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# Generative AI as a tourism actor: Reconceptualising experience co-creation, destination governance and responsible innovation in the synthetic experience economy

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## Abstract:

**Purpose:** This conceptual study examines how Generative Artificial Intelligence (GenAI) reshapes value co creation, destination governance, and responsible innovation in tourism. It seeks to reposition GenAI from a backstage tool to a tourism actor and to present the Synthetic Experience System, a triadic framework connecting Tourist, GenAI, and Place/Community through data, content, and emotion layers.

**Methods:** The paper follows an integrative theory building approach. It abductively synthesises tourism literature, information systems, marketing, psychology and ethics to surface recurring constructs, situates them within the service dominant logic and the actor–network theory, and iteratively refines a model through comparison of GenAI applications focusing on responsible research and innovation.

**Results:** Analysis reveals three continuous co creation loops that circulate agency among actors and four boundary conditions—authenticity, bias, sustainability, privacy—that determine system viability. The Synthetic Experience System clarifies where value emerges, identifies points of potential value co destruction, and yields fifteen research propositions spanning tourist cognition, firm capabilities, destination policy, and planetary carbon limits.

**Implications:** The framework provides a roadmap for destination management organisations, platform designers, and regulators to audit algorithms, design participatory prompts, and adopt carbon aware deployment. By naming actors, layers, and boundaries, the study offers a shared vocabulary that can anchor empirical investigations and stimulate cross disciplinary citations in tourism, information systems, and sustainability research.

**Keywords:** generative artificial intelligence, synthetic tourism, experience co-creation, service-dominant logic, actor–network theory, algorithmic governance, responsible research, responsible innovation

**JEL Classification:** L83, O33, L86, M31

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## 1 INTRODUCTION: FROM DIGITAL TO SYNTHETIC TOURISM

Over the past twenty years, tourism has experienced successive waves of digital disruption, each promising richer, more seamless experiences yet often delivering only incremental efficiency gains. In the pre Internet era, travelers relied on

paper brochures, telephone based travel agents, and static guidebooks. The rise of online booking platforms in the early 2000s centralised inventory and payments, while “smart tourism” initiatives introduced sensor-based wayfinding and context-aware mobile guides (Buhalis & Amaranggana, 2015; Neuhofer, Buhalis & Ladkin, 2015). By the mid 2010s, rule-based chatbots appeared across hotel websites and destination



portals, automating routine tasks—room availability checks, weather forecasts, basic destination FAQs—via decision trees and scripted templates (Ivanov & Webster 2017). Although these systems delivered 24/7 responsiveness and reduced staffing costs, they left the core visitor experience untouched: exchanges remained transactional, constrained by fixed response matrices that could neither learn from interaction nor spark genuine dialogue.

Tourism theory long mirrored this instrumental stance. Service-dominant logic, which underpins much tourism research, positioned technology as a passive operand resource within human-led value co-creation systems (Vargo & Lusch, 2004). Actor–network research likewise treated digital artefacts as inert intermediaries rather than agents with their own intentionality (Xiang et al., 2017). Creativity, anticipation, and adaptive behaviour were reserved for human hosts, while machines simply executed predefined instructions.

A review of the most recent literature show the extent to which this perspective still persists. Meta-analyses have rigorously catalogued early GenAI experiments—user-acceptance surveys of ChatGPT (Zheng et al., 2024), studies on hallucination control in AI-generated destination content (Chen & Lee, 2024), and optimisation tactics for AI-driven recommender systems (García-Sánchez et al., 2025). Valuable as these assessments are, they remain descriptive and siloed. The field still lacks a cohesive, theory-driven roadmap that simultaneously folds GenAI into its dominant conceptual traditions, recognises technology as a genuine co-creative actor, and confronts the attendant ethical, regulatory, and environmental stakes.

That gap has widened since the advent of foundation models—massively pre-trained neural networks such as GPT-3 (Brown et al., 2020) and BERT (Devlin et al., 2019). These models, along with multimodal successors like CLIP and DALL·E (Ramesh et al., 2021), are not shackled to rigid decision trees; they generate original outputs by sampling across vast probability spaces learned from text, images, and code. In tourism, foundation models introduce three intertwined dynamics. First, they confer *creative autonomy*, allowing, for example, AI to weave a traveller’s sustainability values and gastronomic preferences into a bespoke destination itinerary (e.g. the case of Barcelona as found in the literature) that feels curated rather than computed (Sigala, 2019; Tussyadiah & Miller, 2021). Second, their *seamless multi-modality* means a single prompt can return, for example, an English-Indonesian myth about a Balinese temple, overlay hidden carvings in augmented reality, and stream an evocative soundscape that conjures the site’s ritual ambience (Gretzel et al., 2022; Neuhofer et al., 2015). Third, the models enable adaptive real-time personalisation: live weather feeds, traffic data, and even biometric signals can trigger on-the-fly itinerary adjustments—rerouting a hiker to a shaded lookout when cortisol levels spike or shifting a museum visit indoors when rain approaches (Rantala, 2023; Xiang & Fuchs, 2017).

Collectively, these capabilities inaugurate what we call synthetic tourism, an ecosystem in which GenAI migrates from backstage tool to distributed, co-creating actor. Acknowledging this migration forces a triple conceptual pivot. Service-dominant logic must evolve to grant non-human intelligences partial agency in the ‘choreography’ of value-creation, echoing the collaborative ethos championed by Vargo & Lusch (2017) and foreshadowed by Prahalad & Ramaswamy’s (2004) dialogues on co-creation.

Actor–network maps must be redrawn to capture the fluid constellations of tourists, AI agents, local communities, and regulators, acknowledging—as Latour (2005) argued—that agency is a property of networks rather than individual nodes. Finally, Responsible Research & Innovation (European Commission, 2021) must anchor the conversation, bringing algorithmic bias, data-governance risk, and the carbon intensity of model training (Floridi et al., 2018) into the same frame as visitor delight and destination competitiveness.

Crucially, the arguments advanced here are not confined to tourism studies. They take their cues from information-systems research on socio-technical assemblages (Orlikowski & Iacono, 2001), marketing science on customer-journey orchestration and experiential value (Lemon & Verhoef, 2016), psychological work on need satisfaction and emotion regulation (Deci & Ryan, 2000), responsible-AI literature on fairness and transparency (Floridi & Cows, 2019), and innovation-management insights into open ecosystems and diffusion (Chesbrough, 2003). By weaving these strands together, the discussion positions generative tourism as a node in a much wider scientific conversation—one that invites citation and debate across multiple domains.

Against this backdrop, the rest of the paper pursues five interlocking objectives. It first revisits the experience economy, service-dominant logic, actor–network theory, and Responsible Research and Innovation (RRI) to build a conceptual scaffold robust enough for synthetic tourism. It then surveys the rapidly growing body of GenAI applications across pre-trip planning, on-site augmentation, and back-office optimisation, distilling patterns and exposing blind spots. Building on these insights, it introduces the Synthetic Experience System, a triadic model that threads Tourist, GenAI, and Place/Community through data, content, and emotion layers while flagging boundary conditions such as authenticity, bias, energy use, and intellectual-property rights. A forward-looking research agenda follows, posing fifteen high-impact questions that range from micro-level issues of traveller wellbeing through meso-level firm capabilities and workforce futures to macro-level governance and the planetary sustainability of AI infrastructure. Finally, the paper translates theory into action, outlining AI-literacy toolkits for destination-management organisations, risk-audit protocols for platform operators, participatory-design guidelines for communities, and regulatory roadmaps consonant with the EU AI Act (European Commission, 2021) and UNWTO AI-Ethics Guidance (UNWTO, n.d.).

By tracing the arc from static automation to dynamic co-creation—and by fusing tourism literature with insights from IS, marketing, psychology, ethics, and innovation studies—this study offers both an analytic lens and a practical roadmap for scholars and practitioners navigating the new era of Gen AI in tourism.

## 2 CONCEPTUAL FOUNDATIONS

The argument that GenAI is becoming tourism actor rests on five strands of research that have shaped, and continue to reshape, tourism thought: the experience economy, value co creation, actor–network theory (ANT), algorithmic governance, and Responsible Research & Innovation (RRI). Rather than offering five parallel summaries, this section shows how each tradition moves the debate forward, where its

explanatory power now strains under GenAI's weight, and what conceptual extensions—often drawn from adjacent disciplines—are needed for a next generation research agenda.

### 2.1. From staged experiences to programmable “synthetic moments”

The experience economy thesis of Pine and Gilmore (1999) repositioned tourism as a theatre in which economic value stems from choreographed memories rather than from the exchange of physical goods. Subsequent literature deepened the metaphor: Carù and Cova (2003) unpacked multisensory immersion; Neuhofer, Buhalis and Ladkin (2014) traced the fusion of on site and digital touch points; Puspeng and Yodhane (2024) highlighted how guests step “on stage” as co producers; Coudounaris et al. (2025) investigated the influence of the ‘Big Five’ personality traits on memorable tourism experiences. Yet the stage remained squarely human directed—the guide, designer or host was presumed to hold the script, while technology merely extended the scenery.

GenAI destabilises that hierarchy; for instance, when a visitor co-authors an origin myth for a Balinese temple with a large language model fine tuned on Javanese epics, the dramaturgy is no longer flesh and blood but a probabilistic architecture whose “creative well” is a trillion token corpus. Authenticity work—long analysed as the host–guest dialectic of existential meaning making (Wang, 1999)—is transformed into a triadic negotiation among host, guest and algorithmic weights. The stage becomes a cloud endpoint, and the “props” are real-time data feeds.

This shift from staging singular events to programming synthetic moments has at least four conceptual implications. First, temporality compresses. Classic experience design assumed phases of anticipation, on site enactment and recollection (Tung & Ritchie, 2011); foundation models collapse those phases by iterating narratives in milliseconds. Second, authorship blurs. Interaction design research shows that users tend to over attribute agency to conversational agents (Nass & Moon 2000), complicating long standing tourism debates about authorship, interpretation and power. Third, value metrics diversify. Whereas satisfaction and memorability dominated the experience economy toolkit, Human-Computer Interaction (HCI) research now calls for tracking emotional granularity, arousal curves and even eudaimonic outcomes such as meaning and self-growth (Hassenzahl, 2010; McCarthy & Wright, 2004). Fourth, the politics of curation intensify. Algorithm studies literature warns that generative models may reproduce hegemonic narratives or hallucinate culturally insensitive content (Bender et al. 2021), raising new stakes for destinations seeking to safeguard intangible heritage.

Critical tourism researchers have begun to sense these tremors. Guttentag (2022) argues that VR and AI are moving experiences from place based to code based, decoupling value from physical proximity. Gavalas et al. (2024) and Halder et al. (2024) show how algorithmic itinerary builders already shape expectations before travellers arrive. Yet we still lack a framework clarifying how human intentionality and machine creativity intersect, and who is accountable when an auto-generated storyline misrepresents living culture.

A way forward lies in bridging tourism with design oriented disciplines. Interaction design scholars propose “co experience prototyping” in which humans and AI iteratively adjust each other's outputs in situ (Rezwana & Ford, 2025). HCI work on explainable AI (Abdul et al., 2018) offers methods for exposing a model's narrative pathways, letting guides audit or

override problematic arcs. Meanwhile, marketing science is experimenting with “algorithmic dramaturgy”—dynamic storytelling that adapts to biometric feedback (Privitera et al., 2025). Importing these insights would let tourism move from post-hoc evaluation to frontstage design of synthetic moments. Future research, then, should treat experience design as an unfolding conversation rather than a pre-written script. Longitudinal field experiments in living labs—where tourists, guides and GenAI agents co-construct storylines under controlled but naturalistic conditions—could reveal how agency, authorship and accountability shift over time (Wu et al., 2019). Agent-based simulations, grounded in empirical interaction data, can potentially assess the impact of subtle changes in prompts on a range of measures including satisfaction, learning, and cultural influence (Dwivedi et al., 2021). Finally, qualitative studies must critically analyse whose voices are amplified and whose are suppressed when models synthesise local knowledge at scale.

Essentially, Pine and Gilmore's ‘theatre’ is still in progress; however, its backstage has been augmented with generative technologies that generate new dialogue during the play. Tourism scholars now face the dual challenge of theorising this programmable dramaturgy and of equipping practitioners with design principles that harness machine creativity without forfeiting cultural integrity.

### 2.2. Value co-creation and its darker twin

Service-dominant logic (S-D Logic) reshaped how tourism scholars perceive value—from a static entity exchanged at market points to a dynamic phenomenon realised during consumption, where tourists actively combine their skills, knowledge, and situational contexts to create memorable experiences (Vargo & Lusch, 2008, 2016). This paradigm has notably illuminated diverse tourism practices, including crowdsourced route planning, peer-to-peer accommodation, and participatory cultural interpretations (Buhalis & Foerste, 2015; Prebensen, 2014; Shaw et al., 2011).

However, the rise of GenAI, specifically through sophisticated foundation models, challenges and extends the theoretical foundations of S-D Logic beyond its original human-centric assumptions. These advanced models emerge as active operant resources rather than passive tools (Maglio & Spohrer, 2013), capable of autonomously integrating diverse data streams—such as real-time traffic conditions, user preferences, and cultural insights—to dynamically co-create highly personalised tourism experiences (Breidbach & Brodie, 2017). For instance, a large language model crafting a bespoke gastronomic tour in Lisbon is effectively performing resource integration independently, functioning as a proactive agent rather than a reactive interface. Despite the importance highlighted by Breidbach and Maglio (2016), tourism research has only just begun to empirically investigate the transformative potential of AI as an active co-creator within S-D Logic frameworks, representing a critical research gap in the current academic research.

Concurrent with this is a growing need to examine further the lesser-studied but highly pertinent opposite of service-dominant logic—value co-destruction. Inconsistencies between stakeholder goals can strongly inhibit processes of value generation (Järvi et al., 2018). For GenAI, sources of goal inconsistencies can include entrenched algorithms containing harmful stereotypes or discriminatory conduct, favoring certain individuals or populations (Bolukbasi et al., 2016; Caliskan et al., 2017), as well as substantial environmental consequences related to power-hungry model

training at variance with sustainability goals of many destinations (Luccioni et al., 2023; Strubell et al., 2019). Additionally, Paluch and Wunderlich (2016) highlight how technology-enabled service failures fueled by social media can generate widespread dissatisfaction and lead to substantial reputation and operational damage.

In tackling the intricacies of value co-creation and co-destruction, transformative service research calls for inclusive and integrative metrics of well-being that consider all-around individual, societal, and ecological effects (Anderson et al., 2011). Empirical research using longitudinal "living labs," including the Helsinki Smart Tourism Lab (City of Helsinki, n.d.), offers a pragmatic research framework to enable real-time examination of dynamic interdependencies between tourists, residents, and GenAI technology. Embedding innovative agent-based simulations into the empirical research design allows for the creation of sophisticated modeling tools to identify key systemic tipping points, where algorithmic bias or sustainability compromises break equilibrium and cause value degradation, threatening the resilience of the entire tourism system (Gajdošík, 2022; Jorzik et al., 2024).

In conclusion, integration of GenAI into Sustainable Developmental Learning requires more than superficial adjustments but a comprehensive and intrinsic conceptual shift that takes explicit note of algorithmic agency, ethical implications, inclusivity, and planetary boundaries (Yang & Lee, 2024). These issues must be addressed for tourism to promote genuinely transformative and equitable experiences and not perpetuate exploitative tendencies.

### 2.3. Actor–network theory: Reconfiguring the sociomaterial assemblage

It is argued by actor–network theory (ANT) that agency arises from relational interaction among varied entities, including both non-human and human actors, which constantly reconfigure social realities (Latour, 2005). In the tourism literature, ANT has been used extensively to show how tourism experiences and governance are constructed together through material-discursive networks. For example, Franklin (2004) illustrated how Maasai guides, safari vehicles, and photographic equipment construct Kenya's famous "looked-at landscape," undermining simplistic opposition between passive environments and active observers. Similarly, Van der Duim (2007) convincingly argued that seemingly unromantic spreadsheet calculations and not charismatic talk or great speeches actually support the practice of Dutch destination management. Such detailed analyses however largely represent technologies as stable intermediaries—entities that enable relationships rather than being active agents constantly remapping them (Ren et al., 2012).

On the contrary, Generative Artificial Intelligence (GenAI) severely undermines such stability. GPT-4 and similar foundation models are fluid "obligatory passage points" with parameter settings continuously being in transition, reacting to new prompts, software updates, and the iterative processes involved with reinforcement learning (Schneider et al., 2024). GenAI is not static like its entities but dynamically evolves and changes real-time, thus continuously reconfiguring tourism practice (Huang et al., 2025). For instance, a seemingly negligible adjustment in a developer's command for a prompt in San Francisco can quickly spread through cloud-based app programming interfaces and affect tourists' interactions with varied cultures in Bali, and quickly alter local traditions and interpretations.

The speed with which such transformations occur requires new approaches (Thees et al., 2021). Digital multi-sited ethnography offers methodological approaches through which researchers can track changes between algorithms and streams of data, tracing interactions that stretch from code hubs located in North America, through servers located in East Asia, and down to tangible effects felt by smartphone users located in Indonesia (Pink et al., 2022). Trace ethnography offers another perspective through critical examination of log files and online traces and how minor changes within algorithms—such as changes to neural network weights—can have profound effects on ranking and visibility of culturally prominent sites (Geiger, 2017). Walkthrough methods also shed light on how interface configurations guide people through particular prompts or stories and thereby reveal underlying dynamics of cultural orientation and governance (Light et al., 2018).

It is critical that there is a thorough elaboration of current literature on training data aimed at demystifying how such sources inform the perpetuation of impactful discourses. Such training sets as LAION-5B and Common Crawl inevitably represent Eurocentrism and sexism (Birhane & Prabhu, 2021) that can preserve inequalities upon their deployment within tourism recommendation platforms. It is also argued by Crawford and Paglen (2021) that such representation politics are embedded within the outputs of algorithms and thus perpetuate ongoing hierarchies. At the same time, Kitchin (2017) finds that such data infrastructures themselves expose geographical inequalities that lead to latency differentials and environmental externalities affecting non-Western digital landscapes.

Future ANT-based investigations ought to carefully trace out the shifting sociotechnical arrangements of GenAI, which include not just conventional actors like tourists and tour guides but also allegedly minor actors such as GitHub issues and version updates (Andres et al., 2024; Li & Zhu, 2024). Such rich mappings clarify how meanings, values, and power dynamics within the tourism industry constantly crystallise and disintegrate within an increasingly synthetic reality.

### 2.4. Algorithmic governance: From platforms to foundation models

Early explorations for algorithmic governance have described online platforms as authoritative actors that govern market processes and set up private regulatory models through complex software methods (Gillespie, 2014; Yeung, 2018). Studies on tourism have identified platforms such as TripAdvisor and Airbnb as performing subtle and considerable forms of governance. For instance, Smart Pricing on Airbnb subtly motivates hosts toward adopting normative behaviors that maximise platforms' revenues and shift their behaviors in practically unapparent ways (Bouchon & Rauscher, 2019). Similarly, TripAdvisor rankings from user-generated ratings computed through non-transparent algorithms constantly affect tourism mobility and guide local economic processes (Gretzel, 2011; Scott & Orlikowski, 2021). These initial understandings based on deterministic views on algorithms have inferred fixed regulatory models and pre-established outcomes, but these are hidden through a lack of transparency (Singh & Sibi, 2023). But the advent of foundation models undermines the earlier premise of deterministic stability. Unlike traditional platform algorithms, foundation models like GPT-4 generate outputs probabilistically and demonstrate dynamic responsiveness to fluctuations in data inputs, nuanced changes in prompts, and regular updates (Bender et al., 2021; Bommasani et al., 2021). Governance thus shifts from clearly

defined platform interfaces to complex "cloud stacks" that include data curation practices, holistic training methodologies, fine-tuning processes, and advanced prompt engineering cultures (Amoore, 2019). Algorithmic opacity levels in this setup are unprecedented: even within teams responsible for developing the models, it becomes harder to link specific generated outputs to specific rules or inputs (Burrell, 2016; Pasquale, 2015).

