

Destination Play: A Phigital Model for Sustainable Tourism Development in Peripheral Areas

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Abstract: Peripheral metropolitan areas across Europe face a structural contradiction: while celebrated destinations suffer from unsustainable overtourism, adjacent territories rich in stratified cultural heritage remain marginalized from mainstream tourism circuits. This fracture is compounded by administrative fragmentation that impoverishes endogenous development capacity. "Destination Play" is a research initiative that addresses this complexity by proposing an innovative and sustainable model for economic and social valorisation of cultural assets in peripheral areas. The core innovation rests on a generative paradigm that transforms tourists from passive consumers into co-creators of territorial meaning. The proposal weaves together four methodological axes that converge in a phigital Hub platform. A sophisticated profiling system leveraging generative artificial intelligence personalizes tourism experiences, adapting dynamically to visitor preferences and behavioural patterns. Simultaneously, contextualized gamification metamorphoses cultural sites and practices into ludic worlds that stimulate deep engagement among both tourists and residents alike. Equally decisive is the adoption of participatory design, wherein local communities, public administrations, and economic operators co-craft tourism offerings through structured collaborative processes. A digital assistant powered by conversational artificial intelligence—operating multilingually and multimodally—ensures accessibility and inclusion, framing each visit as a co-authored narrative. Impact measurement employs a hybrid BES/RETS framework that interlaces indicators of equitable and sustainable well-being with resident empowerment scales, capturing not merely economic metrics but also territorial identity regeneration and social cohesion. The research mobilizes qualitative and quantitative methodologies spanning artificial intelligence research, participatory design workshops, co-creation laboratories, and longitudinal community well-being assessments. The expected outcomes include industrialization roadmaps, replicable territorial impact evaluation methodologies, scalable open-source architectures, and co-created narrative datasets. The ultimate ambition is a platform prototype demonstrating how peripheral metropolitan regions can achieve equitable development through participatory, sustainable cultural tourism ecosystems.

Keywords: Overtourism, Phigital Tourism, Profiling, Gamification, AI Supported Tourism

1. Introduction

Contemporary tourism systems are facing a paradoxical condition: while a small number of iconic tourist destinations attract flows and investments to the point of generating overtourism, a constellation of adjacent territories, rich in stratified cultural heritage and social capital, structurally remains at the margins of mainstream visitation circuits. This asymmetry not only converts into an economic gap, but also generates symbolic undervaluation, loss of community identity, and weakened trajectories of local development. At the same time, governance in these ecosystems often appears fragmented, characterised by multiple actors – institutional, associative, entrepreneurial – who lack shared tools to coordinate strategies, narratives, and decisions.

In this scenario, cultural tourism cannot longer be conceived as a lever for increasing flows, but also as an enabling device for social cohesion, identity regeneration, and the growth of resident communities. The adoption of immersive digital technologies, phigital experiences, and artificial intelligence tools opens a design space in which tourists are not only passive consumers of places and contents, but they become co-authors of territorial narratives and practices. At the same time, local communities can move from being passive to active subjects in terms of content producers, negotiating more fairly the relationship between external visibility, internal well-being, and sustainability.

This paper contributes to this debate by proposing a conceptual model called "Destination Play", intended as a phigital ecosystem for sustainable tourism development in peripheral areas. The model integrates four methodological axes within a single theoretical architecture: adaptive profiling supported by artificial intelligence, contextualised gamification of user experiences, multi-actor participatory design, and conversational digital assistance addressed to accessibility and inclusion. Therefore, the paper proposes a framework combining technological, experiential, and governance dimensions, aiming to redistribute tourist flows through narrative and behavioural reframing and where the design of digital solutions is based on community well-being and empowerment parameters.

