

Temporal tourism and time as the next frontier: a futures-oriented narrative approach

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Abstract

Purpose – As digitalization accelerates and human attention becomes increasingly fragmented, time itself is emerging as a resource to be designed, commodified and reimagined in tourism. This paper explores the future of “temporal tourism” – experiences that manipulate, stretch, compress or decouple travelers’ perception of time.

Design/methodology/approach – Using a futures-oriented narrative synthesis, this paper envisions how time may become the next frontier of experiential differentiation in tourism, identifying three plausible futures – temporal design, chrono-personalization and temporal ethics – and proposing an integrative framework linking temporal experience, technology and ethics.

Findings – Together, these strands forecast an emerging reorientation where destinations and operators compete not merely for visitors’ attention, but for their temporal consciousness – shaping how individuals live, remember and make meaning through travel.

Originality/value – The study contributes theoretically by reframing time as a central construct in tourism experience and by advancing an integrative framework that links temporal experience, technology and ethics.

Keywords Temporal tourism, Time perception, Chrono-personalization, Experience design, Algorithmic mediation, Temporal ethics, Futures studies

Paper type Research article

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1. Introduction

1.1 Time as an emerging frontier in tourism experience

Tourism has long been framed as a spatial practice, encompassing movement through geographies, mobilities and place-making (Sheller and Urry, 2006; Hall, 2019). Yet for contemporary travelers whose lives are increasingly choreographed by notifications, algorithmic schedules and productivity metrics, time (its pace, texture, and meaning) has become the scarcest and most coveted resource (Giraldo-Luque *et al.*, 2020; Erickson and Wajcman, 2023). This paper advances the proposition that the next phase of competitive differentiation in tourism and hospitality could hinge less on spatial novelty and more on temporal innovation: the purposeful design, personalization and ethical stewardship of how time is felt, sequenced and remembered before, during and after a trip.

This shift redirects attention from where we go to how we experience duration – how time stretches in restorative stillness, compresses during flow, fragments into micro-moments or is augmented by digital systems that recalibrate our internal clocks (Chang, 2018). Multiple social and technological forces make a temporal turn both plausible and pressing (De Vos *et al.*, 2023; Sustacha *et al.*, 2023; Klarin *et al.*, 2023). First, scholars have documented the acceleration of everyday life – an endemic hastening of social rhythms that compresses the horizons of action

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and experience (Rosa, 2013; Harvey, 2020; Giousmpasoglou, 2024). The once-clear boundary between work and leisure is further eroded by ubiquitous connectivity and platformized labor, producing chronic “time poverty” and attentional depletion that spill into holidays (Erickson and Wajcman, 2023).

Second, cognitive and affective sciences show that subjective time is elastic: it dilates in states of awe and absorption and contracts under anxiety or monotony (Kim *et al.*, 2023; Walters *et al.*, 2025). Third, digitalization introduces new infrastructures for chrono-management – from itinerary optimizers and attention-aware devices to ambient computing and circadian lighting – capable of tuning arousal, recovery and memory formation within the lived environment (Alsharif *et al.*, 2024; Bulchand-Gidumal *et al.*, 2024). Chrono-management refers here to the deliberate coordination and governance of time-related elements such as pacing, sequencing, waiting and synchronization within tourism systems. Together, these developments suggest that destinations are likely to increasingly compete not only for visitors’ attention but for their temporal consciousness.

A foresight perspective is essential for theorizing these transformations. Empirically, weak signals are already visible: hotels deploying circadian design, attractions smoothing visitor flows via time-ticketing and platforms compressing planning time through AI. Methodologically, futures tools – horizon scanning, scenario building, backcasting – enable integration of diverse literatures to map plausible pathways rather than fixed predictions (Bishop *et al.*, 2007; Dator, 2019). This approach also reframes enduring managerial problems. Capacity management becomes a question of rhythm orchestration rather than space utilization (Maister, 1984). Differentiation shifts from amenities to tempo signatures – how a property paces transitions and rituals. Well-being design moves from maximizing activity density to cultivating eudaimonic time: meaningful, self-congruent use of duration.

1.2 Conceptualizing temporal tourism

Crucially, while all tourism experiences unfold in time, not all tourism explicitly treats time as an object of design, intervention or value creation. This paper therefore distinguishes between the incidental temporality inherent in all tourism and what is here termed temporal tourism. Temporal tourism refers to tourism practices and experiences in which time – its pacing, sequencing, synchronization or deceleration – is intentionally foregrounded and strategically shaped as a core experiential and managerial resource. In this sense, temporal tourism is not proposed as a discrete market segment (such as slow or wellness tourism), but as an analytical and design lens applicable across tourism contexts. It marks a shift from treating time as a neutral container for experience toward recognizing it as a medium that can be actively orchestrated through spatial design, service rhythms, technologies and governance decisions.