This shift generates three significant implications. First, levels of opacity and ambiguity rise, calling for rigorous documentation practices like "model cards" (Mitchell et al., 2019) and "datasheets for datasets" (Gebru et al., 2021). Although they may be beneficial, stakeholders in the tourism industry rarely give these transparency tools priority, leaving significant knowledge gaps unresolved. Second, accountability is broadly dispersed across a range of stakeholders—including data providers, algorithm developers, platform intermediaries, destination managers, and tourists themselves—thus closely resonating with Ananny and Crawford's (2018) seminal framework of distributed moral responsibility. Third, geopolitical asymmetries are exacerbated, as artificial intelligence models trained on predominantly Anglo-American datasets reproduce and reinforce biased Global North perspectives, exacerbating "data colonialism" concerns and entrenching exploitative tourism dynamics in the Global South (Couldry & Mejias, 2019; Milan & Treré, 2019).

To deal with such complexities on a comprehensive level, tourism research must prioritise a detailed exploration of model stacks and not just platforms and user interfaces. Advanced explainable AI methods—such as SHAP value assessment (Lundberg & Lee, 2017) and counterfactual fairness testing (Kusner et al., 2017)—can empirically identify which factors reliably affect algorithmic-generated itineraries and content. Furthermore, deployment of rigorous algorithmic audits—a growing trend among AI ethics research (Raji et al., 2020)—can systematically assess AI-generated tourism content on the basis of set international norms such as UNESCO heritage guidelines or environmental sustainability. Finally, scholarly research on regulation must carefully examine how the developing transnational governance environment—specifically risk-based requirements set out by the EU AI Act—meets with or contradicts international digital trade liberalisation guidelines managed by the World Trade Organisation (WTO) and thus impacts on the prospective governance regime for synthetic tourism.

## 2.5. Ethics in responsible research and innovation: A global perspective

Responsible Research and Innovation (RRI) first emerged in tourism research to address major controversies surrounding overtourism, community acceptance, and social license to operate in the industry (Berselli et al., 2022). However, the rapid development of GenAI significantly expands the ethical scope, raising key moral challenges across cultural, environmental, and systemic dimensions.

First and foremost, GenAI poses serious issues concerning epistemic justice. The intrinsic discriminatory prejudice found with conventional recommender algorithms is further augmented to an unprecedented extent by the generative nature of GenAI. Large language models, for instance, have demonstrated a propensity toward generation of culturally insensitive or offensive content known as "hallucinations," which are directly and unrepresentatively generated from biased or poorly represented training materials (Bender et al.,

2021; Birhane & Prabhu, 2021). These incidents risk perpetuating epistemic harm through spreading biased and largely harmful depictions of marginalised cultures, thereby reflecting the wider social prejudices embedded within algorithmic programming (Hagendorff, 2020; Noble, 2018). Second, the environmental externalities of GenAI present significant challenges to sustainable tourism. The training of complex transformer models, including different versions of GPT, can lead to carbon dioxide emissions equivalent to the amount emitted by multiple transatlantic flights (Strubell et al., 2019). Recent comprehensive lifecycle assessments also report that ongoing inference—the continual use and operational deployment of these models across diverse applications—constitutes an even larger contributor to environmental degradation than the training process itself (Luccioni et al., 2023; Patterson et al., 2021). Given the already sizeable carbon footprint of tourism, the unregulated use of GenAI can threaten the climate pledges of many destinations, thus creating tensions with set international sustainability norms (Gössling & Higham, 2020).

The double use potential of GenAI requires stringent ethical oversight. While it has the potential to perpetuate harmful stereotypes, such generative technologies also show great potential for pushing forward on regenerative tourism's goals—designing tour programs aimed at minimizing environmental impacts, promoting off-season tourism, and enabling local ecosystem and site restoration and revival (Gallego & Font, 2020; Higgins-Desbiolles, 2018).

Conventional Responsible Research and Innovation (RRI) frameworks—anticipate, reflect, engage, act—provide essential starting points for addressing these challenges, yet they require specific adjustments that are expressly tailored to the tourism industry (Stilgoe et al., 2013). Audits of algorithmic bias, for instance, must go beyond simple demographic parity to closely examine the cultural authenticity of AI-generated content against established international heritage norms, as outlined by UNESCO's conventions on intangible heritage, for instance (UNESCO, 2024). Federated learning techniques may also facilitate ethical practices through enabling tourism destinations to internally develop and refine localised language models, thus safeguarding sensitive community knowledge and advancing Indigenous data sovereignty (Boscarino et al., 2022; Kairouz et al., 2021; Kukutai & Taylor, 2016). Lastly, while life-cycle carbon accounting has been advocated for in computer science literature (Schwartz et al., 2020), it seems critical that this practice becomes an integral aspect of procurement policies within destination management organisations.

Successful execution of these frameworks requires proactive and interdisciplinary coordination. Computer science-derived tools, including exhaustive audits for explainability and bias-mitigating strategies (Raji et al., 2020), can complement insights from environmental psychology on the eco-feedback mechanisms influencing behavioral changes among tourists (Schmuck & Vlek, 2003). Legal expertise will also be needed to maneuver through complex regulatory structures, including the risk-tiered mandates developed by the European Union's AI Act, that intersect with digital services regulations upheld by the World Trade Organisation (Veale et al., 2021). Tourism literature will also be important, as it entails testing multiple interventions in varied real-world settings and assessing their impact in advancing distributive equity, safeguarding cultural identities and their integrity, and enhancing planetary sustainability. It is through such comprehensive and

collaborative approaches that GenAI can indeed be an ethical enabler and not a harmful force in pursuing sustainable tourism futures.

## 2.6. Synthesis: Taking stock and looking forward

The contemporary conceptual themes that are being examined—staged experiences, value (co-)dynamics, actor-network assemblages, governance by algorithms, and Responsible Research and Innovation (RRI)—offer a rich intellectual agenda that can build upon and advance synthetic tourism research. Each offers a distinctive analytical lexicon stressing distinctive yet complementary processes: performance (Pine & Gilmore, 1999), resource integration (Vargo & Lusch, 2008), network building (Latour, 2005), rule building (Gillespie, 2014), and ethical responsabilisation (Stilgoe et al., 2013). However, these theoretical models are presently receiving challenging empirical evidence from the developing capabilities of GenAI. Orlikowski's (2007) early support for sociomaterial analysis has become increasingly pertinent: GenAI increasingly entangles code, capital, culture, and cognition such that any distinctions recede into arbitrary and politically freighted analytical outcomes (Kitchin, 2014; Leonardi, 2011). Hence, researchers must develop—rather than discard—their current theoretical models.

A major development of these theoretical frameworks requires a revision of experiences as performances that are not only conducted by human planners but also by probabilistic, algorithmically-controlled agents. This requires reconsidering value as being both co-created, co-eroded, and co-managed by learning models (Paluch & Wunderlich, 2021). Additionally, it demands reimagining networks as dynamic, reactive configurations constantly reformed by real-time API interactions (Kitchin, 2017). Additionally, the process involves an exploration of algorithmic governance through the lens of stochastic, context-dependent models whose outputs challenge conventional deterministic governance strategies (Burrell, 2016). This study also widens ethical consideration from only localised tourism impacts to include the global data ecologies and systemic inequalities of digital infrastructures (Crawford, 2021).

Navigating these complex dimensions calls for innovative methods through the combination of mixed-method research toolkits. AI-extended ethnography that combines standard participant observation with real-time algorithmic logging offers rich insights about how tourists and GenAI jointly generate meaning (Pink et al., 2022). Trace ethnography (Geiger, 2017) when combined with big-data ethnographic approaches (Varis & Hou, 2020) can trace subtle algorithmic adjustments from development environments through global data networks and highlight how small changes can have large consequences within local tourism environments. Agent-based simulation, a standard methodological strategy within the social sciences (Epstein, 1999; Gilbert & Troitzsch, 2005), can draw upon empirical prompt-response data in simulating critical points at which personalised pleasure suddenly shifts to confusion or dissonance. In addition, mixed-method explainability audits combining algorithmic interpretability methods like SHAP or LIME (Ribeiro et al., 2016) with phenomenological research (Weick, 1995) have the potential to deliver deeper insights not just on what GenAI suggests but on how travelers process these suggestions cognitively and affectively.

In reality, answering these questions requires a joint effort combining several disciplines. Information systems provide tested and proven models related to socio-technical

governance (Leonardi & Barley, 2008); marketing provides deep insights into customer journey complexity (Lemon & Verhoef, 2016; Machado et al., 2025); psychology-based frameworks provide further interpretations through emotion regulation theories (Gross, 2015); innovation research offers rich knowledge on technology adoption and participation within ecosystems (Chesbrough, 2003); and computer science ethics provides detailed methods for evaluating algorithmic bias (Jobin et al., 2019). Tourism scholars who draw upon these multi-discipline insights place their work on par with what George et al. (2016) define as “grand challenge” research—an inquiry combining academic rigor and societal relevance and transformative effect.

In summary, by systematically expanding its theoretical worldview and adopting a pluralistic stance, tourism research can act as a vibrant laboratory for experiments seeking to answer our most burning technological questions: Who actually brings tourism experiences to life in an age distinguished by generative intelligence? How are cultural values continuously negotiated and contested through algorithms? And crucially, how can global sustainability be embedded within the very digital infrastructures now orchestrating global tourist mobility?

## 3 STATE OF THE ART MAPPING (2018–2025)

Although research on generative or large-scale AI remains at a nascent stage compared to traditional recommender systems research, recent developments clearly demonstrate an emerging three-stream architecture reflecting GenAI's increasingly active role in tourism (illustrated in Figure 1). The first stream focuses on pre-trip decision-making, documenting the evolution from simple scripted FAQ bots towards sophisticated, large language model-driven itinerary “co-authors.” These AI-driven agents actively engage with travelers, shaping trip decisions through collaborative, conversational interactions. A second stream emphasises GenAI's real-time, in situ augmentation capabilities, highlighting multimodal models that power digital concierges, instantaneous translation services, and emotionally attuned augmented reality experiences. Here, GenAI directly impacts tourists' experiences by influencing their perceptions and engagement levels in an active way. The third stream, which is imperceptible to tourists, examines enhancements of back-office processes, where generative technologies like GPT-powered demand forecasting and reinforcement learning-based staff scheduling actually improve tourism services in a stealthy way.

This critical examination goes beyond a cursory chronicle, pointing out particular presumptions in the extant literature. Empirical research on a regular basis targets pilot projects based in data-rich, English-speaking urban areas, thus overlooking relevant rural and Global South settings. Moreover, study designs currently emphasise positivist measures of performance, which ultimately degrades the prominence of ethnographic and longitudinal approaches that can shed light on critical issues surrounding power dynamics, authenticity and culture, and environmental outcomes. Conceptually, much research still represents GenAI as a passive tool, with little consideration for deeper notions of AI agency, possible co-destructive outcomes, and overarching planetary ethical questions. These largely neglected considerations highlight the importance of recognizing GenAI



as an active agent of tourism—a position that is core to the following conceptual debate.

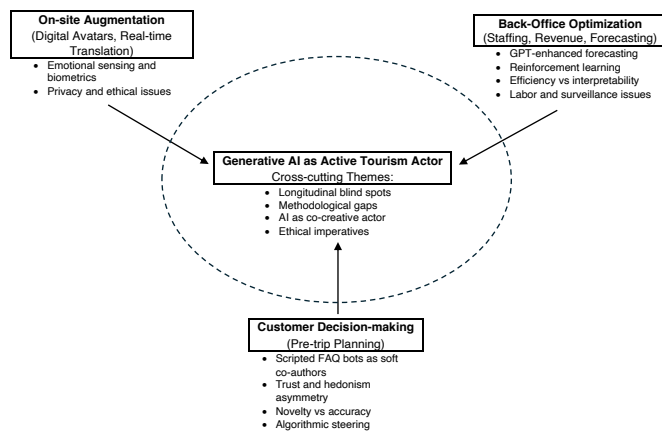


Figure 1. Emerging three-stream architecture reflecting GenAI's increasingly active role in tourism

### 3.1. Consumer decision making: From scripted chat bots to co creative itinerary engines

Early empirical studies on AI in tourism decision-making often relegated conversational interfaces to the role of glorified FAQ repositories. Pillai and Sivathanu (2020) demonstrated that traveler acceptance of hotel chatbots was primarily motivated by perceived usefulness and ease of use, echoing Davis's (1989) Technology Acceptance Model and subsequent refinements such as UTAUT (Venkatesh et al., 2003). These initial chatbots, limited by rigid decision trees, effectively conveyed information but failed to actively shape tourist preferences or foster deeper engagement (Ivanov & Webster, 2019a).

A paradigm shift emerged as natural language processing (NLP) systems powered by deep learning gained traction. Lu, Cai and Gursoy (2019) expanded the acceptance framework by validating a "service robot integration willingness" scale among American travelers, revealing trust and hedonic enjoyment—not merely utility—as critical determinants of AI acceptance. This shift toward more emotionally and experientially anchored acceptance criteria aligns with findings by Ivanov and Webster (2017) within European hospitality contexts, indicating a transition from utilitarian interactions to richer, experiential co-design possibilities.

The availability of publicly accessible foundation models has greatly accelerated this development. Ivasciuc, Candrea, and Ispas (2025) together with Ghesh, Alexander, and Davis (2024) compared tour itineraries generated by GPT with those composed manually. Their study reveals a general tendency towards AI recommendations despite instances of factual errors and logistical errors, the latter corresponding to wider critiques expressed by Bender et al. (2021) that view large language models as "stochastic parrots" that favor plausible reasoning over factuality and, by extension, highlight an inherent tension between creativity and truthfulness in content generated artificially.

Adding to these intricacies, Florido-Benítez and del Alcázar Martínez (2024) used eye-tracking methods to show that recommendations made by generative language models (LLMs) significantly influence users' future online search behavior, thus subtly but conclusively limiting the range of options considered. Such algorithmic guidance finds echoes in the behavioral "nudge" theory of Thaler and Sunstein (2008),

enabled by agents that function in a non-transparent and undisclosed environment.

Despite these developments, current literature is generally focused on individual user engagement with limited examination of broader market impact. Fouad, Salem, and Fathy (2024) are a notable exception, utilizing simulation studies to illustrate how GPT-based platforms significantly increase visibility for urban destinations with rich data. At the same time, equity-oriented scholars like Benjamin (2019) and Noble (2018) caution that datasets may result in racialised or neo-colonial bias in AI-generated narratives in the tourism context; yet, full audits tailored to the tourism sector are extremely uncommon.

Therefore, future studies need to go beyond single behavioral experiments to include tests at the market level as well as in-depth investigations of training datasets (Yu & Meng, 2025). This will enable detailed analysis to ascertain if generative itinerary systems actually enhance the democratisation of tourism or only perpetuate prevailing structural inequalities in the name of personalisation.

### 3.2. On-site augmentation: Digital representations in real time, linguistic translation and emotional recognition

In the field of travel-planning apps, little research has focused on how the application of GenAI (GenAI) affects the actual experience of traveling; however, the technologies do have great transformative potential (Zhu et al., 2024). On-site augmentation, encompassing digital avatars, real-time language translation, and affective sensing, radically redefines travelers' interactions with destinations, deepening immersion and recalibrating cultural encounters (Liu and Hao, 2024). The debut of "digital humans"—photorealistic, voice-responsive avatars—during the 2018 PyeongChang Winter Olympics offered a glimpse into this new experiential landscape (Sylaiou & Fidas, 2022). Korea's MBC's sister channel MBN AI launched an AI anchor, synthesizing highlights instantaneously, exemplified the immediacy and realism now achievable (Korea JoongAng Daily, 2020). Extending these capabilities into heritage contexts, Yovcheva, Buhalis, Gatzidis and van Elzakker (2014) observed a significant increase in visitor recall when historical sites were enhanced with mobile augmented reality (AR), confirming Reeves and Nass's (1996) early theorisation on multisensory memory augmentation.

Subsequent research has been divided into two prominent strands. The first involves interactive avatar concierges. For example, Velasco, Vargas and Petit (2024) demonstrated noteworthy rise in retail conversions through deploying a highly realistic AI sommelier in wineries. However, critical qualitative follow-up revealed visitors mistakenly attributing authority to avatars rather than human experts, resonating with the "media equation" effect—individuals responding socially and emotionally to media agents as if they were human (Nass & Moon, 2000). Moreover, the unsettling realism inherent in these avatars risks falling into Mori's (1970) "uncanny valley," a phenomenon supported by recent empirical evidence, noting how hyperrealistic virtual guides evoked discomfort and skepticism among consumers (Thaler et al., 2021). This effect, extensively substantiated in psychological research, describes a phenomenon whereby agents that closely resemble humans—but possess subtle imperfections—trigger feelings of unease, distrust, or even revulsion (Mathur & Reichling, 2016). In the tourism context, recent empirical studies have identified this same pattern: tourists interacting with highly realistic virtual hosts or guides often report discomfort and



suspicion, particularly when the agents' movements or expressions fall just short of natural human behavior (Alipour et al., 2025). However, comprehensive large-N ethnographic studies remain scarce, leaving the nuanced interactive dynamics between visitors and avatars underexplored (Padricelli et al., 2021). In tourism, where visitor immersion and trust in the guide are critical (Sihombing et al., 2024), these uncanny valley effects are particularly problematic. It is therefore critical that destination managers and technologists find a balanced harmony between realism and subtle abstraction such that AI generative guides promote engagement without creating uneasy overhumanisation that undermines authenticity and detracts from tourists' experiences.

The second refers to real-time linguistic mediation. Developments like OpenAI's Whisper mark the dawn of an age of seamless translation with the potential to overcome conventional communication barriers. Graham and Roll's (2023) research has already proven that Whisper's performance can compare favorably with that of human interpreters in transactional conversations; there are still significant weaknesses, however, in its rendering of idiomatic expressions and culturally rich metaphors. In accordance with Cronin's (2013) timely warning, machine translation is prone to trade-off core "contextual thickness," thus threatening insidious cultural nuances that are vital for authentic intercultural understanding. Moreover, as O'Hagan (2016) contends, real-time machine translation risks creating a "false fluency," which can mask underlying power imbalances in cultural exchange—a moral hazard that is largely unaddressed across tourism literature.

A nascent domain, affective sensing, leverages advances in vision-language-action systems to adapt stories in real-time based on affective indicators. Expanding on Picard's (1997) initial work on affective computing, recent practical applications show great promise. Liu and Shin (2025, in press) introduce an augmented reality prototype that adapts story tempo to fit with tourists' face expressions and thus effectively encourages affective engagement. However, widespread biometric monitoring caused by this technology poses real privacy concerns. Drawing on Solove's (2006) taxonomy of privacy harms, we can see these technologies pose serious risks around "aggregation" (capturing large-scale personal emotional information) and "exclusion" (changing access on basis of affective state); however, strong debate on regulatory control is noticeably absent within tourism research (Yeung et al., 2019).

Within these different fields of augmentation two main knowledge gaps arise. Firstly, there is a significant gap in longitudinal research on the long-term cultural implications of narratives constructed through artificial intelligence. Do repeated exposures to algorithmically curated content promote cultural literacy, or does it constrain interpretative skills by creating echo chambers through algorithms (Zuboff, 2019; Milan & Tréré, 2019)? Secondly, environmental implications are too commonly ignored; as edge inference technologies lower latency, they migrate computational complexity to consumer devices and thus consume more power and conflict with sustainability goals related to sustainable tourism (Luccioni et al., 2023; Morley, Widdicks, & Hazas, 2021).

Explaining these complexities involves using multi-method research designs that include ethnographic inquiry, assessments of energy footprints, and translation critical analyses, thus exhaustively studying how GenAI redefines the

concept of "being there" as digitally co-crafted cultural interactions.