In this sense, the paper adopts a predominantly theoretical and design-oriented approach and is structured around the following research questions: How can a phigital tourism ecosystem transform tourists from

consumers into co-creators of territorial meaning in peripheral areas? (i)How can the combination of AI-driven profiling and gamification foster more sustainable and distributed patterns of tourism experience? (ii)To what extent can an integrated evaluation framework centred on resident well-being and empowerment redefine the criteria by which the success of cultural tourism technologies is assessed? (iii)

2. Theoretical Background

2.1 Peripheral Destinations, Overtourism and Under-tourism

Recent tourism literature highlights how the growth of visitor flows tends to concentrate in a small number of highly iconic hubs, generating overtourism phenomena that affects the environment, residents' quality of life, mobility issues, and the integrity of cultural heritage. But, peripheral areas located in the proximity of these hubs remain in a condition of "structural under-tourism": despite having relevant cultural, landscape, and social resources, they struggle to build autonomous visibility and to attract stable, quality-based demand. This polarisation produces a double distortion: on the one hand, excessive pressure and overcrowded places; on the other, waste of territorial capital and development opportunities in hidden areas. In this context, there is a growing interest in models that do not merely "contain" overtourism, but consider the distribution of flows in systemic terms, acting on the narratives, imaginaries, and relational infrastructures that support visitors' choices.

2.2 Phygital Tourism Experiences and Co-creation

In parallel, a lot of studies in literature face the challenge of hybrid tourism experiences connecting digital and physical dimensions. The spread of interactive storytelling platforms, augmented reality, immersive tours, location-based apps, and social media is transforming tourists into constant producers of digital traces, contents, and narratives. The co-creation perspective recognises the value of these practices: the experience is no longer a predefined "product" but a novel process emerging from the interaction between visitors, host/resident communities, and technological devices. Within this framework, the concept of phygital does not simply denote the combined use of online and offline channels, but an experiential ecosystem in which the transition between on-site and digital dimensions is fluid, and where ludic, emotional, and narrative engagement becomes a lever to activate deeper and more durable forms of participation.

2.3 Artificial Intelligence, Profiling and Conversational Agents in Tourism

The introduction of artificial intelligence tools into tourism processes has enabled new adaptive profiling, personalised recommendation, and analysis of the emotional dimensions. Machine learning and generative AI models are employed to integrate behavioural data, stated preferences, and interaction patterns, building dynamic profiles capable of supporting contextual suggestions and personalized itineraries. At the same time, conversational agents and multichannel digital humans play an increasingly significant role as interfaces for cultural mediation, linguistic inclusion, and accessibility. From a critical standpoint, these technologies raise important questions related to ethics, privacy, and algorithmic bias; however, if they are applied through responsible frameworks, they can constitute enabling infrastructures for more informed, inclusive, and reflective tourism, able to connect different actors in a non-hierarchical manner and return value in terms of shared knowledge.

2.4 Well-being, Empowerment and Integrated Evaluation in Cultural Tourism

Alongside traditional metrics centred on arrivals, overnight stays, and expenditure, there is a growing recognition of the need to assess tourism impacts in terms of multidimensional well-being and community empowerment. Conceptual frameworks combining objective and subjective indicators regarding quality of life, social relations, access to cultural services, economic opportunities, and civic participation allow to understand the long-term effects of tourism policies. In this sense, different reference scales have been developed to measure empowerment through tourism, focusing on dimensions such as territorial pride, perceived capacity to influence decisions, activation of social capital, and perceptions of fairness in the distribution of benefits. Integrating these perspectives into models and digital platforms for cultural tourism makes it possible to shift from a purely extractive logic to a transformative one, in which technologies are not only promotional tools but devices that make visible, negotiable, and monitorable the trade-offs between attractiveness, sustainability, and territorial justice.

3. Conceptual Model: the Destination Play Framework

3.1 Core Principles and Design Assumptions

The “Destination Play” model is based on the assumption that sustainable tourism development in peripheral areas requires a rethinking of three intertwined dimensions: visitors’ experiential practices, local communities’ forms of participation, and the socio-technological infrastructures which enable the mediation between the first two. The framework represents a generative concept of cultural tourism, in which visitors are no longer mere consumers of pre-defined content, but they are co-creators of narratives and micro-events that, over time, feed into the symbolic capital of a destination. Simultaneously, resident communities are recognised as epistemic actors, bearers of knowledge, memories, and organisational capacities, which need accessible channels to be transformed into contents, routes, and experiences.