Time is not merely measured but enacted, narrated and remembered. Experiences are remembered through temporal structure – the sequencing of peaks, pauses and endings (Kahneman *et al.*, 1993; Tulving, 2002; Conti and Lexhagen, 2020). Future systems may quantify “memories per hour” or “meaning per day,” inviting reflection on manipulation vs care. Algorithmic itinerary engines could invisibly impose commercial logics under the guise of convenience, underscoring the need for a temporal ethics of hospitality that safeguards unstructured time, transparency and ecological rhythm (Hoang *et al.*, 2023).

Subsequently, the present paper utilizes a narrative futures synthesis to conceptualize temporal tourism through three interdependent strands: (1) temporal design and the architecture of slowness, (2) chrono-personalization and digital time augmentation and (3) the ethics of temporal commodification. Together, these strands support an integrative framework in which tourism organizations are reimagined as temporal orchestrators – entities that co-produce rhythms and durations with guests and technologies. The study concludes by advancing a framework for temporal experience innovation, proposing an interdisciplinary research agenda that bridges tourism, psychology and futures studies. This study contributes to tourism futures research by

reframing time as a central experience construct and introducing an integrative framework linking temporal experience, technology and ethics.

1.3 Theoretical positioning of temporal tourism

The concept of temporal tourism builds upon, yet also departs from, several foundational streams in tourism theory. Traditionally, tourism scholarship has been anchored in spatial logics, i.e. movement across space, destination geographies and mobilities (Hall, 2019). While time has featured implicitly through notions of duration, seasonality and scheduling, it has rarely been treated as a primary experiential construct in its own right (Sheller and Urry, 2006). Temporal tourism advances this theoretical shift by foregrounding time not merely as a backdrop to experience, but as an actively designed, mediated and governed dimension of tourism.

Importantly, temporal tourism is not introduced as an entirely new invention, but as a synthesis and extension of longstanding engagements with time in social and cultural analysis. Foundational influences include Mikhail Bakhtin's notion of the chronotope (1981), which highlights the inseparability of time and experience; early tourism scholarship on seasonality and temporal structuring; and sociological accounts of modern temporal regimes and acceleration (Rosa, 2013). In addition, early cultural imaginaries of time travel, such as Kuttner and Moore's *Vintage Season* (1946), anticipated forms of tourism centered on the consumption of historically situated moments rather than places. Building on these traditions, this paper adopts the following working definition: temporal tourism refers to tourism experiences in which the perception, pacing, sequencing and meaning of time are intentionally shaped through design, technology and governance, such that time itself becomes a primary medium of experiential value.

From the perspective of the experience economy (Pine and Gilmore, 2013), temporal tourism extends the focus from staging memorable events to curating the quality of duration. Rather than intensifying stimuli per unit of time, it emphasizes rhythm, pacing and resonance as sources of experiential value, aligning with emerging research on time perception and memory in tourism (Pearce, 2020; Kim *et al.*, 2023). In this sense, temporal tourism complements service-dominant logic (Shaw *et al.*, 2011) by conceptualizing time as a co-created resource rather than a fixed input, emerging through interactions among guests, service employees, technologies and environments.

Temporal tourism also extends several foundational debates in tourism theory. Building on Urry's notion (1992a, 1992b) of the tourist gaze, temporal tourism shifts attention from a predominantly visual scopic regime toward what may be understood as a temporal gaze: the ways tourism structures anticipation, waiting, pacing and memory as objects of experiential focus. In relation to liminality (Graburn, 1983), the framework reframes tourism not as a fixed temporal threshold but as a condition whose duration and intensity are increasingly designed, personalized and technologically mediated. Finally, engaging authenticity debates (MacCannell, 1973; Wang, 2007), temporal tourism suggests a shift from authentic objects or selves toward authentic time – experiences of duration that feel meaningful, self-congruent and uncompressed. Taken together, these extensions position time as a central medium through which seeing, becoming and meaning-making are organized in contemporary tourism.

From a performance and practice theory perspective, temporal experience in tourism is co-created through situated actions, embodied routines and interactional rhythms between tourists, staff, technologies and environments. Time is not merely consumed but enacted performatively through waiting, movement, ritual and repetition. This view aligns closely with the experience design literature, which emphasizes pacing, sequencing and transition management as central to how experiences are felt and remembered. Temporal tourism builds on this work by elevating pacing from a design technique to an analytical focus, foregrounding how temporal structure itself becomes a key site of value creation and governance across the tourist journey.