### **3.3. Back-office operations optimisation: Personnel management, revenue optimisation, and demand forecasting**

While avatars and chatbots mesmerise popular imagination in the context of tourism business, it is arguable that more profound operational changes wrought by GenAI merely occur at more subtle levels. The earliest approaches toward automating work initially concentrated primarily on physical and tangible service robots. Ivanov and Webster (2017) had solid evidence demonstrating economic viability through the use of relay robots as replacements for hotel night-shift receptionists, especially for geographies that continue to face ongoing understaffing. Ivanov (2020) also drew similar conclusions on cost savings while also discussing concerns about a possible long-term dependence on robotic solutions. However, as attention moved from physical to virtual systems in the metaverse era (Assiouras et al., 2024a, 2024b; Sousa et al., 2024), algorithmic management became the prime driving force for improved productivity.

Early algorithmic methods, including dynamic pricing models, achieved quantifiable but limited quality improvement. Significant room yield gains were experienced due to fairly simple AI-based pricing processes by Guo et al. (2023). Nevertheless, the use of complex reinforcement learning methods based on fundamental revenue management paradigms conceived by Talluri and van Ryzin (2004) has significantly supplemented these benefits. New evidence by Tuncay et al. (2023) suggests that reinforcement learning models can currently improve on complex pricing schemes on their own above and beyond static or conventional heuristic models developed with this aim by a wide margin but at a cost of diminished transparency and interpretability (Molnar, 2022).

Demand forecasting is an ever more dynamic domain in the context of AI-driven innovation. Conventional ARIMA methods had been dominant until the revolutionary introduction of attention-based neural networks directly inspired by the landmark Transformer architecture introduced by Vaswani et al. (2017). In their research, Law et al. (2019) employed such neural networks to predict tourist arrivals in Macau, and they reported considerable improvements in terms of accuracy by decreasing mean absolute percentage errors by about 12%. Meanwhile, Menzel et al. (2022) demonstrated the considerable predictive power involved in leveraging Google Trends coupled with gradient boosting algorithms, uncovering COVID-19-related demand shocks weeks in advance of official public health announcements. The Long Short Term Memory deep learning artificial neural network by Polyzos Samitas and Spyridou (2020) stressed the need for adaptive forecasting models proficient in identifying and responding to "black swan" events, a persistent weakness identified in conventional methodologies (Taleb, 2007).

Despite such advances, there exist serious operational and ethical issues. The use of energy, hitherto ignored, has quickly grown as a top priority. Strubell, Ganesh, and McCallum (2019) estimated that training a single Transformer model generates carbon footprint equaling several transatlantic flights. Additionally, Patterson et al. (2021) highlighted the unexpected spike in energy demands at inference phases of operational deployment and thus posed challenges for tourism organisations regarding their sustainability and net-zero carbon initiatives (Gössling & Higham, 2020).

The implications of back-office AI for the labor market pose considerable challenges. Whereas researchers have reported positive results for the effectiveness of operations scheduling due to the incorporation of GPT-based occupancy forecasting and reinforcement learning roster systems (Pitakaso et al., 2025), such results contrast sharply with increasing concerns for the workforce. Nurski and Hoffman (2022) reported high levels of employee fear stemming from algorithmic monitoring, skill loss, and reduced autonomy—such results are consistent with more general concerns about "digital Taylorism" and increasing job-related insecurity (Kirchner et al., 2023). Consistent with such concerns, the International Labour Organisation (ILO, 2021) released a serious warning that unregulated algorithmic management systems threaten decent work standards, strongly calling for increased transparency and the implementation of human oversight mechanisms. Therefore, future studies must create integrated frameworks that relate financial outcomes to strict environmental life-cycle analysis and ethnographic research into the real-world experiences of AI-managed workforces. This will guarantee that the benefits accruing from GenAI align with genuine human dignity and accountable environmental stewardship.

### 3.4. Synthesis: Cross-stream reflections

An examination of the growing literature on consumer decision-making, on-site enhancement, and back-office process improvement indicates a salient similarity: current understandings rely overwhelmingly on brief, isolated pilot experiments that last no more than a few months. These experiments thus fail the longitudinal rigor necessary to identify significant effects on large-scale systems (McKercher & Prideaux, 2014). Such research tends to emphasise immediate impacts without considering long-term sustainability factors related to resident welfare, cultural authenticity, or the environmental impacts related to tourism activity (Brouder, 2020). While there is global tourism emissions account by Lenzen et al. (2018) and mobility after COVID-19 projections by Gössling, Scott, and Hall (2021) with larger temporal horizons, these large-scale models neglect integration with research projects on GenAI and thus limit our understanding of long-term sociocultural and environmental implications.

A foundational constraint lies in the ontological assumptions underlying contemporary research on GenAI (Pernecky, 2023). Much of the scholarly literature on tourism still portrays GenAI technologies as utilitarian or passive devices and not as relational actors capable of dynamically influencing interactions and experiences within tourism environments (Fouad et al., 2024). Only a small number of early-stage pioneering contributions have set out to acknowledge GenAI as distributive agents embedded within the socio-material assemblages of tourism. For instance, Cassani et al. (2024) examine the development and deployment of a GenAI-driven "local auntie" avatar in Italy, which takes on an active advising role within tourists' decision-making processes—illustrating how avatars can act as authoritative hosts within authentic environments. This work highlights how the avatar can contextualise travel behaviors and cultural meanings and challenge deterministic theories reducing tourism technology to plain functionalisation (Cassani et al., 2024). Similarly, Liu, Ge, and Wang (2025) present *Vaiage* as a multi-agent system composed of agents founded on large language models (LLMs) working together to plan trips—grounding tourists' experiences through group decision-making. In this setup, AI

agents work together to overcome budgetary, temporal, and weather-based constraints, thus acting autonomously as opposed to carrying out tasks. These solutions encapsulate a trend toward distributive agency, where GenAI agents engage actively with tourists' experiences and decision-making and resemble paradigms found within Actor-Network Theory perspectives on non-human actors as key participants among complex networks (Latour, 2005). Nevertheless, more robust theoretical examination of these relational patterns is largely left unexplored and provides further evidence supporting Floridi's (2016) premise that neglecting AI's moral and ethical agency narrows and simplifies academic thought.

Methodologically, the discipline of tourism is showing early signs of embracing a broader pluralism, including novel applications of eye-tracking technology for measuring visual attention (Wang et al., 2024), the introduction of SHAP-based explanatory techniques to neural network forecasting (Wu et al., 2025), and the application of biometric devices to measure emotional involvement (Walters et al., 2023). These positive methodological developments, however, are largely found in specialised empirical research, while basic techniques like full AI auditing (Raji et al., 2020) and analysis of normative frameworks (Mittelstadt et al., 2016) are largely absent in the existing literature within the tourism field. Without strong interdisciplinary triangulation—combining quantitative prediction with qualitative evaluation and normative analysis—the research field of tourism is in danger of perpetuating a "black box society," where impenetrable metrics veil the underlying power structures and biases (Pasquale, 2015).

Future research is therefore confronted with three major interdisciplinary challenges. First, hybrid governance structures blending artificial intelligence and human supervision must include clearly stated norms on human oversight, thus ensuring human engagement is "in, on, and above the loop" (Cummings, 2014). Second, generative prompts management across cultures requires uniform documentation practices, including model cards and datasheets (Geburu et al., 2021; Mitchell et al., 2019), as well as shared libraries for prompts (Benjamin, 2019), to actively anticipate and address issues pertaining to algorithmic colonialism (Couldry & Mejias, 2019). Thirdly, the environmentally sound deployment of GenAI requires thorough life-cycle analyses (Patterson et al., 2021) that align with region-based climate targets enshrined in international agreements like the Glasgow Declaration (UNWTO, 2021).

It is necessary to put forward broad theoretical and empirical collaborations that bridge tourism inquiry and broader explorations of socio-technical governance (Leonardi & Barley, 2008), research on artificial intelligence ethics (Jobin et al., 2019), and models of planetary sustainability (Rockström et al., 2009). These collective approaches, both interdisciplinary and integrative, are not just beneficial enhancements but basic necessities for ensuring the relevance of tourism research within today's context shaped by GenAI.

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## 4 AN INNOVATIVE OVERALL APPROACH: THE SYNTHETIC EXPERIENCE SYSTEM

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To further integrate and build on the theoretical foundations and empirical developments outlined in this research, we introduce a new integrative approach called the Synthetic Experience System (SES). Unlike previous understanding that

largely portrayed GenAI as fundamentally passive technological enablers (Ivanov & Webster, 2019a; Neuhofer et al., 2015), SES provides a new way of thinking that situates GenAI as an active and engaged actor in the tourism ecosystem (Giannopoulos et al., 2020). This understanding complements Actor-Network Theory (Latour, 2005), where the ability of non-human actors to demonstrate substantial agency in relational networks is highlighted.

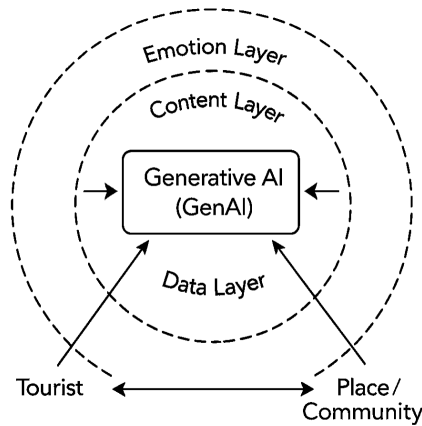


Figure 2. The Synthetic Experience System (SES) as a triadic framework

The SES framework places GenAI at the center of a three-way interactive dynamic involving the Tourist, GenAI, and Place/Community (Figure 2). Instead of acting merely as a transaction facilitator or information conduit, GenAI actively engages with tourists and local communities through co-production processes that fundamentally transform and reimagine tourism experiences, cultural representations, and meanings assigned to destinations (Ren, Jóhannesson, & van der Duim, 2017; Tribe & Mkono, 2017). For example, GenAI systems have the ability to automatically produce complex cultural accounts, alter itineraries based on emotional analysis, or change content in response to real-time environmental factors, thus taking on a central role in the continued development of the tourist experience (Buhalis & Sinarta, 2019; Gretzel et al., 2020).

At the heart of the SES construct lies a triangular structure of three interconnected dimensions—data, content, and emotion—each supporting unique but complementary types of immediate access and responsiveness. The data dimension allows GenAI to accumulate and evaluate vast amounts of contextual and individualised data, such as but not limited to meteorological status, traffic patterns, individual interests of visitors, and past visitation patterns (Fuchs et al., 2014). The continuous integration of such information creates unprecedented levels of personalisation; however, it also raises huge governance and privacy issues, as sensitive personal and biometric material relating to visitors is repeatedly harvested and analysed (Solove, 2006; Zuboff, 2019).

The content layer demonstrates the potential of GenAI to create compelling stories embedded in their social contexts and going beyond information transmission, affecting travelers' emotional and cognitive reactions (Sigala, 2018; Tussyadiah, 2020; Lee et al., 2023). Moreover, this layer also poses substantial questions concerning authenticity and maintenance of intangible and tangible forms of cultural heritages. Algorithm-generated stories can inadvertently misrepresent local histories or perpetuate stereotypes and thus highlight the imperative for accountability within algorithmic steps and

safeguarding cultural heritages (Benjamin, 2019; Cohen & Cohen, 2019). In summary, affective computing has an inherent connection with the emotional sphere via the use of real-time biometrics and sentiment analysis, thus enabling the tailoring of tourism content and experiences in line with tourists' emotional states (Picard, 1997; Tussyadiah & Park, 2018). Even though these adaptive affective features have the ability to improve the quality and personalisation of experiences, they simultaneously elicit ethical issues related to surveillance, emotional manipulation, and mental autonomy, and thus require the development of stringent ethical standards and regulatory regimes (Yeung et al., 2019). Overall, SES is a revolutionary reorganisation of tourism experiences, relocating GenAI from being a simple passive tool to an active force with important socio-cultural, ethical, and operational implications. Subsequent empirical research utilizing SES should include mixed-methodological designs that combine ethnographic research, assessments of algorithmic accountability, and longitudinal analysis, with complete examinations of the interrelated dynamics between these entities, thus supporting an equitable, culturally responsive, and sustainable integration of GenAI into the tourism economy.

#### 4.1. Triadic structure: Linkages between tourists, GenAI, and place/community

Tourism research has hitherto described technology as a passive enabler that facilitates interaction between host communities and tourists without fundamentally changing the nature or agency of the interaction (Neuhofer et al., 2015). Contrary to this conventional view, the SES framework challenges and develops this notion by expressly recognizing GenAI as an active agent with distributed agency. Rather than acting merely as passive tools, GenAI applications are dynamic agents that are constantly building and rebuilding tourism structures through iterative processes of value co-creation and negotiation (Leonardi, 2011; Orlikowski & Scott, 2008; Vargo & Lusch, 2016).

The contemporary recontextualisation aligns with widespread theoretical changes pervasive throughout multiple academic disciplines, particularly within sociomaterial approaches and actor-network theory. These theories recognise the considerable relational agency held by non-human actors, including algorithms and artificial intelligence (Latour, 2005; Ren et al., 2018). SES expressly integrates such theoretical advances through a triadic, reciprocally influential interaction between the Tourist, GenAI, and the Place/Community. In this framework, each element dynamically affects the others through real-time adaptive feedback processes. Such interactions take place throughout three interlinked layers, as explained below.

##### Data layer

At this base level, GenAI systematically gathers and processes a wide range of real-time contextual data (e.g., meteorological conditions, crowding levels, and local events) together with in-depth personal and biometric data of tourists (e.g., past behaviors, expressed preferences, and emotional states). This combination of data enables the creation of sophisticated and highly personalised alterations of tourism services and experiences (Li et al., 2013; Xiang et al., 2015). Despite these considerable benefits, ethical and privacy issues, notably around data commodification and the dynamics of surveillance capitalism, echoing concerns raised by critical theorists such as Zuboff (2019) and Acquisti, Brandimarte, and Loewenstein

(2015) permeate this level. Such threats highlight the necessity of stringent regulatory frameworks and open data governance practices for safeguarding tourists' privacy and autonomy.

### **Content layer**

The content generated in the SES goes beyond typical static or script-based narrative approaches, as it actively participates in the creation of resources sensitive to cultural relevance, contextual sensitivity, and interactive creativity. Examples of these outputs include tailored travel advice, personalised storytelling experiences, and real-time language translation sensitive to local customs, cultural nuances, and distinctive circumstances encountered by tourists (Buhalis & Sinarta, 2019; Tussyadiah & Park, 2018). These innovative features, however, also pose complex challenges regarding cultural authenticity, the uncertainty of authorship, and the risk of reinforcing or normalizing dominant cultural narratives, especially when the training datasets are biased or distorted (Crawford, 2021; Couldry & Mejias, 2019). This implies constant supervision and thorough intercultural analysis to maintain cultural integrity and provide fair representation.

### **Emotion layer**

An examination of the inherently affective nature of tourism (Urry & Larsen, 2011) reveals that GenAI utilises real-time affective computing capacities—like facial emotion detection, sentiment analysis, and biometric monitoring—to continuously streamline service provision and narrative creation. The fusion of these technologies holds the promise of enhanced personalisation and heightened guest satisfaction (Andrejevic & Selwyn, 2020; Picard, 1997); yet, these affect-attuned capacities simultaneously heighten ethical dilemmas of emotional manipulation, user privacy and autonomy, and privacy invasion. Mitigating these problems requires the development of rigorous ethical frameworks, participatory governance models, and explicit guidelines to guarantee that responsiveness to emotions does not descend into exploitative or invasive encounters.

By distinguishing clearly GenAI as an active and ethically complex actor within the three-way relationship between tourists, technology, and hosting populations, SES provides a significant contribution to the tourism literature. It provides critical theoretical insights and operational constructs for ethically using GenAI's transformative abilities and addressing ethical challenges carefully, safeguarding cultural authenticity and ensuring equitable interactions.

The theoretical development of the Synthetic Experience System (SES) is strongly supported by its wide-ranging theoretical underpinning in cross-disciplinary literature, coupled with its deliberate incorporation of anticipated empirical evidence in tourism and allied fields. SES synthesises core ideas from service-dominant logic (S-D Logic), actor-network theory (ANT), sociomateriality, and Responsible Research and Innovation (RRI), thus building a coherent theoretical framework that leverages the collaborative and dynamic potential offered by GenAI (Figure 4). S-D Logic (Vargo & Lusch, 2016) emphasises the dynamic and interactive nature of value co-creation in the tourism industry (Assiouras et al., 2023; Giannopoulos et al., 2022; Michael et al., 2025), which is remarkably complementary to SES's emphasis on responsive and adaptive interaction between tourists, GenAI, and tourist destinations. Similarly, ANT's (Latour, 2005) recognition of the agency held by non-human actors also greatly supports SES's argument on the central role to be played by GenAI in shaping and reshaping

tourist experiences. This complementarity is further supported by sociomaterial views (Leonardi, 2011; Orlikowski & Scott, 2008), which prioritise the two-way interaction between technological and social aspects in tourism. Finally, SES explicitly recognises the normative concerns explained in the RRI agenda (Stilgoe et al., 2013), addressing crucial issues related to authenticity, agency, privacy, and sustainability. Accordingly, SES is theoretically sound, empirically well-established, and ethically informed, which makes it well poised to guide future research and practical applications within the field of GenAI-augmented tourism.

The Synthetic Experience System (SES) is an original paradigm that significantly changes the prevailing understandings of the role of technology in the tourist experience, specifically by rethinking GenAI as an autonomous and generative co-participant in the tourist experience. Against the background of earlier approaches to conceptualise technology essentially as additional tools or passive facilitators, SES upholds an outlook placing GenAI in the fore of the ongoing processes of negotiation and co-creation between tourists and indigenous populations. Underpinned by solid cross-disciplinary theoretical pillars, such as Actor-Network Theory (Latour, 2005) and sociomaterial theory (Orlikowski & Scott, 2008; Leonardi, 2011), SES proficiently adapts these theoretical axioms to fit the unique environment of the tourist experience. The approach explicitly takes on the locus of ongoing negotiations between different layers of data, content, and emotional reaction, all carefully crafted to respond to the intricacies of the complex interaction and ethical concerns embedded in the personalisation of the tourist experience through AI.

The comprehensive and multi-faceted system considerably advances and expands the range of prevailing approaches by going past simplistic and lineal recursions of technology-user settings, thus properly fitting the complex relational dynamics in the picture. In addition, the unique character of SES is highlighted through its holistic methodological approach that synthesises analytically distinct areas—technological capability, cultural representation, and ethical regulation—into an integrated whole. This methodological innovation not only resolves theoretical inconsistency but also offers practical guidance for empirical studies through mixed-method approaches. These approaches allow for in-depth examinations of how the dynamic, moment-to-moment interactions between tourists, GenAI, and host communities continuously redefine the meanings and authenticity of the tourism experiences. By actively seeking out and systematically examining important gaps in the tourism literature, SES examines the ethical consequences of algorithmic bias and emotional manipulation, and the often-overlooked long-term cultural and environmental implications arising from the use of GenAI. Through the integration of ethical considerations in its paradigm, SES encourages the equitable and responsible application of GenAI technologies, and thus creates a new paradigm able to guide future tourism research towards more sustainable, equitable, and ethically conscious tourism practices.

## **4.2. Boundary conditions of the Synthetic Experience**

### **Framework**

The Synthetic Experience System (SES), while holding remarkable transformative promise, is bounded by a range of critical ethical, operational, and theoretical complexities, which can be distilled into eight primary boundary conditions.

### ***Authenticity paradox***

Tourists increasingly demand authentic experiences, traditionally characterised by spontaneous, culturally embedded interactions that foster genuine connections with destinations (Scott, 2014; Wang, 1999). Yet, GenAI-generated narratives, despite their sophisticated personalisation, inherently lack spontaneity and cultural immediacy, potentially undermining tourists' trust and authenticity perceptions (Buchmann et al., 2021; Cohen & Cohen, 2019). Indeed, empirical studies have indicated that tourists frequently express skepticism when confronted with artificially curated experiences, fearing a loss of genuine cultural engagement and perceived depth (Kirillova et al., 2017; Mkono, 2013). Consequently, tourism providers must navigate the complex ethical terrain of balancing artificial augmentation against authentic cultural representation, without compromising visitor expectations or eroding the destination's cultural integrity.