Three principles address the design of the model. First, phygitality: experiences and processes must seamlessly pass through the physical and digital layers, enabling the relationship with the territory before the visit, intensifying it on-site, and continuing it after the end of visit. Second, distributed participation: the various actors – public authority, associations, economic operators, citizens, visitors – should be able to contribute in a modular and progressive manner, with different but interconnected roles. Third, relational sustainability: each technological innovation is assessed in terms of its capacity to strengthen local ties, competences, and self-governance capabilities, rather than solely on the basis of promotional performance.

3.2 Phygital Hub Architecture and Functional Components

The Destination Play framework is a modular “phygital hub”, consisting of a set of logical–functional components which can be orchestrated or individually activated. The first component is the Content Creation & Storytelling Module, which enables and supports the creation of multimedia content (video, audio, hybrid narratives) through modular narrative templates and editing tools enhanced by generative artificial intelligence. This module is designed to be also used by not-expert users, making content production accessible to institutions, associations, and individual citizens, with particular attention to enthusiasts and local experts.

The second component is the Gamification & Experience Design Module, which allows the configuration of game environments, experiential missions, and playful itineraries applied to places, events, and cultural practices. Through elements such as points, badges, challenges, and rewards, this module aims to transform ordinary contexts into “playable spaces”, stimulating experiential learning, inclusive accessibility, and emotional involvement. A third component is the Profiling & Recommendation Module, dedicated to managing identities and profiles – of local actors and end-users – in compliance with privacy requirements and cookieless logics, having the goal of collecting data on preferences, interests, interactions, and emotional responses, and feeding adaptive and personalized recommendation algorithms.

A fourth component is the Conversational Digital Assistant Module, based on multilingual and multimodal conversational agents and digital humans that act as interfaces for cultural mediation, information support, and real-time feedback collection. This module connects the experiential dimension with accessibility and inclusion, providing a “voice” for the destination and, at the same time, a direct channel for the expression of visitors’ perceptions. The fifth component is the Destination Governance & DMO Support Module, which provides collaborative workspaces, shared calendars, notification systems, and monitoring dashboards, thereby supporting the creation of cooperative governance agreements and the definition of destination management plans. Finally, the Analytics & Impact Module integrates technical and social indicators into a multi-level framework regarding adoption and participation, cultural and tourism impacts, technological effectiveness, cooperation, community well-being and empowerment.

3.3 Process Model and Impact

The Destination Play framework incorporates a process model describing how a peripheral destination can evolve over time from a fragmented context into a generative phygital ecosystem. In an initial phase of exploration and co-design, the platform acts as a catalyst to collect needs, latent narratives, and existing resources, using workshops, co-design sessions, and content prototypes in order to create a shared vision of tourism and cultural potential. Here, the profiling, storytelling, and gamification modules are primarily employed to map the destination’s narrative and relationship potentiality.

In a second phase of orchestration and experimentation, all components are integrated and work following an iterative cycle: gamified experiences and co-created contents are proposed to visitors; the digital assistant mediates interactions; the data collected feed into the analytics modules; local actors use dashboards and collaborative tools to read the results, fix the content in real time, and design new initiatives. Impact is not only interpreted in terms of increased flows or digital engagement, but also considering the connection of experiential practices, transformations in the representations of places, redistribution of benefits, and empowerment dynamics.

Finally, a third phase of consolidation and scalability aims to transform the phygital hub from a pilot project into a stable destination infrastructure. Hence, the integrated evaluation framework – which combines indicators of well-being, empowerment, governance, and sustainability – becomes a tool for negotiating priorities, addressing investments, and providing accountability to stakeholders on the effects of tourism policies. In this sense, Destination Play is configured not only as a set of technologies, but as a conceptual model for designing tourism ecosystems in which the narrative and behavioural redistribution of flows occur together with more equitable and reflexive forms of territorial development.