At the same time, the concept challenges dominant efficiency-oriented and acceleration-driven paradigms embedded in smart tourism and platform-based service design. Drawing on theories

of social acceleration (Rosa, 2013) and chrono-capitalism (Sharma, 2014), temporal tourism problematizes the assumption that faster, denser or more optimized experiences necessarily enhance well-being. Instead, it foregrounds tensions between efficiency and care, autonomy and algorithmic control, and commodification and stewardship of time. This positioning provides the conceptual foundation for the futures-oriented narrative synthesis that follows.

2. Methodological framing

To explore how the experience of time may constitute the next frontier of tourism, this study adopts a narrative futures synthesis, an interpretive and integrative approach situated at the intersection of futures studies, tourism theory and design-oriented inquiry. This methodological orientation builds on two complementary traditions. The first is narrative synthesis in qualitative research, which systematizes diverse literature into coherent thematic insights (Mura and Sharif, 2017; Greenhalgh *et al.*, 2018). The second draws from futures methodologies such as horizon scanning, scenario building and backcasting, which articulate plausible trajectories of socio-technical change rather than point predictions (Bishop *et al.*, 2007; Dator, 2019). The result is a rigorous yet imaginative framework that integrates established evidence with emergent signals to envision the potential evolution of temporal experience within tourism and hospitality by the mid-2030s.

2.1 Rationale for a futures orientation

Within this framing, futures studies, as articulated by Voros (2017) and Dator (2019), emphasize that the purpose of foresight is not to forecast a single outcome but to surface alternative futures – possible, probable and preferable pathways – that can inform present decisions. Recent work in tourism planning underscores that futures are constituted by multiple, coexisting temporalities that practitioners must negotiate, rather than a single linear horizon (Ricaurte-Quijano and Encalada-Abarca, 2024). In tourism research, this orientation is increasingly vital because the industry operates at the confluence of rapid technological disruption, environmental uncertainty and cultural transformation (Yeoman and McMahon-Beattie, 2018; Hartman and Postma, 2024; Cheer *et al.*, 2021; Yeoman and McMahon-Beattie, 2025). Traditional empirical designs are limited in their capacity to anticipate discontinuous change. For instance, the psychological and ethical implications of immersive technologies that alter time perception, or the emergence of “slow infrastructures” that intentionally decelerate experience (Klarin *et al.*, 2023).

A futures approach also aligns with calls for anticipatory governance in tourism (Muiderman *et al.*, 2023), where foresight becomes a strategic tool for guiding innovation toward sustainable and ethical outcomes. By employing narrative futures synthesis, this paper treats time as both a conceptual and design variable whose manipulation, through digital augmentation, spatial sequencing or service pacing, has foreseeable consequences for well-being, equity and value creation (Pearce, 2020). The method thus bridges speculative imagination with analytical rigor, producing structured scenarios that can anchor theoretical development and managerial foresight and inform the synthesis process described below.

2.2 Overview of the narrative futures synthesis

The narrative synthesis component provides the foundation. Literature scoping followed a purposive and iterative search strategy rather than a systematic review protocol. Initial searches were conducted in Scopus, Web of Science and Google Scholar using combinations of keywords such as time perception, tourism experience, pacing, waiting, slowness, acceleration, experience design and digital mediation. Additional sources were identified through backward and forward citation tracking. Inclusion criteria focused on conceptual relevance to temporal experience in tourism and adjacent fields rather than publication date, enabling both historical grounding and futures-oriented projection. Following guidelines by Ferrari (2015) and Greenhalgh *et al.* (2018), the synthesis proceeded through four iterative stages.

First, scoping and identification of conceptual domains drew on the logic of horizon scanning (Bishop *et al.*, 2007) to map adjacent literatures where time is an explicit or implicit construct, including the cognitive psychology of time perception (Zakay and Block, 1997), sociology of acceleration (Rosa, 2013), chronemics and cultural pacing (Hall, 1983), experience design and the “flow” literature (Csikszentmihalyi and Csikszentmihalyi, 1990), service operations in hospitality (Maister, 1984), and time-geographical analyses of tourists’ routing and pacing (Zillinger, 2007). Beyond the illustrative examples discussed, the horizon scan identified additional weak signals including algorithmic queue management, time-based pricing, virtual queuing, temporal nudging through apps and labor-side temporal compression, which were prioritized based on recurrence across domains and relevance to experiential time design.

Second, source selection and triangulation ensured diversity by incorporating peer-reviewed tourism and hospitality journals, psychology and design research. In total, 82 sources were included in the synthesis, and thematic coding was conducted manually through iterative close reading and comparison. This approach facilitated deeper engagement with heterogeneous literatures and supported abductive integration across disciplinary domains. Only English-language materials were included, with no specific publication time range applied, enabling both retrospective grounding and near-term projection. Table 1 summarizes the conceptual scaffolding underpinning the synthesis, illustrating how diverse literatures collectively inform the futures construction.