### ***Algorithmic bias***

The biases inherent in large-scale training datasets pose significant risks for cultural representation within GenAI applications, often perpetuating stereotypes and inadvertently marginalizing minority voices (Bender et al., 2021; Noble, 2018). Such biases reinforce problematic cultural narratives, intensify racial and gender inequities, and contribute to the systematic exclusion of diverse perspectives (Buolamwini & Gebru, 2018). Empirical evidence from critical algorithmic audits consistently highlights how biased data exacerbate societal prejudices, shaping tourism narratives in ways that distort cultural realities and reinforce colonialist or paternalistic attitudes (Eubanks, 2018; Benjamin, 2019). Mitigating these effects demands rigorous algorithmic transparency, proactive bias assessments, and culturally inclusive training practices that proactively incorporate diverse, representative datasets (Gebru et al., 2021).

### ***Energy consumption and sustainability***

The environmental costs associated with training and deploying large-scale AI models introduce substantial ethical concerns, directly conflicting with global tourism's sustainability commitments such as the Glasgow Declaration on Climate Action in Tourism (GOEssling et al., 2021; Strubell et al., 2021;). Recent lifecycle assessments reveal that GenAI's carbon footprint is significantly greater than previously estimated, making claims of sustainability in tourism highly questionable (Luccioni et al., 2023). Thus, tourism operators must carefully consider the trade-offs between immediate operational gains provided by AI optimisation and the long-term environmental harm inflicted by carbon-intensive computational processes (Hilty & Aebischer, 2015).

### ***Intellectual property rights***

The advent of GenAI content poses serious challenges to traditional intellectual property systems, thus making authorship attribution and rights management processes more complicated (Samuelson, 2023; Wirtz et al., 2018). With continued blurring between human creative work and machine-created content, key legal ambiguities surround content ownership, the dissemination of creative works, and fair remuneration of original human authors who provide source material for AI generation (Gervais, 2019; Yu & Spina Ali, 2019). To address these challenges, intellectual property systems must be reformed to guarantee proper protection for

human creativity, while at the same time outlining the relevant legal obligations related to algorithmically generated content.

### ***Privacy and surveillance***

The significant reliance of SES on the collection of real-time information and the surveillance of biometric indicators substantially increases the potential of privacy breaches and emotional exploitation (Solove, 2006; Zuboff, 2019). As the commodification of tourists' biometric and emotional information continues to expand, concerns are mounting over the effects of surveillance capitalism, where algorithmic models are able to manipulate personal information to create manipulative or commercially damaging encounters (Acquisti et al., 2015; Yeung et al., 2019). As such, there is a pressing need to create stringent regulatory mechanisms and transparent consent procedures in order to safeguard tourist agency and enhance ethical responsibility in the use of affective computing technology.

### ***Labour displacement***

Automated systems fueled by GenAI have the potential to intensify job instability, increase supervisory requirements, reduce job security, and lead to skill depreciation in the tourism industry (Baum, 2015; Ivanov & Webster, 2019b). Empirical research indicates the paradoxical trend: while the efficiencies of AI deployment are significant, they are often accompanied by decreased worker autonomy, increased job insecurity, and reduced professional fulfillment due to a phenomenon known as "digital Taylorism" (Brynjolfsson & Mitchell, 2017). Therefore, organisations operating in the tourism industry have important ethical responsibilities that require governance structures prioritizing bringing technology into a human-centered setting, implementing skill retraining programs, and inclusive employee participation in AI-influenced contexts (Autor, 2015).

### ***Cultural representation and erasure***

Content created by generative artificial intelligence poses great risks in perpetuating dominant narratives, sidelining minority cultures, and leading to cultural erasure or digital colonialism (Coudry & Mejias, 2019). Several studies have consistently shown that algorithmically generated content privileges dominant cultural viewpoints, which can reduce the authenticity and visibility of marginalised voices (Benjamin, 2019; Milan & Treré, 2019). It is therefore critical for tourism research and industry actors to pursue culturally inclusive design with due diligence and actively curate algorithmic outputs in a bid to safeguard intangible heritage and improve the representation of minority communities.

### ***Accountability and explainability***

The probabilistic and opaque nature of GenAI undermines accountability processes, thus bringing in fundamental ethical concerns related to algorithmic transparency and governance (Pasquale, 2015; Mittelstadt et al., 2016). As tourism experiences become increasingly shaped by opaque algorithms, it is imperative to implement strong transparency frameworks—such as "model cards" and explainability protocols—that enable stakeholders to critically interrogate the processes underlying algorithmic decision-making (Floridi & Cowsls, 2019; Mitchell et al., 2019). Clearly establishing pathways for accountability is critical to maintaining public trust, ethical oversight, and sustainable governance of technological practices in tourism ecosystems.

By stating these boundary conditions, SES provides a holistic analytical framework for investigating the complex ethical,

cultural, environmental, and socio-economic implications of GenAI in the tourism industry. It highlights the need for interdisciplinary collaboration and rigorous, transparent governance practices, which are critical to advancing sustainable and equitable technological advancement.

### 4.3. Theoretical and practical implications

The Synthetic Experience System (SES) calls for a fundamental reorientation of the underlying theoretical paradigms to successfully accommodate artificial intelligence (AI) as an active and relational co-participant, as opposed to a passive technological facilitator, in the realm of tourism studies. Of the main paradigms, S-D Logic is particularly relevant, having traditionally focused on human-centric value co-creation activities (Vargo & Lusch, 2016). The SES paradigm significantly develops S-D Logic by retheorizing GenAI as an active and contributory actor with the capacity to make independent contributions and decisions, thus taking part in co-creation independently instead of merely enabling service co-creation (Chandler & Vargo, 2011). This paradigmatic development calls for the recognition of algorithmic entities as legitimate co-creators, thus disrupting entrenched anthropocentric viewpoints and delineating the analytical framework needed to explain increasingly complex, AI-mediated interactions in the tourism (Andreassen et al., 2018; Breidbach & Maglio, 2016).

Actor–Network Theory (ANT) is a systematic approach to explaining the relational dynamics within socio-technical assemblages (Latour, 2005; Callon, 1986); yet, it is subject to significant conceptual developments necessary to properly address the fluid and adaptive nature characteristic of GenAI systems. Historically, ANT has focused its energies on fairly persistent interactions between human and non-human actors; SES approach, on the contrary, highlights a more dynamic and rapidly evolving nexus of interdependencies. The immediacy of response and iterative adaptability characteristic of GenAI call for a refocusing of ANT's methodological tools toward greater dynamism, as well as to robustly capture ephemeral and continually renegotiated agreements among tourists, AI systems, and host communities (Leonardi, 2011; Orlikowski & Scott, 2008; Ren et al., 2018). Therefore, ANT's use in tourism contexts that entail algorithmic decision-making highlights the urgent need for refined, temporally-aware analyses capable of following AI-facilitated interactions across a range of complex environments (van der Duim et al., 2017; Kitchin, 2017).

Additionally, the SES framework surpasses and complements the idea of Responsible Research and Innovation (RRI), thus expanding the use of anticipatory and reflective approaches to methodology (Stilgoe et al., 2013). Traditional approaches to RRI focus on inclusion and ethical control, but they tend to ignore the worldwide implications inherently linked to the infrastructures of data for artificial intelligence and the subsequent environmental effects. Therefore, the SES approach aspires to alleviate this deficit through the inclusion of digital ethics and algorithmic environmentalism, highlighting the significant carbon footprint and power requirements of the training and deployment of large generative models (Floridi & Cowls, 2019; Patterson et al., 2021). Recent assessment studies have unveiled the hidden environmental consequences of artificial intelligence, highlighting the urgent need to integrate environmental factors into the governance of tourism technology (Crawford, 2021; Luccioni et al., 2023).

The SES framework thus provides Destination Marketing and Management Organisations (DMMOs) or simply Destination

Management Organisations (DMOs), technology companies, and policymakers with a structured but flexible approach to proactively address the intricate ethical, normative, and environmental challenges involved in the application of GenAI to the tourism industry. It is imperative that DMOs take the lead in developing inclusive programs to enhance AI literacy, hence empowering stakeholders to understand, evaluate, and properly impact AI-informed tourism experiences (Long & Magerko, 2020). Furthermore, policymaking initiatives should shift from being largely reactive to creating open regulatory frameworks, algorithmic accountability mechanisms, and culturally sensitive oversight, hence ensuring that AI application is in alignment with higher societal values and the priorities of sustainable tourism (Jobin et al., 2019; Mittelstadt et al., 2016).

In addition, it is critical for technology developers to prioritise inclusive and participatory design practices when working on artificial intelligence development purposes, intentionally involving diverse traditionally marginalised stakeholder groups. Proper cultural representation during the prompt development phase and caution in the selection of training data is crucial to reduce inherent algorithmic bias, avoid harmful cultural stereotypes, and ensure fair representation in host communities with diverse populations (Benjamin, 2019; Buolamwini & Gebbru, 2018). Applying participatory approaches not only enhances algorithmic fairness and cultural validity but also ensures public trust and acceptability of AI-empowered tourism technologies.

In summary, SES views GenAI as a proactive, ethically conscious, and indispensable partner in the dynamic triadic relationships among tourists, technology, and host societies. This integrated model shows a great potential for theoretical and practical advancements, calling for responsible innovation, cultural sensitivity, fair representation, and environmental sustainability—thus preparing tourism stakeholders to better navigate the AI era.

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## 5 RESEARCH AGENDA: 15 HIGH-IMPACT RESEARCH PROPOSITIONS ACROSS 4 ANALYTICAL LEVELS

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To guide the future trajectory of GenAI research in tourism, we outline a structured agenda comprising fifteen high-impact research propositions (RPs) across four analytical levels (Figure 3): micro (tourist cognition, wellbeing), meso (firm capabilities, workforce), macro (destination governance, policy), and planetary (environmental impacts and regenerative tourism synergies). Each question is paired with a suitable methodological approach drawn from established tourism and related literatures.

### 5.1. Micro-level (tourist cognition, wellbeing)

At the micro-level, the research agenda specifically targets critical gaps surrounding individual tourists' psychological, cognitive, and emotional responses to GenAI interventions. Each high-impact question emerges from rigorous consideration of how AI fundamentally reshapes the cognitive and emotional landscape of tourism consumption, building on established psychological theories and empirical studies from fields including cognitive psychology, affective science, and cross-cultural communication.

**RPI.** *How does GenAI-enhanced personalisation shape tourists' cognitive biases and decision-making heuristics?*



This question addresses a fundamental tension: personalisation intended to simplify decision-making can paradoxically entrench biases and limit exposure to diverse options (Kahneman, 2011; Thaler & Sunstein, 2008). Building on classic works on heuristics and cognitive biases (Tversky & Kahneman, 1974), this inquiry calls for rigorous experimental psychology approaches, including eye-tracking studies, to quantify precisely how tourists process personalised recommendations and whether GenAI exacerbates confirmation bias, anchoring effects, or choice overload (Gigerenzer & Gaissmaier, 2011).

**RP2.** *What is the impact of emotionally adaptive AI on tourist wellbeing, stress, and experience quality during travel?*

Acknowledging tourism as an emotionally charged domain (Kim & Fesenmaier, 2015), this question explores whether GenAI's capacity for real-time emotional sensing and adaptive responsiveness enhances or harms psychological wellbeing. Although biometric sensing methods and ethnography have been previously employed in tourism studies to assess visitor stress (Bigné, Mattila, & Andreu, 2008; Doan Do et al, 2024), these methods have yet to examine the complex interactions between human emotions and adaptive AI systems explicitly. This research gap becomes crucial to address as algorithmic systems increasingly mediate personal and emotional aspects of tourism experiences.

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**RP3.** *To what extent does prolonged exposure to AI-generated narratives affect tourists' perceptions of cultural authenticity and destination identity?*

Drawing on a large existing research base in relation to authenticity (Cohen & Cohen, 2019; Rickly & Vidon, 2018), the current paper focuses on the effect of repeated exposure to artificial narratives on tourists' understanding of culture, which can influence directly their appreciation of and consumption of authentic local culture. A qualitative longitudinal research approach using semi-structured interviews is well-suited to follow subtle changes in tourists' attitudes and, by implication, to evaluate likely long-lasting impacts on identity formation, cultural meaning, or alienation experiences due to habitual consumption of algorithmically generated content.

**RP4.** *How does real-time artificial intelligence translation enhance intercultural understanding rather than promote cultural homogenisation?*

The core question carries profound implications for linguistic anthropology, distilling the idea that translation is always situated within cultural contexts and determined by particular conditions (Cronin, 2013; Pym, 2014). This research explores the paradoxical reality in which instant AI translation can provide intercultural communication while also imposing culturally homogenous models that reduce the subtleties and complexities necessary for genuine understanding. To clarify these complex impacts, it is necessary to pursue cross-cultural experimental studies and linguistic ethnographic research to determine if AI-facilitated language mediation enables meaningful intercultural empathy or instead inadvertently perpetuates cultural stereotypes and simplifications.

## 5.2. Meso-level: Firm capabilities and human resource dynamics

At the meso level, the focus of this research effort is directly on organisational capabilities, staff interactions, and the far-reaching operational consequences of integrating GenAI into tourism businesses. Each suggested high-impact research proposition arises from the need to critically examine how GenAI intersects with human agency, organisational structures, and evolving consumer trust, addressing pressing gaps identified in recent organisational and management research.

**RP5.** *How can tourism firms effectively integrate GenAI into their existing service ecosystems without compromising human skill development?*

This question addresses the critical tension between technological advancement and workforce sustainability, highlighting the risk of deskilling and the erosion of professional competencies amidst AI integration (Autor, 2015; Fleming, 2017). Tourism contexts are particularly susceptible to rapid automation-induced shifts, given the industry's labour-intensive (Avlonitis & Giannopoulos, 2012; Michael & Fotiadis, 2022) and interpersonal nature (Ivanov & Webster, 2019b). Thus, longitudinal case studies and qualitative analyses are necessary to reveal how sustained GenAI

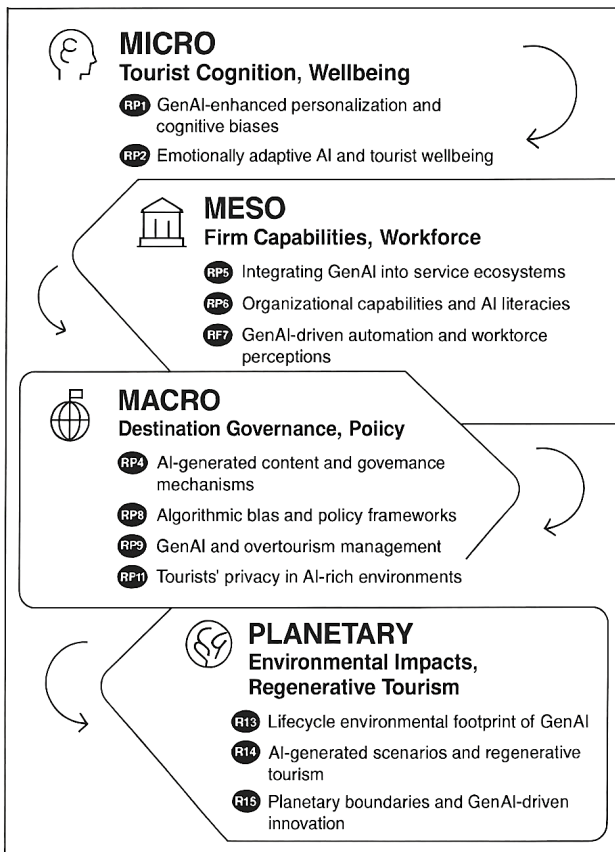


Figure 3. Research agenda: Fifteen (15) high-impact research propositions across four (4) analytical levels

**RP2.** *What is the impact of emotionally adaptive AI on tourist wellbeing, stress, and experience quality during travel?*

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deployments might reshape employees' skill trajectories, emphasizing models of human-AI complementarity rather than substitution (Davenport & Ronanki, 2018).

**RP6.** *What organisational capabilities and AI literacies do tourism enterprises need to manage generative systems ethically and effectively?*

While technological adoption frameworks emphasise readiness and capability building, managing GenAI ethically introduces additional complexity, requiring nuanced understanding beyond traditional digital competencies (Leonardi & Neeley, 2022; Christou et al., 2025). Recent literature underscores the urgency of developing organisational literacies that encompass not only technical proficiency but also ethical foresight, interpretive capabilities, and robust governance practices (Westerman et al., 2014). Employing mixed-method organisational studies combining qualitative interviews and quantitative surveys can systematically uncover the critical capabilities needed to ethically operationalise GenAI, thereby enabling proactive, responsible innovation within tourism firms (Baum, 2015; Morley et al., 2021).

**RP7.** *In what ways does GenAI-driven automation influence workforce perceptions of job satisfaction, precarity, and professional identity?*

This question directly follows from the growing discussion on the psychosocial implications of workplace automation, including job insecurity, diminished autonomy, and changing professional identities (Brynjolfsson & Mitchell, 2017; Frey & Osborne, 2017). Employees in the tourism industry are particularly vulnerable to these changes because of the precarious work arrangements and the high emotional labor demands typical for the sector (Hochschild, 2012). Ethnographic and mixed-method investigations of the workforce have the potential to clearly explain how workers perceive and cope with artificial intelligence-driven automation, thus offering important insights into sustaining healthy work environments and retaining dignity and meaningful work amidst technological progress.

**RP8.** *How do tourists perceive firm credibility and trust when experiences are co-created by GenAI versus human staff?*

This field of research study examines the implications of incorporating GenAI on perceived authenticity and trust of consumers—factors pivotal in service-intensive tourist settings (Lu et al., 2019; Mayer et al., 1995; Nechoud et al., 2021). Since there is extensive literature portraying the high level of consumer receptivity to service authenticity and trust-based relationships (Grayson & Martinec, 2004), experimental scenario approaches along with systematic survey research are necessary to carefully test tourist consumers' reactions to situations where they are working alongside AI.

### 5.3. Macro-level: Destination governance and policy framework

More broadly, the research agenda directly addresses governance and policy issues stemming from the integration of GenAI into destination-level strategies. These research propositions arise from perceived shortcomings in understanding the complex interplay between technological innovation, cultural representation, visitor management, and ethics across different scales of destinations.

**RP9.** *How can destination management organisations (DMOs) establish effective governance mechanisms for AI-generated content and cultural representation?*

This question arises from the critical understanding that DMOs traditionally serve as custodians of cultural authenticity and image management (Bui et al., 2024) yet currently lack adequate governance models for AI-generated outputs. Prior research underscores that ungoverned AI-generated content may risk trivializing or misrepresenting local cultures, causing long-term reputational damage (Zhu et al., 2024; Luong, 2024; Lan et al., 2025). Employing comparative case studies and detailed policy document analysis, research here aims to identify best practices and critical governance frameworks that DMOs can adopt to manage AI-mediated cultural representations responsibly and ethically, thereby preserving destination authenticity and integrity (Dangi & Jamal, 2016).

**RP10.** *What policy frameworks are required to mitigate algorithmic bias and discrimination embedded in GenAI applications at a destination level?*

The necessity for this inquiry originates from established concerns surrounding systemic biases embedded in algorithmic decision-making processes, notably influencing destination branding (Giannopoulos et al., 2021; Csapó & Kusumaningrum, 2025) and visitor experiences through discriminatory practices (Noble, 2018; O'Neil, 2016). Given documented cases of algorithmic bias influencing tourism marketing and destination portrayal, critical policy analysis and rigorous algorithmic audits become essential tools for proactively identifying, mitigating, and preventing biases that perpetuate racial, cultural, or socio-economic inequities. Research outcomes would ideally inform concrete policy frameworks to foster equitable and inclusive AI governance practices at the destination scale (Eubanks, 2018).