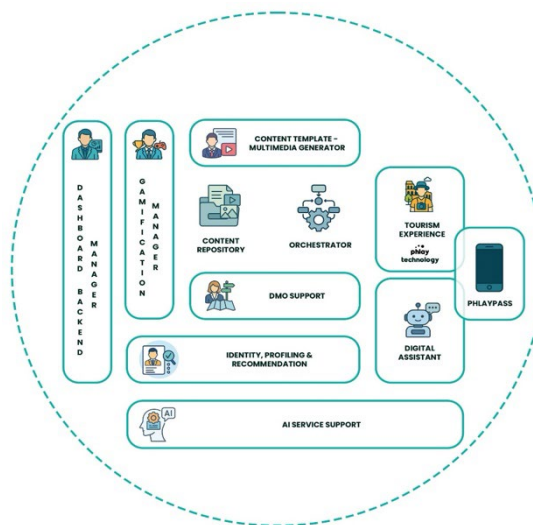


Figure 1: Destination Play Model

4. Methodology

This contribution is situated within the field of Design Science Research (DSR) applied to information systems for tourism, with the aim of developing a theoretical artefact – the “Destination Play” framework – that addresses a relevant practical problem (the sustainable development of peripheral destinations) while at the same time generating conceptual advancement. The proposed artefact has a hybrid form: on the one hand, a conceptual model of a phygital ecosystem for sustainable cultural tourism; on the other, a functional architecture that makes explicit its main modules and their relationships.

Following DSR principles, the research was structured as an iterative process articulated in three macro-phases: problem exploration, artefact design, and theoretical consolidation. In the first phase, the problem was defined through a critical analysis of the literature regarding overtourism, peripheral under-tourism, experiential co-creation, phygital technologies, and community well-being measurement, integrated with evidence resulting from previous design initiatives in cultural tourism contexts. This phase contributed to derive a set of meta-requirements for the artefact, such as the need to integrate technological and governance dimensions, to support multi-actor participation, and to anchor design choices to social and territorial impact metrics.

The second phase concerned the design of the artefact through progressive abstraction. Starting from technological and organisational components already experimented within real-world contexts, the work carried out a conceptual generalisation, leading to the definition of: (i) the fundamental principles of the model (phygitality, distributed participation, relational sustainability); (ii) the functional modules of the hub (i.e. modules for storytelling, gamification, profiling, digital assistant, governance, analytics); (iii) a process model describing the phases of exploration, orchestration, and consolidation of a peripheral tourism ecosystem. In this phase, the designing accuracy is guaranteed by the systematic use of abstraction logics, component

decomposition, and explicit specification of inputs, outputs, and inter-module relationships, in line with DSR recommendations for creating transparent and reusable artefacts.

The third phase focused on theoretical consolidation and ex-ante evaluation of the model. Since the presentation of empirical results is beyond the scope of this paper, the evaluation primarily follows logics of reasoned assessment and theoretical robustness: the framework was compared with the trajectories identified in the theoretical background, verifying the consistency between identified problems and proposed functionalities, the coverage of critical dimensions (experiential, technological, governance-related, impact-related), and the correctness of the hypothesised change mechanisms (narrative and behavioural redistribution of flows, community empowerment, enhancement of well-being). Furthermore, the explicit adoption of criteria such as potential usefulness (for different stakeholders), generalization (to classes of hidden destinations), and integrability (with existing policies and tools) contributes to strengthening the accuracy of the proposal.

In sum, the methodology combines a rigorous artefact-development approach, based on Design Science, with a critical conceptual positioning, aimed to provide to the scientific community a theoretically informed and methodologically transparent model, open to future comparative empirical validation in different tourism contexts.

5. Discussion

The Destination Play framework encourages several theoretical and design-oriented reflections on the relationship between phygital technologies, peripheral tourism development, and sustainability. Firstly, the proposal contributes to the debate on overtourism and under-tourism by shifting attention from a predominantly regulatory logic, focused on containing excessive flows, to a generative logic acting on the narrative and relational infrastructures shaping visitors' choices. The combination of interactive storytelling, gamification, and adaptive profiling configures the destination not as a simple "container" of attractions, but as a dynamic narrative space in which peripheral places and iconic hubs are juxtaposed, recombined, and made complementary. This suggests that the redistribution of flows can be pursued not only through constraints and limits, but also through an alternative model centred on experiential and symbolic reconfiguration.

