mar 2025	A Systematic Literature Review (SLR) was conducted to (i) evaluate the current deployment of management systems within CCOs, (ii) pinpoint CCO-oriented system requirements and design approaches and (iii) survey advanced technologies for system optimization.
02. Primary Data Collection	Apr 2025 – Oct 2025	Data collection procedures will adhere to a mixed-methods approach, integrating direct observation, semi-structured interviews, and questionnaires. These will be performed during fieldwork, conducted in collaboration with five Portuguese institutions.
03. System Design	Nov 2025 – Mar 2026	Based on our findings, the system architecture will be designed to reflect the unique characteristics, workflows and requirements of CCOs. Various intelligent system functionalities will be integrated to support the automation and optimization of key managerial processes.
04. Evaluation and Iteration	Apr 2026 – Jul 2026	The architecture will be evaluated by industry professionals to review its feasibility, applicability, and relevancy. Their feedback will inform iterative improvements to finalize the system's design.

PRELIMINARY RESULTS & DISCUSSION

Completed in March 2025, the SLR examined 23 peer-reviewed journal articles, published between 2014 and 2024. To support the project's forthcoming phases, our findings were thematically categorized into three subtopics: **Systems and Functions**, **System Design**, and **Intelligent Optimization**.

SLR's Key Findings	
01. Systems and Functions	✓ Management systems can enhance CCO's organizational performance, by increasing their net sales and labour productivity (Seclen-Luna et al., 2022). ✓ Management systems are predominantly fragmented, targeting isolated departments or procedures, and failing to reflect these institution's complex structures and organizational dynamics. ✓ Transversal inhibitors to technology adoption: resource scarcity (Kamariotou et al., 2021; Tim et al, 2020; Gombault et al., 2016), structural informality (Tim et al., 2020; González-Rojas et al., 2016; Gombault et al., 2016), and technical limitations (Nova et al., 2023; González-Rojas et al., 2016; Wu, 2015).
02. System Design	✓ Systems must preserve the symbolic value of cultural and creative assets, while adhering to industry standards and technical requirements (Wu, 2015). ✓ Centralized storage is recommended, predominantly due to informal storage practices and document displacement (González-Rojas et al., 2016). ✓ Participatory design approaches ensure the balance between technical requirements and cultural integrity (Kamariotou et al., 2021; Tim et al., 2020; Gombault et al., 2016; Wu, 2015).
03. Intelligent Optimization	✓ Literature focuses on content creation, product enhancement, audience engagement and accelerating production (Jahromi and Ghazinoory, 2024; Trocin et al., 2023; Kamariotou et al., 2021; Tim et al., 2020). ✓ Artificial Intelligence, Big Data Analytics, and Machine Learning demonstrate promising applications in automating reporting, budget forecasting, and timeframe recommendations. ✓ Cloud computing displays as a viable and cost-efficient solution for organizational management, by reducing energy consumption and investments in infrastructure (Kamariotou et al., 2021; Kosmopoulos and Styliaras, 2018).

These insights led to the creation of a **Design Agenda** that will inspire the system architecture. This Agenda is constituted by (i) 14 innovative management modules, (ii) 6 tailored design approaches, and (iii) 5 intelligent optimization opportunities.

CONCLUSION

This ongoing project aims to strengthen the cultural and creative sector, via an intelligent management solution, that allies technological innovation with cultural autonomy. Additionally, it foresees **cross-disciplinary contributions to Information Systems and Management Sciences**, by relaying recommendations for new management systems tailored to complex organizational environments, such as SMEs and governmental institutions.

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