**RP11.** *How can destinations responsibly use GenAI to balance visitor flow and successfully mitigate the impacts of badly-managed tourism?*

This question draws on extensive literature across academics on overtourism and the need for sustainable approaches to managing tourist numbers (McKercher & Prideaux, 2014). The predictive potential of GenAI can enable dynamic and real-time management of tourist movement, thus mitigating overcrowding and environmental degradation concerns (Bollenbach et al., 2024; Viñals et al., 2024). However, the ethical use of the tools requires advanced understanding of visitor behavior patterns (Misirlis et al., 2021), related trade-offs, and potential unintended effects (OECD, 2024). Agent-based simulation and scenario modeling offer solid tools for evaluating and projecting the efficacy of GenAI in real-life visitor management situations (Bollenbach et al., 2022), enabling DMOs to create forward-thinking, data-led strategies balancing the benefits of tourism and the demands of sustainable management (Koens et al., 2018).

**RP12.** *What regulatory steps should be taken to protect the privacy and autonomy of tourists in artificial intelligence-enhanced environments?*

The relevance of the study arises from mounting concerns of privacy erosion and violations of personal liberties due to large-scale data gathering and artificial intelligence monitoring in the tourism industry (Nissenbaum, 2010; Zuboff, 2019). It is necessary to use privacy impact assessments in conjunction with participatory governance models to maintain tourist control of personal data and informed consent. An in-depth

analysis of such regulatory measures can shed light on the way in which tourist areas can efficiently balance privacy protection, visitor agency, and technology, thus enhancing ethical regulation of tourism in the modern technology-driven environment (Wachter et al., 2017).

#### **5.4. Global framework: Carbon emissions, sustainable and regenerative tourism**

The planetary agenda clearly outlines the global environmental impacts related to the integration of GenAI into tourism systems, in congruence with sustainability science and the exploration of planetary boundaries. Every research agenda arises from an increased awareness of the resource-demanding nature of GenAI and its potential ability to foster regenerative approaches in the tourism industry.

**RP13.** *What are the environmental implications of GenAI adoption in tourism and to what extent can carbon-conscious AI practices be applied appropriately?*

The high-energy requirements for training large-scale artificial intelligence models (Strubell et al., 2019) highlight an important gap in the technology implementation dimensions of the tourism industry's sustainability. Lifecycle analysis (LCA) approaches, as explained by Patterson et al. (2021), provide an organised method for the in-depth consideration of the environmental footprints across the whole lifecycle of AI—covering data processing, model training, inference, and ultimate disposal. Bridging this important gap will provide stakeholders in the travel industry with essential information regarding environmental trade-offs, thus enabling the use of carbon-minimised practices, such as the use of renewable power-based data centers, model architecture minimisation, and the use of localised data hosting mechanisms to limit the production of carbon emissions (Hilty & Aebischer, 2015; Jones, 2018).

**RP14.** *Can AI-generated scenarios effectively facilitate regenerative tourism practices, enhancing environmental rejuvenation at destinations?*

This question aligns with the growing promotion of regenerative tourism that aims not merely to reduce negative impacts but actively contribute to ecological restoration and community wellbeing (Gibbons, 2020; Reed, 2007). In light of tourism's past environmental impacts, it is imperative to examine how AI-driven predictive scenarios can contribute practically towards advancing ecological restoration strategies. The application of participatory action research approaches, combined with ecological scenario modeling, can empirically determine whether AI can effectively support destination stakeholders in realizing restorative results, such as biodiversity recovery, habitat conservation, and socio-ecological resilience enhancement, and consequently address essential knowledge gaps regarding the practical applications of regenerative concepts (Sharpley, 2020; Lariza Corral-Gonzalez et al., 2023).

**RP15.** *Which system changes are needed in tourism value chains to formally include planetary boundaries in innovation strategies led by generative artificial intelligence?*

The planetary boundaries approach, as conceptualised by Rockström et al. (2009), provides a cogent rationale for the deliberate integration of ecological limits into innovation planning. This component of critical research explicitly addresses the urgent need for reframing tourism development around sustainable ecological standards to ensure that innovations do not inadvertently exacerbate existing

environmental issues. The use of systems thinking, coupled with Delphi analysis among sustainability experts, allows for the systematic specification of needed changes across different stages of tourism value chains, including supply chains, resource extraction, transportation, infrastructure construction, and waste disposal. Addressing these systemic changes makes it possible to ensure that the integration of GenAI supports global sustainability goals instead of undermining them (Steffen et al., 2015; Whiteman et al., 2013).

#### **5.5. Expanding horizons: Developing an inclusive framework to explore GenAI in the tourism sector**

The systematic research approach incorporating micro, meso, macro, and planetary levels of analysis is the best way to answer the theoretical gap present in the latest scholarly debate surrounding the use of GenAI, expanding previous research on the tourism ecosystem including the micro, meso, and macro-levels (Giannopoulos et al., 2020, 2021). To the best of our knowledge, the literature is dominated by systematic reviews aggregating early empirical results or in-depth studies of particular generative tools. Academic circles are interested in the use of particular GenAI tools like ChatGPT (Shawal et al., 2017), dealing with the issue of content hallucination (Christensen et al., 2025), and improving recommender algorithms to gain superior accuracy (Kzaz et al., 2025).

Although the existing literature is useful, it largely provides descriptive information that is limited to particular contexts and somewhat isolated from larger theoretical constructs. As a result, it fails to present a comprehensive examination of the far-reaching implications of GenAI across the complex socio-technical systems of tourism (Dwivedi et al., 2023). In contrast, the newly introduced research agenda skillfully pushes these bounded horizons by theoretically assimilating GenAI into well-established academic traditions. By rigorously applying GenAI to exemplary tourism theories like S-D Logic (Vargo & Lusch, 2016), experience economy theory (Pine & Gilmore, 1999), value co-creation and co-destruction frameworks (Echeverri & Skälén, 2011; Järvi et al., 2018), and theoretical investigations of algorithmic governance (Yeung et al., 2019), this agenda greatly expands its theoretical horizons.

Significantly, in doing so, this approach reconceptualises GenAI as an active participant endowed with distributed agency in relational encounters, instead of reducing it to the level of being passive technology. Doing so undermines anthropocentric assumptions and enriches theoretical discussions concerning power arrangements in tourism studies (Leonardi & Barley, 2008; Orlikowski & Scott, 2008). Additionally, by representing GenAI as an interactive partner sometimes substituting for human agents and not only augmenting the operations of the latter, this approach encourages in-depth exploration of potential social-cultural and organisational changes. It also stimulates research debate into rethinking professional identities, reassessing connotations of authenticity and representation of cultures, and the ethical pitfalls of raised autonomy in AI-mediated encounters (Benjamin, 2019; Floridi & Cowls, 2019).

This change calls for exhaustive empirical investigation into the power dynamics arising from artificial intelligence's inherent capabilities, which reshape the relationships between tourists, service industries, and host communities. This presages the pressing need to safeguard human agency and dignity in algorithmically intermediated tourist experiences (Andrejevic & Selwyn, 2020; Picard, 1997). Secondly, the framework presented herein pronounces a clear synthesis of

ethical, regulatory, and environmental concerns. It notably emphasises anticipatory governance regimes that entail rigorous privacy-by-design approaches (Acquisti et al., 2015), extensive audits for uncovering algorithmic biases (Buolamwini & Gebru, 2018), and the creation of technologies with regards to carbon emissions, aligned with global climate pledges (Patterson et al., 2021; Gössling et al., 2021). Placing tourism research within the larger context of planetary boundaries (Rockström et al., 2009; Steffen et al., 2015) highlights the need for sustainable innovation strategies that consider the sometimes neglected environmental consequences of GenAI. Addressing the social and environmental effects of artificial intelligence in tourism effectively requires ongoing interdisciplinary cooperation among computer science researchers, sustainability scholars, and policy researchers (Jobin et al., 2019). Finally, the holistic research framework not only fills a relevant conceptual lacuna but also provides a sound theoretical and ethical underpinning for ensuing scholarly investigation. It calls for an advanced, cross-disciplinary approach to research that critically explores the transformative capabilities of GenAI while concurrently dealing with related ethical, cultural, and environmental concerns. Participation in this ambitious framework allows tourism scholars to make meaningful contributions to the broader scholarly conversation, thus facilitating an inclusive, equitable, and truly sustainable advance in GenAI.

## 6 MANAGEMENT AND POLICY IMPLICATIONS

To successfully govern the rapidly evolving environment of GenAI, Destination Management Organisations (DMOs), tourism platforms, and policymakers require holistic and practical toolkits and regimes of governance appropriate to address the various ethical, legislative, and operational dilemmas presented by GenAI. Lacking an underpinning for systemic readiness, stakeholders risk exacerbating already-existing inequalities, violating privacy, and entrenching cultural stereotypes typical of AI deployments (Dwivedi et al., 2023).

### 6.1. Toolkit for DMOs and Platforms

#### *AI literacy*

Based on the values of AI literacy, Destination Management Organisations (DMOs) and their related platforms should actively enlighten stakeholders—executive decision-makers, front-line employees, and tourists—about the potentials, limitations, ethical aspects, and a range of effects of GenAI on cultural authenticity and the visitor experience (Buhalis & Sinarta, 2019; Long & Magerko, 2020). Based on Westerman, Bonnet, and McAfee (2014), digital literacy is more than just basic technical skills, but includes higher-level interpretive, ethical, and analytical skills. As such, formal AI literacy training must go beyond technical descriptions to include in-depth understanding of algorithmic bias, possible privacy vulnerabilities, and the dangers of AI-driven cultural uniformity and standardisation (Benjamin, 2019; Noble, 2018; Buolamwini & Gebru, 2018). Prioritizing critical AI literacy enables stakeholders in the tourism industry to foresee and successfully resolve ethical challenges, increase transparency, and facilitate fair human-AI interactions.

#### *Risk auditing*

Given the well-documented issues of algorithmic opacity, inherent biases, and profound privacy vulnerabilities created

by the use of artificial intelligence (Pasquale, 2015; O'Neil, 2016; Yeung et al., 2019), the implementation of robust risk auditing procedures is essential. Destination Management Organisations (DMOs) must integrate systematic algorithmic audits with transparency reporting systems (Raji et al., 2020), thereby enabling stakeholders to test algorithmic fairness, cultural sensitivity, and operational transparency stringently. Evidence-based research in information systems provides established frameworks to recognise algorithmic bias, quantify privacy risks, and assess ethical implications to enhance the successful application of AI regulation (Floridi & Cowls, 2019; Mittelstadt et al., 2016). Applying these frameworks facilitates the empowerment of stakeholders to preemptively address the harms caused by algorithms in accordance with ethical best practices.

#### *Participatory design*

Participatory design is therefore crucial for inclusive and culturally responsive deployment of GenAI (Sanders & Stappers, 2008). Destination management organisations and platforms need to actively engage a diverse range of stakeholder groups—including communities, cultural heritage representatives, and frontline service providers—in the co-development of AI prompts, culturally responsive narratives, and ethical governance structures. Such participatory approaches not only encourage stronger stakeholder buy-in but also reduce the risks of cultural erasure, digital colonialism, and exclusion of minority voices (Benjamin, 2019; Couldry & Mejias, 2019). Effective participatory design further adds to the legitimacy of the system and encourages sustainable cultural engagement.

### 6.2. Roadmap for regulators

#### *Privacy-by-design*

The regulators should embed strong privacy-by-design principles within legal policies to enable the timely implementation of privacy protection mechanisms in artificial intelligence systems without downgrading these concerns to secondary priority (Cavoukian, 2009; Nissenbaum, 2010). Mandatory end-to-end comprehensive privacy impact assessments (PIAs) should be implemented, underscoring the value of proactive identification and mitigation of potential privacy violations, risks of commodification of data, and vulnerabilities to emotional manipulation in algorithmic tourism situations (Acquisti et al., 2015; Solove, 2006). Proactive regulation fosters the independence, dignity, and trust of the tourist through the assurance of the adoption of AI in accordance with the current ethical norms in the tourism industry.

#### *Algorithmic transparency*

Governance frameworks should require high levels of transparency and accountability from tourism platforms using GenAI technology. Regulations should involve clear provisions for the aim of the objectives pursued by the AI, detailed descriptions of the training datasets used, the decision algorithms adopted, and recognition of the possibility of inherent bias and limitations (Pasquale, 2015; Mittelstadt et al., 2016; Jobin et al., 2019). Oversight bodies must promote the obligatory use of model cards and datasheets, which are standardised documentation templates (Mitchell et al., 2019; Gebru et al., 2021). The use of these tools greatly increases the level of stakeholder awareness, promotes proper public oversight, and encourages accountability in the complex socio-technical arrangements relevant to tourism.

Together, the above policy and managerial interventions are the critical measures for successfully guiding GenAI in the tourism industry. These strategies provide Destination Management Organisations, platforms, and policymakers with not just clear and actionable toolkits but also ethical, culturally responsive, and sustainable advances, hence safeguarding the integrity of tourism in a future with GenAI.

## 7 CONCLUSION: TOWARD A RESPONSIBLE "SYNTHETIC EXPERIENCE ECONOMY"

This study has established an informed and comprehensive foundation for understanding and ethically embracing the substantial impact of GenAI in the tourism industry in enabling the shift towards an ethical "Synthetic Experience Economy." Describing the role of GenAI not only as an inert technological facilitator or single operator, but also as an active participant and driver, the Synthetic Experience System (SES) problematises and expands established tourism paradigms generally based on experiential co-creation by humans (Pine & Gilmore, 1999; Vargo & Lusch, 2016). This shift highlights the enhanced complexity and agency of GenAI, calling for consideration of its potential to profoundly reshape interaction, narrative creation, and value exchange in tourism systems.

The research agenda, developed through diverse analytical lenses—micro (tourist cognition and well-being), meso (organisational capabilities and labor processes), macro (governance and regulatory environments), and planetary (environmental consequences and regenerative approaches)—discloses considerable knowledge gaps alongside equally remarkable opportunities for intellectual advancement. Significantly, however, this agenda challenges and expands the service-dominant logic conceptual framework by positioning the role of GenAI as part of the co-creative activity of experience creation, as opposed to confining it to the role of passive tool or resource (Leonardi, 2011; Orlikowski & Scott, 2008; Vargo & Lusch, 2016). GenAI's integration into theoretical frameworks in tourism research not only strengthens existing models but also encourages the development of novel theoretical constructs able to adequately capture issues around non-human agency and ethical concerns. In addition, the inclusion of ethical, regulative, and environmental aspects in the envisioned framework identifies critical and commonly neglected issues like algorithmic bias, surveillance capitalism, data commodification, cultural representation, and sustainability (Coudry and Mejias, 2019; Noble, 2018; Zuboff, 2019;). By taking these key determinants into explicit consideration, the use of GenAI becomes linked to the broader sustainability goals of international agendas, including the Glasgow Declaration on Climate Action in Tourism (Gössling et al., 2021). Notably, the multidisciplinary framework combines theoretical coherence with empirical correctness and, as a result, enables the development of tourism science to be directed towards responsible innovation practices.

The SES framework offers Destination Management Organisations (DMOs), tourism platforms, and regulatory bodies a comprehensive and actionable toolkit for responsible governance of GenAI. The recommendations outlined in this paper—including measures to promote AI literacy, pursue rigorous risk assessments, institute inclusive design processes, enact regulations grounded in privacy-by-design fundamentals, and guarantee practices facilitating algorithmic

transparency—represent concrete and actionable measures to promote the ethical, culturally responsive, and environmentally sustainable use of generative technologies (Floridi & Cows, 2019; Mitchell et al., 2019; Pasquale, 2015; Westerman et al., 2014). These steps are intended to preemptively mitigate risks of the misuse of personal data, homogenisation of cultural expressions, and exacerbation of global environmental problems, while also allowing tourism stakeholders to fully leverage the transformative potential of GenAI.

In short, the path of a responsible synthetic experience economy requires continuous, collaborative, and multi-disciplinary interaction among tourism experts, practitioners, policymakers, ethicists, technologists, and scholars of sustainability (Buhalis & Sinarta, 2019; Dwivedi et al., 2023; Jobin et al., 2019). The importance of transdisciplinarity and integrative approaches cannot be overemphasised in approaching the innovative possibilities and ethical objectives of GenAI. The SES approach specifically advocates these integrative approaches, understanding the tourism industry as a critical case for wider societal dialogue on technology stewardship, digital ethics, and sustainable innovation. It is only through such all-encompassing, cross-disciplinary collaborations that the tourism sector can properly and responsibly harness the immense potential of GenAI, and hence proactively mitigate its societal, ethical, and environmental impacts, thereby ensuring truly sustainable, equitable, and meaningful future advances in tourism.

## REFERENCES

- Abdul, A., Vermeulen, J., Wang, D., Lim, B. Y., & Kankanhalli, M. S. (2018). Trends and trajectories for explainable, accountable and intelligible systems: An HCI research agenda. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems* (pp. 1–18). ACM. <https://doi.org/10.1145/3173574.3174156>
- Acquisti, A., Brandimarte, L., & Loewenstein, G. (2015). Privacy and human behavior in the age of information. *Science*, 347(6221), 509–514. <https://doi.org/10.1126/science.aaa1465>
- Alipour, A., Hartmann, T., & Alimardani, M. (2025). Would you rely on an eerie agent? A systematic review of the impact of the uncanny valley effect on trust in human-agent interaction. *arXiv*. <https://doi.org/10.48550/arXiv.2505.05543>
- Amoore, L. (2019). *Cloud ethics: Algorithms and the attributes of ourselves and others*. Duke University Press. <https://doi.org/10.1215/9781478009276>
- Ananny, M., & Crawford, K. (2018). Seeing without knowing: Limitations of the transparency ideal and its application to algorithmic accountability. *New Media & Society*, 20(3), 973–989. <https://doi.org/10.1177/1461444816676645>
- Anderson, L., Ostrom, A. L., & Bitner, M. J. (2011). *Surrounded by Services: A New Lens for Examining the Influence of Services as Social Structures on Well-Being*. Working Study, WP Carey School of Business, Arizona State University.
- Andreassen, T. W., Lervik-Olsen, L., Snyder, H., Van Riel, A. C., Sweeney, J. C., & Van Vaerenbergh, Y. (2018). Business model innovation and value-creation: The triadic way. *Journal of Service Management*, 29(5), 883–906. <https://doi.org/10.1108/JOSM-05-2018-0125>
- Andrejevic, M., & Selwyn, N. (2020). Facial recognition technology in schools: Critical questions and concerns. *Learning, Media and Technology*, 45(2), 115–128. <https://doi.org/10.1080/17439884.2020.1686014>
- Andres, J., Danta, C., Bianchi, A., Hong, S., Li, Z., Sandoval, E. B., Martin, C., & Cooper, N. (2024). Understanding and shaping