Secondly, the model proposes a rethinking of the role of digital technologies in cultural tourism. In most of the literature, platforms, apps, and artificial intelligence tools are mainly treated as marketing levers or devices for transactional efficiency. Within the Destination Play framework, these technologies become elements of a relational governance architecture: the conversational assistant acts as an interface between visitors and communities, gamification modules orchestrate practices of ludic cooperation, and analytics systems return data that are useful for shared decision-making. The framework highlights how digital solutions can be designed not only to optimise individual engagement, but also to support collective processes of coordination, learning, and territorial care.

A third point of discussion concerns the integration between the experiential dimension and the well-being and empowerment dimension. The framework assumes that the quality of tourism experiences cannot be separated from the effects they produce on resident communities. Adopting an evaluative method that intersects indicators of multidimensional well-being and resident empowerment implies that the "performance" of a phygital destination is also read in terms of territorial pride, activated social capital, and capacity to influence development choices. This opens a perspective in which artefacts designed through Design Science are evaluated not only for their technical and functional effectiveness, but also for their capability to generate public value and territorial fairness.

At the same time, the model raises several critical issues to be worth considering. The use of profiling and tracking data, even when conceived within a privacy-preserving logic, raises questions about the balance between personalisation and protection, as well as the risks of reproducing bias and inequalities accessing to tourism opportunities. Multi-actor governance may encounter resistance, authority asymmetries, and coordination difficulties that cannot be only solved through platform designing. Finally, the impact expected on overtourism dynamics and peripheral marginality is gradual and non-linear, and therefore it is requested a medium- to long-term empirical experimentation able to verify the extent to which the promises of the framework are reflected in the actual practices of territories.

6. Conclusions and Future Research

The Destination Play framework has been presented as a conceptual model for rethinking tourism development in peripheral areas through a phygital approach, integrating digital technologies, co-creation practices, and collaborative governance logics. Starting from the structural contradiction between overtourism in iconic hubs and under-tourism in adjacent areas, the model proposes to act not only on the physical management of flows, but on the narrative, relational, and technological infrastructures that generate them. From this perspective, the peripheral destination can be seen as a generative ecosystem in which tourists and local communities co-produce meanings, contents, and routes, supported by a modular phygital system.

The main contribution of this work is twofold. On the theoretical level, it offers an integrated synthesis of four axes – adaptive profiling, gamification, participatory design, and conversational digital assistance – within a framework oriented towards resident well-being and empowerment. On the design level, it articulates a functional architecture and a process model that can address the development of information systems for cultural tourism in peripheral contexts, providing a reasoned basis for future experimentation. The explicit adoption of a multidimensional evaluation framework also helps shift the focus beyond purely economic metrics towards a broader conception of public value and territorial sustainability.

At the same time, the work has limitations that suggest possibilities for further development. Firstly, the model has been discussed in conceptual terms; an empirical research agenda is needed to test its validity in different contexts, through longitudinal case studies, quasi-experimental designs, or comparative approaches across peripheral destinations. Secondly, the ethical and regulatory implications of profiling and recommendation modules should be explored in greater depth, investigating “responsible AI” frameworks applied to cultural tourism. Thirdly, further studies could examine how the framework hybridises with existing policies and planning tools, for example in the fields of destination management, urban regeneration, and proximity economies.

Finally, a promising research line concerns the formalisation of shared indicator sets and measurement protocols that make the effects of phygital hubs on peripheral destinations’ development trajectories comparable over time and across space. In this direction, Destination Play can be seen not only as a specific model, but as an open research programme aimed at exploring how phygital technologies can contribute to more equitable, reflective, and participatory systems of sustainable tourism.

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Ethics Declaration

This PhD research exclusively is based on conceptual development, secondary literature, and the analysis of publicly available documents. In accordance with the institutional and national regulations applicable to this type of study, no formal ethical approval was required.

AI Declaration

This paper was developed with the support of an AI-based writing assistant used for language editing, stylistic refinement and English translation. Conceptualisation, research design, theoretical framing, interpretation and structuring of the arguments are entirely the work of the authors. All AI-generated suggestions were critically reviewed, edited and, where appropriate, re-written by the authors, who retain full responsibility for the content of the paper.

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