- human–technology assemblages in the age of generative AI [Workshop]. arXiv. <https://doi.org/10.48550/arXiv.2404.18405>
- Assiouras, I., Giannopoulos, A., Mavragani, E., & Buhalis, D. (2024a). Virtual reality and mental imagery towards travel inspiration and visit intention. *International Journal of Tourism Research*, 26(2), e2646. <https://doi.org/10.1002/jtr.2646>
- Assiouras, I., Giannopoulos, A., Mavragani, E., & Buhalis, D. (2024b). Virtual reality facilitated travel inspiration: the role of pleasure and arousal. *Current Issues in Tourism*, 1–14. <https://doi.org/10.1080/13683500.2024.2406412>
- Assiouras, I., Skourtis, G., Giannopoulos, A., Buhalis, D., & Karaosmanoglu, E. (2023). Testing the relationship between value co-creation, perceived justice and guests' enjoyment. *Current Issues in Tourism*, 26(4), 587–602.
- Autor, D. H. (2015). Why are there still so many jobs? The history and future of workplace automation. *Journal of Economic Perspectives*, 29(3), 3–30. <https://doi.org/10.1257/jep.29.3.3>
- Avlonitis, G. J., & Giannopoulos, A. A. (2012). Balanced market orientation: qualitative findings on a fragile equilibrium. *Managing Service Quality: An International Journal*, 22(6), 565–579.
- Baum, T. (2015). Human resources in tourism: Still waiting for change?—A 2015 reprise. *Tourism Management*, 50, 204–212. <https://doi.org/10.1016/j.tourman.2015.02.001>
- Bender, E. M., Gebru, T., McMillan-Major, A., & Shmitchell, S. (2021). On the dangers of stochastic parrots: Can language models be too big? In *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency* (pp. 610–623). ACM. <https://doi.org/10.1145/3442188.3445922>
- Bender, E. M., Gebru, T., McMillan-Major, A., & Shmitchell, S. (2021). On the dangers of stochastic parrots: Can language models be too big? *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency*, 610–623. <https://doi.org/10.1145/3442188.3445922>
- Benjamin, R. (2019). *Race after technology: Abolitionist tools for the new Jim Code*. Polity Press.
- Berselli, C., Pereira, L. A., Pereira, T., & Limberger, P. F. (2022). Overtourism: Residents' perceived impacts of tourism saturation. *Tourism Analysis*, 27(2), 161–172. <https://doi.org/10.3727/108354221X16187814403074>
- Bigné, J. E., Mattila, A. S., & Andreu, L. (2008). The impact of experiential consumption cognitions and emotions on behavioral intentions. *Journal of Services Marketing*, 22(4), 303–315. <https://doi.org/10.1108/08876040810881704>
- Birhane, A., & Prabhu, V. U. (2021). Large image datasets: A pyrrhic win for computer vision? *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, 1536–1546. <https://doi.org/10.1109/WACV48630.2021.00158>
- Bollenbach, J., Neubig, S., Hein, A., Keller, R., & Krcmar, H. (2024). Enabling active visitor management: Local, short-term occupancy prediction at a touristic point of interest. *Information Technology & Tourism*, 26, 521–552. <https://doi.org/10.1007/s40558-024-00291-2>
- Bollenbach, J., Neubig, S., Hein, A., Keller, R., & Krcmar, H. (2022). Using machine learning to predict POI occupancy to reduce overcrowding. *INFORMATIK 2022*. [https://doi.org/10.18420/INF2022\\_34](https://doi.org/10.18420/INF2022_34)
- Bolukbasi, T., Chang, K. W., Zou, J. Y., Saligrama, V., & Kalai, A. T. (2016). Man is to computer programmer as woman is to homemaker? Debiasing word embeddings. *Proceedings of the 30th International Conference on Neural Information Processing Systems (NIPS 2016)*, 4356–4364. <https://doi.org/10.48550/arXiv.1607.06520>
- Bommasani, R., Hudson, D. A., Adeli, E., Altman, R., Arora, S., von Arx, S., ... Liang, P. (2021). On the opportunities and risks of foundation models. arXiv preprint. <https://doi.org/10.48550/arXiv.2108.07258>
- Boscarino, N., Cartwright, R. A., Fox, K., & Tsosie, K. S. (2022). Federated learning and Indigenous genomic data sovereignty. *Nature Machine Intelligence*, 4(11), 909–911. <https://doi.org/10.1038/s42256-022-00551-y>
- Bouchon, F., & Rauscher, M. (2019). Cities and tourism, a love and hate story: Towards a conceptual framework for urban overtourism management. *International Journal of Tourism Cities*, 5(4), 598–619. <https://doi.org/10.1108/IJTC-06-2019-0080>
- Breidbach, C. F., & Brodie, R. J. (2017). Engagement platforms in the sharing economy: Conceptual foundations and research directions. *Journal of Service Theory and Practice*, 27(4), 761–777. <https://doi.org/10.1108/JSTP-04-2016-0071>
- Breidbach, C. F., & Maglio, P. P. (2016). Technology-enabled value co-creation: An empirical analysis of actors and resources. *Industrial Marketing Management*, 56, 73–85. <https://doi.org/10.1016/j.indmarman.2016.03.011>
- Brouder, P. (2020). Reset redux: Possible evolutionary pathways towards the transformation of tourism in a COVID-19 world. *Tourism Geographies*, 22(3), 484–490. <https://doi.org/10.1080/14616688.2020.1760928>
- Brown, T. B., Mann, B., Ryder, N., Subbiah, M., Kaplan, J., Dhariwal, P., ... Amodei, D. (2020). Language models are few-shot learners. *Advances in Neural Information Processing Systems*, 33, 1877–1901. <https://doi.org/10.48550/arXiv.2005.14165>
- Brynjolfsson, E., & Mitchell, T. (2017). What can machine learning do? Workforce implications. *Science*, 358(6370), 1530–1534. <https://doi.org/10.1126/science.aap8062>
- Buchmann, A., Moore, K., Månsson, M., & Fisher, D. (2021). Authenticity in tourism theory and experience: Practically indispensable and theoretically mischievous? *Annals of Tourism Research*, 89, 103208. <https://doi.org/10.1016/j.annals.2021.103208>
- Buhalis, D., & Foerste, M. (2015). SoCoMo marketing for travel and tourism: Empowering co-creation of value. *Journal of Destination Marketing & Management*, 4(3), 151–161. <https://doi.org/10.1016/j.jdmm.2015.04.001>
- Buhalis, D., & Sinarta, Y. (2019). Real-time co-creation and oneness service: Lessons from tourism and hospitality. *Journal of Travel & Tourism Marketing*, 36(5), 563–582. <https://doi.org/10.1080/10548408.2019.1592059>
- Buhalis, D., Amaranggana, A. (2015). Smart Tourism Destinations Enhancing Tourism Experience Through Personalisation of Services. In: Tussyadiah, I., Inversini, A. (eds) *Information and Communication Technologies in Tourism 2015*. Springer, Cham. [https://doi.org/10.1007/978-3-319-14343-9\\_28](https://doi.org/10.1007/978-3-319-14343-9_28)
- Bui, H. T., Filimonau, V., & Sezerel, H. (2024). AI-thenticity: Exploring the effect of perceived authenticity of AI-generated visual content on tourist patronage intentions. *Journal of Destination Marketing & Management*, 32, Article 100956. <https://doi.org/10.1016/j.jdmm.2024.100956>
- Buolamwini, J., & Gebru, T. (2018). Gender shades: Intersectional accuracy disparities in commercial gender classification. *Proceedings of Machine Learning Research*, 81, 77–91. <http://proceedings.mlr.press/v81/buolamwini18a.html>
- Burrell, J. (2016). How the machine 'thinks': Understanding opacity in machine learning algorithms. *Big Data & Society*, 3(1). <https://doi.org/10.1177/2053951715622512>
- Caliskan, A., Bryson, J. J., & Narayanan, A. (2017). Semantics derived automatically from language corpora contain human-like biases. *Science*, 356(6334), 183–186. <https://doi.org/10.1126/science.aal4230>
- Carù, A., & Cova, B. (2003). Revisiting consumption experience: A more humble but complete view of consumption. *Marketing Theory*, 3(2), 267–286. <https://doi.org/10.1177/14705931030032004>
- Cassani, A., Ruberl, M., Salis, A., Giannese, G., & Boanelli, G. (2024). zIA: A GenAI-powered local auntie assists tourists in Italy. arXiv. <https://doi.org/10.48550/arXiv.2407.11830>
- Cavoukian, A. (2009). Privacy by design: The 7 foundational principles. Information and Privacy Commissioner of Ontario. <https://www.ipc.on.ca/en/media/1826/download?attachment>



- Chesbrough, H. (2003). *Open Innovation: The New Imperative for Creating and Profiting from Technology*. Harvard Business School Press.
- Chesbrough, H. W. (2003). *Open innovation: The new imperative for creating and profiting from technology*. Harvard Business School Press.
- Christensen, J., Hansen, J. M., & Wilson, P. (2024). Understanding the role and impact of Generative Artificial Intelligence (AI) hallucination within consumers' tourism decision-making processes. *Current Issues in Tourism*, 28(4), 545–560. <https://doi.org/10.1080/13683500.2023.2300032>
- Christou, E., Giannopoulos, A., & Simeli, I. (2025). The Evolution of Digital Tourism Marketing: From Hashtags to AI-Immersive Journeys in the Metaverse Era. *Sustainability*, 17(13), 6016. <https://doi.org/10.3390/su17136016>
- City of Helsinki. (n.d.). Smart tourism in Helsinki. Retrieved June 28, 2025, from <https://www.hel.fi/en/business-and-work/develop-tourism-and-events/smart-tourism-in-helsinki>
- Cohen, S. A., & Cohen, E. (2019). New directions in the sociology of tourism. *Current Issues in Tourism*, 22(2), 153–172. <https://doi.org/10.1080/13683500.2017.1347151>
- Coudounaris, D. N., Björk, P., Trifonova Marinova, S., Jafarguliyev, F., Kvasova, O., Sthapit, E., Varblane, U., & Talias, M. A. (2025). 'Big-5' personality traits and revisit intentions: The mediating effect of memorable tourism experiences. *Journal of Tourism, Heritage & Services Marketing*, 11(1), 46–60. <https://doi.org/10.5281/zenodo.15655588>
- Couldry, N., & Mejias, U. A. (2019). Data colonialism: Rethinking big data's relation to the contemporary subject. *Television & New Media*, 20(4), 336–349. <https://doi.org/10.1177/1527476418796632>
- Couldry, N., & Mejias, U. A. (2019). *The costs of connection: How data is colonizing human life and appropriating it for capitalism*. Stanford University Press. <https://doi.org/10.1515/9781503609754>
- Crawford, K. (2021). *Atlas of AI: Power, politics, and the planetary costs of artificial intelligence*. Yale University Press. <https://doi.org/10.2307/j.ctv1ghv45t>
- Crawford, K., & Paglen, T. (2021). Excavating AI: the politics of images in machine learning training sets. *AI & Society*, 36(4), 1105–1116. <https://doi.org/10.1007/s00146-021-01162-8>
- Cronin, M. (2013). *Translation in the digital age*. Routledge. <https://doi.org/10.4324/9780203073599>
- Csapó, J., & Kusumaningrum, S. D. (2025). Uncovering trends in destination branding and destination brand equity research: Results of a topic modelling approach. *Journal of Tourism, Heritage & Services Marketing*, 11(1), 34–45. <https://doi.org/10.5281/zenodo.15652600>
- Cummings, M. L. (2014). Man versus machine or man + machine? *IEEE Intelligent Systems*, 29(5), 62–69. <https://doi.org/10.1109/MIS.2014.87>
- Dangi, T. B., & Jamal, T. (2016). An integrated approach to "sustainable community-based tourism". *Sustainability*, 8(5), 475. <https://doi.org/10.3390/su8050475>
- Davenport, T. H., & Ronanki, R. (2018). Artificial intelligence for the real world. *Harvard Business Review*, 96(1), 108–116.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. [https://doi.org/10.1207/S15327965PLI1104\\_01](https://doi.org/10.1207/S15327965PLI1104_01)
- Devlin, J., Chang, M.-W., Lee, K., & Toutanova, K. (2019). BERT: Pre-training of deep bidirectional transformers for language understanding. In *Proceedings of NAACL-HLT* (pp. 4171–4186).
- Doan Do, T. T. M., Silva, J. A. M., Del Chiappa, G., & Pereira, L. N. (2024). The moderating role of sense of power and psychological risk on the effect of eWOM and purchase intentions for Airbnb. *Journal of Tourism, Heritage & Services Marketing*, 10(2), 3–14. <https://doi.org/10.5281/zenodo.14535723>
- Dredge, D., & Jamal, T. (2015). Progress in tourism planning and policy: A post-structural perspective on knowledge production. *Tourism Management*, 51, 285–297. <https://doi.org/10.1016/j.tourman.2015.06.002>
- Dwivedi, Y. K., Hughes, L., Baabdullah, A. M., Ribeiro-Navarrete, S., Giannakis, M., & Al-Debei, M. M. (2023). Metaverse beyond the hype: Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 66, 102542. <https://doi.org/10.1016/j.ijinfomgt.2022.102542>
- Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., Duan, Y., Dwivedi, R., Edwards, J., Eirug, A., Galanos, V., Ilavarasan, P. V., Janssen, M., Jones, P., Kar, A. K., Kizgin, H., Kronemann, B., Lal, B., Lucini, B., Medaglia, R., & Williams, M. D. (2021). Artificial intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 57, Article 101994. <https://doi.org/10.1016/j.ijinfomgt.2019.08.002>
- Echeverri, P., & Skälén, P. (2011). Co-creation and co-destruction: A practice-theory based study of interactive value formation. *Marketing Theory*, 11(3), 351–373. <https://doi.org/10.1177/1470593111408181>
- Epstein, J. M. (1999). Agent-based computational models and generative social science. *Complexity*, 4(5), 41–60. [https://doi.org/10.1002/\(SICI\)1099-0526\(199905/06\)4:5%3C41::AID-CPLX9%3E3.0.CO;2-F](https://doi.org/10.1002/(SICI)1099-0526(199905/06)4:5%3C41::AID-CPLX9%3E3.0.CO;2-F)
- Eubanks, V. (2018). *Automating inequality: How high-tech tools profile, police, and punish the poor*. St. Martin's Press.
- European Commission. (2021). Proposal for a regulation laying down harmonised rules on artificial intelligence (Artificial Intelligence Act). COM(2021) 206 final. Retrieved May 17 2025 from <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0206>
- Fleming, P. (2017). *The human capital hoax: Work, debt and insecurity in the era of Uberization*. Polity Press.
- Floridi, L. (2016). Faultless responsibility: on the nature and allocation of moral responsibility for distributed moral actions. *Philosophical Transactions of the Royal Society A* 374:20160112.
- Floridi, L., & Cowls, J. (2019). A unified framework of five principles for AI in society. *Harvard Data Science Review*, 1(1). <https://doi.org/10.1162/99608f92.8cd550d1>
- Florido-Benítez, L., & del Alcázar Martínez, B. (2024). How Artificial Intelligence (AI) Is Powering New Tourism Marketing and the Future Agenda for Smart Tourist Destinations. *Electronics*, 13(21), 4151. <https://doi.org/10.3390/electronics13214151>
- Fouad, A. M., Salem, I. E., & Fathy, E. A. (2024). Generative AI insights in tourism and hospitality: A comprehensive review and strategic research roadmap. *Tourism and Hospitality Research*, 0(0). <https://doi.org/10.1177/14673584241293125>
- Franklin, A. (2004). Tourism as an ordering: Towards a new ontology of tourism. *Tourist Studies*, 4(3), 277–301. <https://doi.org/10.1177/1468797604057328>
- Frey, C. B., & Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerisation? *Technological Forecasting and Social Change*, 114, 254–280. <https://doi.org/10.1016/j.techfore.2016.08.019>
- Fuchs, M., Höpken, W., & Lexhagen, M. (2014). Big data analytics for knowledge generation in tourism destinations—A case from Sweden. *Journal of Destination Marketing & Management*, 3(4), 198–209. <https://doi.org/10.1016/j.jdmm.2014.08.002>
- Gallego, I., & Font, X. (2020). Changes in air passenger demand as a result of the COVID-19 crisis: Using Big Data to inform tourism policy. *Journal of Sustainable Tourism*, 29(9), 1470–1489. <https://doi.org/10.1080/09669582.2020.1773476>
- Gavalas, D., Pantziou, G., Konstantopoulos, C., & Vansteenwegen, P. (2024). Tourist trip planning: Algorithmic foundations.

- Applied Soft Computing, 166, Article 112280. <https://doi.org/10.1016/j.asoc.2024.112280>
- Gebru, T., Morgenstern, J., Vecchione, B., Vaughan, J. W., Wallach, H., Daumé, H., & Crawford, K. (2021). Datasheets for datasets. *Communications of the ACM*, 64(12), 86–92. <https://doi.org/10.1145/3458723>
- Geiger, R. S. (2017). Beyond opening up the black box: Investigating the role of algorithmic systems in Wikipedian organizational culture. *Big Data & Society*, 4(2). <https://doi.org/10.1177/2053951717730735>
- George, G., Howard-Grenville, J., Joshi, A., & Tihanyi, L. (2016). Understanding and tackling societal grand challenges through management research. *Academy of Management Journal*, 59(6), 1880–1895. <https://doi.org/10.5465/amj.2016.4007>
- Gervais, Daniel J., *The Machine As Author* (March 25, 2019). Iowa Law Review, Vol. 105, 2019, 2053–2106, Vanderbilt Law Research Paper No. 19-35, Available at SSRN: <https://ssrn.com/abstract=3359524>
- Ghesh, N., Alexander, M., & Davis, A. (2024). The artificial intelligence-enabled customer experience in tourism: A systematic literature review. *Tourism Review*, 79(5), 1017–1037. <https://doi.org/10.1108/TR-04-2023-0255>
- Giannopoulos, A., Livas, C., Simeli, I., & Achlada, C. (2022). Is destination image instagrammable? Visit intentions and value co-creation through social media content. *International Journal of Technology Marketing*, 16(4), 349–369.
- Giannopoulos, A., Piha, L., & Skourtis, G. (2021). Destination branding and co-creation: a service ecosystem perspective. *Journal of Product & Brand Management*, 30(1), 148–166. <https://doi.org/10.1108/JPBM-08-2019-2504>
- Giannopoulos, A., Skourtis, G., Kalliga, A., Dontas-Chrysis, D. M., & Paschalidis, D. (2020). Co-creating high-value hospitality services in the tourism ecosystem: towards a paradigm shift?. *Journal of Tourism, Heritage & Services Marketing*, 6(1), 3–11. <http://dx.doi.org/10.5281/zenodo.3822065>
- Gibbons, L. V. (2020). Regenerative—The new sustainable? *Sustainability*, 12(13), 5483. <https://doi.org/10.3390/su12135483>
- Gigerenzer, G., & Gaissmaier, W. (2011). Heuristic decision making. *Annual Review of Psychology*, 62(1), 451–482. <https://doi.org/10.1146/annurev-psych-120709-145346>
- Gilbert, N., & Troitzsch, K. G. (2005). *Simulation for the social scientist*. McGraw-Hill Education.
- Gillespie, T. (2014). The relevance of algorithms. *Media Technologies: Essays on Communication, Materiality, and Society*, 167–194. <https://doi.org/10.7551/mitpress/9780262525374.003.0009>
- Gössling, S., & Higham, J. (2020). The Low-Carbon Imperative: Destination Management under Urgent Climate Change. *Journal of Travel Research*, 60(6), 1167–1179. <https://doi.org/10.1177/0047287520933679>
- Gössling, S., Scott, D., & Hall, C. M. (2021). Pandemics, tourism and global change: A rapid assessment of COVID-19. *Journal of Sustainable Tourism*, 29(1), 1–20. <https://doi.org/10.1080/09669582.2020.1758708>
- Govers, R., & Go, F. M. (2016). *Place branding: Glocal, virtual and physical identities, constructed, imagined and experienced*. Palgrave Macmillan.
- Graham, C., & Roll, N. (2024). Evaluating OpenAI's Whisper ASR: Performance analysis across diverse accents and speaker traits. *JASA Express Letters*, 4, Article 025206. <https://doi.org/10.1121/10.0024876>
- Grayson, K., & Martinec, R. (2004). Consumer perceptions of iconicity and indexicality and their influence on assessments of authentic market offerings. *Journal of Consumer Research*, 31(2), 296–312. <https://doi.org/10.1086/422109>
- Gretzel, U. (2011). Intelligent systems in tourism: A social science perspective. *Annals of Tourism Research*, 38(3), 757–779. <https://doi.org/10.1016/j.annals.2011.04.014>
- Gretzel, U., Fuchs, M., Baggio, R., Hoepken, W., Law, R., Neidhardt, J., ... & Xiang, Z. (2020). e-Tourism beyond COVID-19: A call for transformative research. *Information Technology & Tourism*, 22(2), 187–203. <https://doi.org/10.1007/s40558-020-00181-3>
- Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological Inquiry*, 26(1), 1–26. <https://doi.org/10.1080/1047840X.2014.940781>
- Guo, Q., Zhu, D., Lin, M.-T. (B.), Li, F. (S.), Kim, P. B., Du, D., & Shu, Y. (2023). Hospitality employees' technology adoption at the workplace: Evidence from a meta-analysis. *International Journal of Contemporary Hospitality Management*, 35(7), 2437–2464. <https://doi.org/10.1108/IJCHM-06-2022-0701>
- Guttentag, D. (2022). *Virtual Reality and the End of Tourism? A Substitution Acceptance Model*, Springer Books, in: Zheng Xiang & Matthias Fuchs & Ulrike Gretzel & Wolfram Höpken (ed.), *Handbook of e-Tourism*, chapter 79, pages 1901–1919, Springer.
- Hagendorff, T. (2020). The ethics of AI ethics: An evaluation of guidelines. *Minds and Machines*, 30(1), 99–120. <https://doi.org/10.1007/s11023-020-09517-8>
- Halder, S., Lim, K. H., Chan, J., & Zhang, X. (2024). A survey on personalized itinerary recommendation: From optimisation to deep learning. *Applied Soft Computing*, 152, Article 111200. <https://doi.org/10.1016/j.asoc.2023.111200>
- Hassenzahl, M. (2010). Experience design: Technology for all the right reasons. *Synthesis Lectures on Human-Centered Informatics*, 3(1), 1–95. <https://doi.org/10.2200/S00261ED1V01Y201003HCI008>
- Higgins-Desbiolles, F. (2018). Sustainable tourism: Sustaining tourism or something more? *Tourism Management Perspectives*, 25, 157–160. <https://doi.org/10.1016/j.tmp.2017.11.017>
- Hilty, L. M., & Aebischer, B. (Eds.). (2015). *ICT innovations for sustainability*. Springer. <https://doi.org/10.1007/978-3-319-09228-7>
- Hochschild, A. R. (2012). *The managed heart: Commercialization of human feeling* (3rd ed.). University of California Press.
- Huang, J., Xu, Y., Wang, Q., Wang, Q. (C.), Liang, X., Wang, F., Zhang, Z., Wei, W., Zhang, B., Huang, L., Chang, J., Ma, L., Ma, T., Liang, Y., Zhang, J., Guo, J., Jiang, X., Fan, X., An, Z., Li, T., ... Fei, A. (2025). Foundation models and intelligent decision-making: Progress, challenges, and perspectives. *The Innovation*, 6(6), Article 100948. <https://doi.org/10.1016/j.xinn.2025.100948>
- International Labour Organization (ILO). (2021). *World Employment and Social Outlook 2021: The role of digital labour platforms in transforming the world of work*. Geneva: ILO.
- Ivanov, S. (2020). The impact of automation on tourism and hospitality jobs. *Information Technology & Tourism*, 22(2), 205–215. <https://doi.org/10.1007/s40558-020-00175-1>
- Ivanov, S., & Webster, C. (2017). Adoption of robots, artificial intelligence and service automation by travel, tourism and hospitality companies—a cost-benefit analysis. Prepared for the International Scientific Conference "Contemporary Tourism – Traditions and Innovations", Sofia University, 19–21 October 2017, Available at SSRN: <https://ssrn.com/abstract=3007577>
- Ivanov, S., & Webster, C. (2019a). Perceived appropriateness and intention to use service robots in tourism. In Pesonen, J., & Neidhardt, J. (Eds.), *Information and Communication Technologies in Tourism 2019* (pp. 237–248). Springer. [https://doi.org/10.1007/978-3-030-05940-8\\_19](https://doi.org/10.1007/978-3-030-05940-8_19)
- Ivanov, S., & Webster, C. (2019b). Economic fundamentals of the use of robots, artificial intelligence, and service automation in travel, tourism, and hospitality. In S. Ivanov & C. Webster (Eds.), *Robots, artificial intelligence, and service automation in travel, tourism and hospitality* (pp. 39–55). Emerald Publishing Limited. <https://doi.org/10.1108/978-1-78756-687-320191002>
- Ivasciuc, I.-S., Candrea, A. N., & Ispas, A. (2025). Exploring Tourism Experiences: The Vision of Generation Z Versus Artificial Intelligence. *Administrative Sciences*, 15(5), 186. <https://doi.org/10.3390/admsci15050186>

- Järvi, H., Kähkönen, A. K., & Torvinen, H. (2018). When value co-creation fails: Reasons that lead to value co-destruction. *Scandinavian Journal of Management*, 34(1), 63–77. <https://doi.org/10.1016/j.scaman.2018.01.002>
- Jo, Y., & Shin, H. (2025). Can Gamification and Augmented Reality (AR) Revitalize Declining Destinations? Investigating its Impact on Tourist Attitudes and Behavior. *Journal of Travel Research*, 0(0). <https://doi.org/10.1177/00472875251332961>
- Jobin, A., Ienca, M., & Vayena, E. (2019). The global landscape of AI ethics guidelines. *Nature Machine Intelligence*, 1(9), 389–399. <https://doi.org/10.1038/s42256-019-0088-2>
- Jones, N. (2018). How to stop data centres from gobbling up the world's electricity. *Nature*, 561(7722), 163–166. <https://doi.org/10.1038/d41586-018-06610-y>
- Jorzik, P., Klein, S. P., Kanbach, D. K., & Kraus, S. (2024). AI-driven business model innovation: A systematic review and research agenda. *Journal of Business Research*, 182, Article 114764. <https://doi.org/10.1016/j.jbusres.2024.114764>
- Kahneman, D. (2011). Thinking, fast and slow. Farrar, Straus and Giroux.
- Kairouz, P., McMahan, H. B., Avent, B., Bellet, A., Bennis, M., Bhagoji, A. N., Bonawitz, K., Charles, Z., Cormode, G., Cummings, R., D'Oliveira, R. G. L., Eichner, H., El Rouayheb, S., Evans, D., Gardner, J., Garrett, Z., Gascón, A., Ghazi, B., Gibbons, P. B., Gruteser, M., ... Zhao, S. (2021). Advances and open problems in federated learning. *Foundations and Trends® in Machine Learning*, 14(1–2), 1–210. <https://doi.org/10.1561/22000000083>
- Kim, J., & Fesenmaier, D. R. (2015). Measuring emotions in real time: Implications for tourism experience design. *Journal of Travel Research*, 54(4), 419–429. <https://doi.org/10.1177/0047287514550100>
- Kirchner, S., Meyer, S. & Tisch, A. (2023). "Digital Taylorism" for some, "digital self-determination" for others? Inequality in job autonomy across different task domains. *Zeitschrift für Sozialreform*, 69(1), 57–84. <https://doi.org/10.1515/zsr-2022-0101>
- Kirillova, K., Lehto, X. Y., & Cai, L. (2017). Existential authenticity and anxiety as outcomes: The tourist in the experience economy. *International Journal of Tourism Research*, 19(1), 13–26. <https://doi.org/10.1002/jtr.2080>
- Kitchin, R. (2014). The data revolution: Big data, open data, data infrastructures and their consequences. Sage. <https://doi.org/10.4135/9781473909472>
- Kitchin, R. (2017). Thinking critically about and researching algorithms. *Information, Communication & Society*, 20(1), 14–29. <https://doi.org/10.1080/1369118X.2016.1154087>
- Koens, K., Postma, A., & Papp, B. (2018). Is overtourism overused? Understanding the impact of tourism in a city context. *Sustainability*, 10(12), 4384. <https://doi.org/10.3390/su10124384>
- Kukutai, T., & Taylor, J. (2016). Indigenous data sovereignty: Toward an agenda. ANU Press. <https://doi.org/10.22459/CAEPR38.11.2016>
- Kusner, M. J., Loftus, J. R., Russell, C., & Silva, R. (2017). Counterfactual fairness. *Advances in Neural Information Processing Systems*, 30, 4066–4076. <https://doi.org/10.48550/arXiv.1703.06856>
- Kzaz, L., Dakhchoune, D., & Dahab, D. (2018). Tourism recommender systems: An overview of recommendation approaches. *International Journal of Computer Applications*, 180(20), 40–46. <https://doi.org/10.5120/ijca2018916467>
- Lariza Corral-Gonzalez, L., Judith Cavazos-Arroyo, J., & García-Mestanza, J. (2023). Regenerative tourism: A bibliometric analysis. *Journal of Tourism, Heritage & Services Marketing*, 9(2), 41–54. <https://doi.org/10.5281/zenodo.10539722>
- Latour, B. (2005). Reassembling the Social: An Introduction to Actor–Network–Theory. Oxford University Press.
- Law, R., Li, G., Fong, D. K. C., & Han, X. (2019). Tourism demand forecasting: A deep learning approach. *Annals of Tourism Research*, 75, 410–423. <https://doi.org/10.1016/j.annals.2019.01.014>
- Lee, J. L.-M., Lau, C. Y.-L., & Wong, C. W.-G. (2023). Reexamining brand loyalty and brand awareness with social media marketing: A collectivist country perspective. *Journal of Tourism, Heritage & Services Marketing*, 9(2), 3–10. <https://doi.org/10.5281/zenodo.10539175>
- Lemon, K. N., & Verhoef, P. C. (2016). Understanding Customer Experience Throughout the Customer Journey. *Journal of Marketing*, 80(6), 69–96. <https://doi.org/10.1509/jm.15.0420>
- Lenzen, M., Sun, Y.-Y., Faturay, F., Ting, Y.-P., Geschke, A., & Malik, A. (2018). The carbon footprint of global tourism. *Nature Climate Change*, 8(6), 522–528. <https://doi.org/10.1038/s41558-018-0141-x>
- Leonardi, P. M. (2011). When flexible routines meet flexible technologies. *MIS Quarterly*, 35(1), 147–168. <https://doi.org/10.2307/23043493>
- Leonardi, P. M., & Barley, S. R. (2008). Materiality and change: Challenges to building better theory about technology and organizing. *Information and Organization*, 18(3), 159–176. <https://doi.org/10.1016/j.infoandorg.2008.03.001>
- Leonardi, P. M., & Neeley, T. (2022). The digital mindset: What it really takes to thrive in the age of data, algorithms, and AI. Harvard Business Review Press.
- Li, X., Law, R., Vu, H. Q., & Rong, J. (2013). Discovering the hotel selection preferences of Hong Kong inbound travelers using the Choquet Integral. *Tourism Management*, 36, 321–330. <https://doi.org/10.1016/j.tourman.2012.10.017>
- Li, Y., & Zhu, J. (2024). An ethical study of generative AI from the Actor–Network Theory perspective. *arXiv*. <https://doi.org/10.48550/arXiv.2406.11860>
- Light, B., Burgess, J., & Duguay, S. (2018). The walkthrough method: An approach to the study of apps. *New Media & Society*, 20(3), 881–900. <https://doi.org/10.1177/1461444816675438>
- Liu, B., Ge, J., & Wang, J. (2025). Vaiaige: A multi-agent solution to personalized travel planning. *arXiv*. <https://doi.org/10.48550/arXiv.2505.10922>
- Liu, S., & Hao, F. (2024). Engaging with avatar in virtual regenerative tourism. *Journal of Travel & Tourism Marketing*, 41(6), 864–879. <https://doi.org/10.1080/10548408.2024.2350053>
- Long, D., & Magerko, B. (2020). What is AI literacy? Competencies and design considerations. *Proceedings of the 2020 CHI Conference*, 1–16. <https://doi.org/10.1145/3313831.3376727>
- Lu, L., Cai, R., & Gursoy, D. (2019). Developing and validating a service robot integration willingness scale. *International Journal of Hospitality Management*, 80, 36–51. <https://doi.org/10.1016/j.ijhm.2019.01.005>
- Luccioni, A. S., Viguier, S., & Ligozat, A.-L. (2023). Estimating the carbon footprint of BLOOM, a 176B parameter language model. *Journal of Machine Learning Research*, 24, 1–15. <https://hal.science/hal-04288059v1>
- Lundberg, S. M., & Lee, S.-I. (2017). A unified approach to interpreting model predictions. *Advances in Neural Information Processing Systems*, 30, 4765–4774. <https://doi.org/10.48550/arXiv.1705.07874>
- Luong, T.-B. (2024). The impact of uses and motivation gratifications on tourist behavioral intention: The mediating role of destination image and tourists' attitudes. *Journal of Tourism, Heritage & Services Marketing*, 10(1), 3–13. <https://doi.org/10.5281/zenodo.13771484>
- Machado, M., Dias, Á., Patuleia, M., & Pereira, L. (2025). A model of marketing-driven innovation in lifestyle tourism businesses. *Journal of Tourism, Heritage & Services Marketing*, 11(1), 21–33. <https://doi.org/10.5281/zenodo.15651896>
- Maglio, P. P., & Spohrer, J. (2013). A service science perspective on business model innovation. *Industrial Marketing Management*, 42(5), 665–670. <https://doi.org/10.1016/j.indmarman.2013.05.007>

- Mathur, M. B., & Reichling, D. B. (2016). Navigating a social world with robot partners: A quantitative cartography of the uncanny valley. *Cognition*, 146, 22–32. <https://doi.org/10.1016/j.cognition.2015.09.008>
- Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20(3), 709–734. <https://doi.org/10.5465/amr.1995.9508080335>
- McCarthy, J., & Wright, P. (2004). *Technology as experience*. MIT Press.
- McKercher, B., & Prideaux, B. (2014). Academic myths of tourism. *Annals of Tourism Research*, 46, 16–28. <https://doi.org/10.1016/j.annals.2014.02.003>
- Menzel, S., Springer, S., Zieger, M., & Strzelecki, A. (2023). Google Trends confirms (COVID)-19 impact on tourist industry. *Tourism Culture & Communication*, 23(2–3), 97–102. <https://doi.org/10.3727/109830422X16600594683418>
- Michael, N., Chunawala, M. A., & Fusté-Forné, F. (2025). Instagrammable destinations: the use of photographs in digital tourism marketing in the United Arab Emirates. *Journal of Tourism, Heritage & Services Marketing*, 11(1), 3–10. <https://doi.org/10.5281/zenodo.15650944>
- Michael, N., & Fotiadis, A. (2022). Employee turnover: The hotel industry perspective. *Journal of Tourism, Heritage & Services Marketing*, 8(1), 38–47. <https://zenodo.org/records/6583698>
- Milan, S., & Treré, E. (2019). Big Data from the South(s): Beyond data universalism. *Television & New Media*, 20(4), 319–335. <https://doi.org/10.1177/1527476419837739>
- Misirilis, N., Elshof, M., & Vlachopoulou, M. (2021). Modeling Facebook users' behavior towards the use of pages related to healthy diet and sport activities. *Journal of Tourism, Heritage & Services Marketing*, 7(2), 49–57. <https://doi.org/10.5281/zenodo.5549911>
- Mitchell, M., Wu, S., Zaldivar, A., Barnes, P., Vasserman, L., Hutchinson, B., Spitzer, E., Raji, I. D., & Gebru, T. (2019). Model cards for model reporting. In *Proceedings of the 2019 Conference on Fairness, Accountability, and Transparency (FAT '19)\** (pp. 220–229). Association for Computing Machinery. <https://doi.org/10.1145/3287560.3287596>
- Mitchell, M., Wu, S., Zaldivar, A., Barnes, P., Vasserman, L., Hutchinson, B., & Gebru, T. (2019). Model cards for model reporting. In *Proceedings of the 2019 Conference on Fairness, Accountability, and Transparency* (pp. 220–229). Association for Computing Machinery. <https://doi.org/10.1145/3287560.3287596>
- Mittelstadt, B. D., Allo, P., Taddeo, M., Wachter, S., & Floridi, L. (2016). The ethics of algorithms: Mapping the debate. *Big Data & Society*, 3(2), 2053951716679679. <https://doi.org/10.1177/2053951716679679>
- Mkono, M. (2013). African and Western tourists: Object authenticity quest? *Annals of Tourism Research*, 41, 195–214. <https://doi.org/10.1016/j.annals.2013.01.002>
- Molnar, C. (2022). *Interpretable Machine Learning* (2nd ed.). Leanpub.
- Mori, M. (1970). The uncanny valley. *Energy*, 7(4), 33–35. <https://doi.org/10.1109/MRA.2012.2192811> (reprint DOI)
- Morley, J., Elhalal, A., & Garcia, F. (2021). Ethics as a service: A pragmatic operationalisation of AI ethics. *Minds and Machines*, 31(2), 239–256. <https://doi.org/10.1007/s11023-021-09563-w>
- Morley, J., Widdicks, K. V., & Hazas, M. D. (2018). Digitalisation, energy and data demand: The impact of Internet traffic on overall and peak electricity consumption. *Energy Research & Social Science*, 38, 128–137. <https://doi.org/10.1016/j.erss.2018.01.018>
- Nass, C., & Moon, Y. (2000). Machines and mindless social attributions: Computers as social actors. *Journal of Social Issues*, 56(1), 81–103. <https://doi.org/10.1111/0022-4537.00153>
- Nass, C., & Moon, Y. (2000). Machines and mindlessness: Social responses to computers. *Journal of Social Issues*, 56(1), 81–103. <https://doi.org/10.1111/0022-4537.00153>
- Nechoud, L., Ghidouche, F., & Seraphin, H. (2021). The influence of eWOM credibility on visit intention: An integrative moderated mediation model. *Journal of Tourism, Heritage & Services Marketing*, 7(1), 54–63. <https://doi.org/10.5281/zenodo.4521314>
- Neuhof, B., Buhalis, D., & Ladkin, A. (2015). Smart technologies for personalized experiences: A case study in the hospitality domain. *Electronic Markets*, 25(3), 243–254. <https://doi.org/10.1007/s12525-015-0182-1>
- Nissenbaum, H. (2010). *Privacy in context: Technology, policy, and the integrity of social life*. Stanford University Press.
- Noble, S. U. (2018). *Algorithms of oppression: How search engines reinforce racism*. NYU Press. <https://doi.org/10.2307/j.ctt1pwt9w5>
- Nurski, L., & Hoffman, M. (2022). The impact of artificial intelligence on the nature and quality of jobs (Working Paper 14/2022). Bruegel. Retrieved from <https://www.bruegel.org/system/files/2022-07/WP%2014%202022.pdf>
- O'Hagan, M. (2016). Massively open translation. *International Journal of Communication*, 10, 929–946.
- O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*. Crown Publishing Group.
- Organisation for Economic Co-operation and Development (OECD). (2024). *Artificial Intelligence and Tourism: G7/OECD Policy Paper*. OECD Publishing.
- Orlikowski, W. J. (2007). Sociomaterial practices: Exploring technology at work. *Organization Studies*, 28(9), 1435–1448. <https://doi.org/10.1177/0170840607081138>
- Orlikowski, W. J., & Iacono, C. S. (2001). Research commentary: Desperately seeking the “IT” in IT research—a call to theorizing the IT artifact. *Information Systems Research*, 12(2), 121–134. <https://doi.org/10.1287/isre.12.2.121.9700>
- Orlikowski, W. J., & Scott, S. V. (2008). Sociomateriality: Challenging the separation of technology, work, and organization. *Academy of Management Annals*, 2(1), 433–474. <https://doi.org/10.5465/19416520802211644>
- Padricelli, G. M., Punziano, G., & Saracino, B. (2021). Virtual vs. digital: Examples of netnography and digital ethnography in tourism studies for a comparison between methods. *Athens Journal of Social Sciences*, 8(4), 259–278. <https://doi.org/10.30958/ajss.8-4-4>
- Paluch, S., & Wunderlich, N. V. (2016). Contrasting risk perceptions of technology-based service innovations in inter-organizational settings. *Journal of Business Research*, 69(7), 2424–2431. <https://doi.org/10.1016/j.jbusres.2016.01.012>
- Pasquale, F. (2015). *The black box society: The secret algorithms that control money and information*. Harvard University Press. <https://doi.org/10.4159/harvard.9780674736061>
- Patterson, D., Gonzalez, J., Le, Q., Liang, C., Munguia, L.-M., Rothchild, D., So, D., Texier, M., & Dean, J. (2021). Carbon emissions and large neural network training. *arXiv*. <https://doi.org/10.48550/arXiv.2104.10350>
- Pérez-Ricardo, E. del C., & García-Mestanza, J. (2023). Booking intention research progress: Emerging trends and research agenda. *Journal of Tourism, Heritage & Services Marketing*, 9(2), 11–27. <https://doi.org/10.5281/zenodo.10539221>
- Pernecky, T. (2023). Mobilizing relational ontology: meeting the pluriversal challenge in tourism studies. *Current Issues in Tourism*, 27(22), 3623–3635. <https://doi.org/10.1080/13683500.2023.2281599>
- Picard, R. W. (1997). *Affective computing*. MIT Press.
- Pillai, R., & Sivathanu, B. (2020). Adoption of AI-based chatbots for hospitality and tourism. *International Journal of Contemporary Hospitality Management*, 32(10), 3199–3226. <https://doi.org/10.1108/IJCHM-04-2020-0259>
- Pine, J. B., & Gilmore, J. H. (1999). *The experience economy: Work is theatre & every business a stage*. Harvard Business School Press.

- Pink, S., Horst, H., Postill, J., Hjorth, L., & Lewis, T. (2022). *Digital ethnography: Principles and practice* (2nd ed.). SAGE Publications.
- Pitakaso, R., Golinska-Dawson, P., Luesak, P., Srichok, T., & Khonjun, S. (2025). Embracing open innovation in hospitality management: Leveraging AI-driven dynamic scheduling systems for complex resource optimization and enhanced guest satisfaction. *Journal of Open Innovation: Technology, Market, and Complexity*, 11(1), Article 100487. <https://doi.org/10.1016/j.joitmc.2025.100487>
- Polyzos, S., Samitas, A., & Spyridou, A. Ef. (2020). Tourism demand and the COVID-19 pandemic: an LSTM approach. *Tourism Recreation Research*, 46(2), 175–187. <https://doi.org/10.1080/02508281.2020.1777053>
- Prahalad, C. K., & Ramaswamy, V. (2004). Co-creation experiences: The next practice in value creation. *Journal of Interactive Marketing*, 18(3), 5–14. <https://doi.org/10.1002/dir.20015>
- Prebensen, N. K., Chen, J. S., & Uysal, M. (Eds.). (2014). *Creating experience value in tourism*. CABI Publishing. <https://doi.org/10.1079/9781780643489.0000>
- Privitera, A. G., Fontana, F., & Geronazzo, M. (2025). The Role of Audio in Immersive Storytelling: a Systematic Review in Cultural Heritage. *Multimedia Tools & Applications*, 84, 16105–16143. <https://doi.org/10.1007/s11042-024-19288-4>
- Punpeng, G., & Yodhane, P. (2024). The route to immersion: a conceptual framework for cross-disciplinary immersive theatre and experiences. *Humanities & Social Sciences Communications*, 11, 1477. <https://doi.org/10.1057/s41599-024-03971-w>
- Pym, A. (2014). *Exploring translation theories* (2nd ed.). Routledge.
- Raji, I. D., et al. (2020). Closing the AI accountability gap. *Proceedings of FAT 2020\**, 33–44. <https://doi.org/10.1145/3351095.3372873>
- Raji, I. D., Smart, A., White, R. N., Mitchell, M., Gebru, T., Hutchinson, B., Smith-Loud, J., Theron, D., & Barnes, P. (2020). Closing the AI accountability gap: Defining an end-to-end framework for internal algorithmic auditing. In *Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency (FAT\* '20)* (pp. 33–44). Association for Computing Machinery. <https://doi.org/10.1145/3351095.3372873>
- Reed, M. S. (2007). Participatory technology development for agroforestry extension: An innovation-decision approach. *African Journal of Agricultural Research*, 2(8), 334–341.
- Reeves, B., & Nass, C. (1996). *The media equation*. Cambridge University Press.
- Ren, C., Jóhannesson, G. T., & van der Duim, R. (Eds.). (2012). *Actor-network theory and tourism: Ordering, materiality and multiplicity* (1st ed.). Routledge. <https://doi.org/10.4324/9780203122976>
- Ren, C., Jóhannesson, G. T., & van der Duim, R. (Eds.). (2017). *Co-creating tourism research: Towards collaborative ways of knowing* (1st ed.). Routledge. <https://doi.org/10.4324/9781315393223>
- Rezwana, J., & Ford, C. (2025). Human-centered AI communication in co-creativity: An initial framework and insights. In *C&C '25: Proceedings of the 2025 Conference on Creativity and Cognition* (pp. 651–665). <https://doi.org/10.1145/3698061.3726932>
- Ribeiro, M. T., Singh, S., & Guestin, C. (2016). “Why should I trust you?”: Explaining the predictions of any classifier. *Proceedings of the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, 1135–1144. <https://doi.org/10.1145/2939672.2939778>
- Rickly, J. M., & Vidon, E. S. (Eds.). (2018). *Authenticity & tourism: Materialities, perceptions, experiences*. Emerald Publishing.
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin III, F. S., Lambin, E. F., Lenton, T. M., Scheffer, M., Folke, C., Schellnhuber, H. J., Nykvist, B., de Wit, C. A., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P. K., Costanza, R., Svedin, U., Falkenmark, M., ... Foley, J. A. (2009). A safe operating space for humanity. *Nature*, 461(7263), 472–475. <https://doi.org/10.1038/461472a>
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F. S., III, Lambin, E. F., Lenton, T. M., Scheffer, M., Folke, C., Schellnhuber, H. J., Nykvist, B., de Wit, C. A., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P. K., Costanza, R., Svedin, U., ... Foley, J. A. (2009). A safe operating space for humanity. *Nature*, 461(7263), 472–475. <https://doi.org/10.1038/461472a>
- Samuelson, P. (2023). Generative AI meets copyright. *Science*, 381(6654), 158–161. <https://doi.org/10.1126/science.adi0656>
- Sanders, E. B. N., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *CoDesign*, 4(1), 5–18. <https://doi.org/10.1080/15710880701875068>
- Schmuck, P., & Vlek, C. (2003). Psychologists can do much for environmental sustainability. *European Psychologist*, 8(2), 66–76. <https://doi.org/10.1027/1016-9040.8.2.66>
- Schneider, J., Meske, C., & Kuss, P. (2024). Foundation models. *Business & Information Systems Engineering*, 66(2), 221–231. <https://doi.org/10.1007/s12599-024-00851-0>
- Schwartz, R., Dodge, J., Smith, N. A., & Etzioni, O. (2020). Green AI. *Communications of the ACM*, 63(12), 54–63. <https://doi.org/10.1145/3381831>
- Scott, D. (2014). The tourist: a new theory of the leisure class. *Annals of Leisure Research*, 17(1), 113–114. <https://doi.org/10.1080/11745398.2014.890513>
- Sharpley, R. (2020). Tourism, sustainable development and the theoretical divide: 20 years on. *Journal of Sustainable Tourism*, 28(11), 1932–1946. <https://doi.org/10.1080/09669582.2020.1779732>
- Shaw, G., Bailey, A., & Williams, A. M. (2011). Service dominant logic and its implications for tourism management. *Tourism Management*, 32(2), 207–214. <https://doi.org/10.1016/j.tourman.2010.05.020>
- Shawal, N. S. M., Bakhtiar, M. F. S., Nurzaman, M. A. A. K., Kedin, N. A., & Talib, A. H. (2023). Exploring User Acceptance, Experience and Satisfaction towards Chatbots in an Online Travel Agency (OTA). *International Journal of Academic Research in Business and Social Sciences*, 13(5), 196–206. <http://dx.doi.org/10.6007/IJARBS/v13-i5/17015>
- Sigala, M. (2018). Implementing social customer relationship management: A process framework and implications in tourism and hospitality. *International Journal of Contemporary Hospitality Management*, 30(7), 2698–2726. <https://doi.org/10.1108/IJCHM-10-2015-0536>
- Singh, R., & Sibi, P. S. (2023). E-loyalty formation of Generation Z: Personal characteristics and social influences. *Journal of Tourism, Heritage & Services Marketing*, 9(1), 3–14. <https://doi.org/10.5281/zenodo.8054004>
- Solove, D. J. (2006). A taxonomy of privacy. *University of Pennsylvania Law Review*, 154(3), 477–560. <https://doi.org/10.2307/40041279>
- Sousa, N., Alén González, M. E., Losada, N., & Melo, M. (2024). The adoption of Virtual Reality technologies in the tourism sector: Influences and post-pandemic perspectives. *Journal of Tourism, Heritage & Services Marketing*, 10(2), 47–57. <https://zenodo.org/records/14524968>
- Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, E. M., ... & Sörlin, S. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science*, 347(6223), 1259855. <https://doi.org/10.1126/science.1259855>
- Stilgoe, J., Owen, R., & Macnaghten, P. (2013). Developing a framework for responsible innovation. *Research Policy*, 42(9), 1568–1580. <https://doi.org/10.1016/j.respol.2013.05.008>
- Strubell, E., Ganesh, A., & McCallum, A. (2019). Energy and policy considerations for deep learning in NLP. *Proceedings of the 57th ACL*, 3645–3650. <https://doi.org/10.18653/v1/P19-1355>
- Sylaiou, S., & Fidas, C. (2022). Virtual Humans in Museums and Cultural Heritage Sites. *Applied Sciences*, 12(19), 9913. <https://doi.org/10.3390/app12199913>

- Taleb, N. N. (2007). *The black swan: The impact of the highly improbable* (2nd ed.). Random House.
- Talluri, K. T., & van Ryzin, G. J. (2004). Revenue management under a general discrete choice model of consumer behavior. *Management Science*, 50(1), 15–33. <https://doi.org/10.1287/mnsc.1030.0147>
- Thaler, R. H., & Sunstein, C. R. (2008). *Nudge: Improving decisions about health, wealth, and happiness*. Yale University Press.
- Thees, H., Störmann, E., Thiele, F., & Olbrich, N. (2021). Shaping digitalization among German tourism service providers: Processes and implications. *Journal of Tourism, Heritage & Services Marketing*, 7(2), 3–15. <https://doi.org/10.5281/zenodo.5548393>
- Tribe, J., & Mkono, M. (2017). Not such smart tourism? The concept of e-lienation. *Annals of Tourism Research*, 66, 105–115. <https://doi.org/10.1016/j.annals.2017.07.001>
- Tuncay, G., Kaya, K., Yılmaz, Y., Yaslan, Y., & Gündüz Ögüdücü, Ş. (2023). A reinforcement learning based dynamic room pricing model for hotel industry. *INFOR: Information Systems and Operational Research*, 62(2), 211–231. <https://doi.org/10.1080/03155986.2023.2235223>
- Tung, V. W. S., & Ritchie, J. R. B. (2011). Exploring the essence of memorable tourism experiences. *Annals of Tourism Research*, 38(4), 1367–1386. <https://doi.org/10.1016/j.annals.2011.03.009>
- Tussyadiah, I. P., & Park, S. (2018). Consumer evaluation of hotel service robots. In B. Stangl & J. Pesonen (Eds.), *Information and Communication Technologies in Tourism 2018* (pp. 308–320). Springer. [https://doi.org/10.1007/978-3-319-72923-7\\_24](https://doi.org/10.1007/978-3-319-72923-7_24)
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185(4157), 1124–1131. <https://doi.org/10.1126/science.185.4157.1124>
- UNESCO. (2024). Exploring the impact of Artificial Intelligence and Intangible Cultural Heritage [Webinar summary]. UNESCO Intangible Cultural Heritage. Retrieved from <https://ich.unesco.org/en/news/exploring-the-impact-of-artificial-intelligence-and-intangible-cultural-heritage> 13536
- United Nations World Tourism Organization. (2021, November). Glasgow Declaration on Climate Action in Tourism. Retrieved May 21, 2025, from <https://www.unwto.org/sustainable-development/climate-action> [unwto.org+2unwto.org+2unwto.org+2](https://www.unwto.org+2unwto.org+2unwto.org+2)
- UNWTO. (n.d.). AI for Good in Tourism: Exploring AI and emerging technologies. UN World Tourism Organization. Retrieved June 14, 2025, from <https://www.unwto.org/innovation-digital-tranformation/ai-for-good-in-tourism>
- Urry, J., & Larsen, J. (2011). *The tourist gaze 3.0*. SAGE Publications. <https://doi.org/10.4135/9781446251904>
- Van der Duim, R. (2007). Tourismscapes: An actor-network perspective. *Annals of Tourism Research*, 34(4), 961–976. <https://doi.org/10.1016/j.annals.2007.05.008>
- Vargo, S. L., & Lusch, R. F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing*, 68(1), 1–17. <https://doi.org/10.1509/jmkg.68.1.1.24036>
- Vargo, S. L., & Lusch, R. F. (2008). Service-dominant logic: Continuing the evolution. *Journal of the Academy of Marketing Science*, 36(1), 1–10. <https://doi.org/10.1007/s11747-007-0069-6>
- Vargo, S. L., & Lusch, R. F. (2016). Institutions and axioms: An extension and update of service-dominant logic. *Journal of the Academy of Marketing Science*, 44(1), 5–23. <https://doi.org/10.1007/s11747-015-0456-3>
- Vargo, S. L., & Lusch, R. F. (2017). Service-dominant logic 2025. *International Journal of Research in Marketing*, 34(1), 46–67. <https://doi.org/10.1016/j.ijresmar.2016.11.001>
- Varis, P., and Hou, M. (2020). Digital approaches in linguistic ethnography. In K. Tusting (ed.), *The Routledge Handbook of Linguistic Ethnography* (pp. 229–240). Abingdon: Routledge.
- Vaswani, A., Shazeer, N., Parmar, N., Uszkoreit, J., Jones, L., Gomez, A. N., Kaiser, L., & Polosukhin, I. (2017). Attention is all you need. *arXiv*. <https://doi.org/10.48550/arXiv.1706.03762>
- Veale, M., & Zuiderveen Borgesius, F. (2021). Demystifying the draft EU Artificial Intelligence Act—Analysing the good, the bad, and the unclear elements of the proposed approach. *Computer Law Review International*, 22(4), 97–112. <https://doi.org/10.9785/crl-2021-220402>
- Velasco, C., Vargas, J., & Petit, O. (2024). Multisensory experiences and technology in the context of wine experiences. *Journal of Wine Research*, 35(2), 85–100. <https://doi.org/10.1080/09571264.2024.2310304>
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478. <https://doi.org/10.2307/30036540>
- Viñals, M. J., Orozco Carpio, P. R., Teruel, P., & Gandia-Romero, J. M. (2024). Real-time monitoring of visitor carrying capacity in crowded historic streets through digital technologies. *Urban Science*, 8(4), 190. <https://doi.org/10.3390/urbansci8040190>
- Wachter, S., Mittelstadt, B., & Floridi, L. (2017). Why a right to explanation of automated decision-making does not exist in the general data protection regulation. *International Data Privacy Law*, 7(2), 76–99. <https://doi.org/10.1093/idpl/ixp005>
- Walters, G., Jiang, Y., & Li, S. (2023). Physiological Measurements in Hospitality and Tourism Research: A Systematic Review and New Theoretical Directions. *Journal of Hospitality & Tourism Research*, 49(3), 417–432. <https://doi.org/10.1177/10963480231199990>
- Wang, N. (1999). Rethinking authenticity in tourism experience. *Annals of Tourism Research*, 26(2), 349–370. [https://doi.org/10.1016/S0160-7383\(98\)00103-0](https://doi.org/10.1016/S0160-7383(98)00103-0)
- Weick, K. E. (1995). *Sensemaking in organizations*. Sage.
- Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading digital: Turning technology into business transformation*. Harvard Business Review Press.
- Whiteman, G., Walker, B., & Perego, P. (2013). Planetary boundaries: Ecological foundations for corporate sustainability. *Journal of Management Studies*, 50(2), 307–336. <https://doi.org/10.1111/j.1467-6486.2012.01073.x>
- Wirtz, B. W., Weyerer, J. C., & Geyer, C. (2018). Artificial Intelligence and the Public Sector—Applications and Challenges. *International Journal of Public Administration*, 42(7), 596–615. <https://doi.org/10.1080/01900692.2018.1498103>
- Wu, B., Lin, J., Lv, S.-X., & Wang, L. (2025). End-to-end multidimensional interpretable tourism demand combined forecasting model based on feature fusion. *Applied Intelligence*, 55, Article 827. <https://doi.org/10.1007/s10489-025-06715-8>
- Wu, J., Wang, X., & Pan, B. (2019). Agent-based simulations of China inbound tourism network. *Scientific Reports* 9, 12325. <https://doi.org/10.1038/s41598-019-48668-2>
- Xiang, Z., & Fuchs, M. (2017). Big data analytics, tourism design, and smart tourism destinations. In D. R. Fesenmaier, S. Gössling, & M. S. Hall (Eds.), *The Routledge Handbook of Tourism Experience Management and Marketing* (pp. 140–150). Routledge.
- Xiang, Z., Du, Q., Ma, Y., & Fan, W. (2017). A comparative analysis of major online review platforms: Implications for social media analytics in hospitality and tourism. *Tourism Management*, 58, 51–65. <https://doi.org/10.1016/j.tourman.2016.10.001>
- Xiang, Z., Magnini, V. P., & Fesenmaier, D. R. (2015). Information technology and consumer behavior in travel and tourism: Insights from travel planning using the Internet. *Journal of Retailing and Consumer Services*, 22, 244–249. <https://doi.org/10.1016/j.jretconser.2014.08.005>
- Yang, Q., & Lee, Y.-C. (2024). Enhancing Financial Advisory Services with GenAI: Consumer Perceptions and Attitudes Through Service-Dominant Logic and Artificial Intelligence Device Use Acceptance Perspectives. *Journal of Risk and Financial Management*, 17(10), 470. <https://doi.org/10.3390/jrfm17100470>



- Yeung, K. (2018). Algorithmic regulation: A critical interrogation. *Regulation & Governance*, 12(4), 505–523. <https://doi.org/10.1111/rego.12158>
- Yeung, K., Howes, A., & Pogrebna, G. (2019, June 21). AI governance by human rights-centred design, deliberation and oversight: An end to ethics washing. In M. Dubber & F. Pasquale (Eds.), *The Oxford handbook of AI ethics* (Forthcoming). Oxford University Press. <https://doi.org/10.2139/ssrn.3435011>
- Yeung, K., Howes, A., & Pogrebna, G. (2020). AI governance by human rights-centred design, deliberation and oversight: An end to ethics washing. In M. D. Dubber, F. Pasquale, & S. Das (Eds.), *The Oxford handbook of ethics of AI* (pp. 77–106). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780190067397.013.5>
- Yovcheva, Z., Buhalis, D., Gatzidis, C., & van Elzakker, C. P. J. M. (2014). Empirical evaluation of smartphone augmented reality browsers in an urban tourism destination context. *International Journal of Mobile Human Computer Interaction (IJMHCI)*, 6(2), 10–31. <https://doi.org/10.4018/ijmhci.2014040102>
- Yu, J., & Meng, T. (2025). Image Generative AI in Tourism: Trends, Impacts, and Future Research Directions. *Journal of Hospitality & Tourism Research*, 0(0). <https://doi.org/10.1177/10963480251324676>
- Yu, R., & Spina Ali, G. (2019). What's inside the black box? AI challenges for lawyers and researchers. *Legal Information Management*, 19(1), 2–13. <https://doi.org/10.1017/S1472669619000021>
- Zhu, J., Zhan, L., Tan, J., & Cheng, M. (2024). Tourism destination stereotypes and generative artificial intelligence (GenAI) generated images. *Current Issues in Tourism*, 1–5. <https://doi.org/10.1080/13683500.2024.2381250>
- Zhu, J., Zhan, L., Tan, J., & Cheng, M. (2024). Tourism destination stereotypes and generative artificial intelligence (GenAI)-generated images. *Current Issues in Tourism*. Advance online publication. <https://doi.org/10.1080/13683500.2024.2381250>
- Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. PublicAffairs.

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