Third, thematic coding and synthesis employed interpretive coding (Braun and Clarke, 2021) to group recurrent motifs under cognitive-affective (perception of duration), socio-cultural (rituals and pacing) and techno-systemic (digital modulation of time) dimensions. Initial open codes included concepts such as duration perception, waiting, rhythm, anticipation, temporal control and memory density. Through iterative comparison and clustering, these codes were consolidated into higher-order themes corresponding to cognitive-affective, socio-cultural and techno-systemic dimensions of temporal experience.

These categories informed the construction of three futures strands: temporal design and the architecture of slowness, chrono-personalization and digital time augmentation and the ethics of temporal commodification. Finally, scenario articulation and integration elaborated each strand into a plausible narrative, consistent with the approach used by Dator (2019), drawing on morphological analysis to ensure internal coherence and on cross-impact reasoning to explore how technological, psychological and ethical factors might co-evolve. However, the scenarios should therefore be read as heuristic lenses that organize multiple temporal dynamics, rather than as mutually exclusive or exhaustive futures.

Across these stages, synthesis was not linear but iterative. Analytical reasoning proceeded abductively, oscillating between existing theory and emergent foresight signals. Unlike deductive

Table 1 Conceptual domains informing the narrative futures synthesis		
Conceptual domain	Key sources	Core idea
Cognitive psychology of time perception	Zakay and Block (1997)	Subjective duration and temporal bias
Sociology of acceleration	Rosa (2013)	Modernity’s speed–slowness paradox
Chronemics and cultural pacing	Hall (1983)	Cross-cultural time orientation
Experience design/flow	Csikszentmihalyi and Csikszentmihalyi (1990)	Temporal immersion and absorption
Service operations	Maister (1984)	Managing perceived waiting and pacing
Source(s): Author		

modeling, which tests hypotheses, or inductive grounded theory, which builds categories from data, abductive futures reasoning infers what might logically follow if current trajectories continue or converge (Inayatullah, 2008). Three guiding questions structured the analysis:

- RQ1. What observable weak signals indicate that time is becoming a salient design dimension in tourism and hospitality?
- RQ2. Through what socio-technical and cultural mechanisms might temporal experience be extended, compressed or personalized?
- RQ3. What ethical and governance dilemmas emerge when time itself becomes commodified?

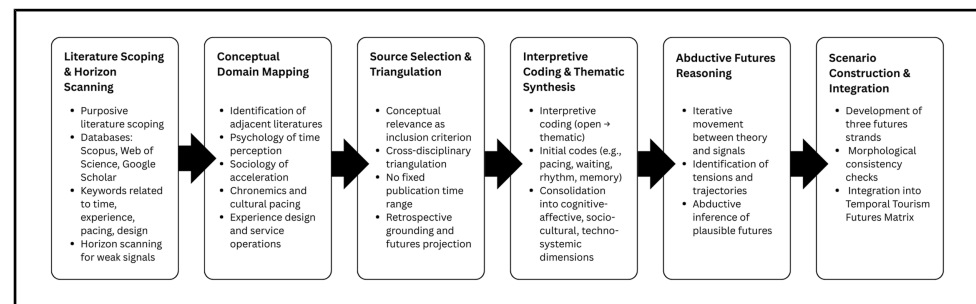
Each question was explored through iterative comparison across disciplines, identifying conceptual tensions (e.g. autonomy vs automation, slowness vs efficiency, memory density vs mindfulness) that informed the construction of the integrative “Temporal Tourism Futures Matrix” presented later in the paper. Finally, Figure 1 summarizes the full methodological flow of the narrative futures synthesis, illustrating the sequence from literature scoping and horizon scanning to interpretive coding, abductive synthesis and scenario construction.

2.3 Integration of futures and design thinking

Building on this structured synthesis process, narrative futures synthesis borrows heavily from design thinking and speculative design, both of which translate foresight into tangible experience concepts (Schwarz *et al.*, 2023). The methodology therefore views scenarios not as static stories but as prototypes of possible worlds that make abstract temporal ideas experientially legible (Sustar *et al.*, 2020). This translational step distinguishes futures research in tourism from traditional forecasting: instead of predicting visitor numbers or economic outcomes, it envisions experiential forms – how a guest might feel, act and remember within a reconfigured temporal environment. Accordingly, the process of synthesis involved iterative “what-if” prototyping: imagining the guest journey under conditions of (a) extreme acceleration (hyper-scheduled AI itineraries), (b) engineered deceleration (slow architecture and ritualized service rhythms) and (c) temporal hybridity (simultaneous physical and virtual presence). These scenario sketches were then assessed against theoretical plausibility, socio-cultural relevance and ethical desirability – criteria consistent with Dator’s (2019) “four futures archetypes” of continuation, collapse, discipline and transformation.

Ensuring methodological rigor in futures work requires transparency about scope and positionality (Wright *et al.*, 2013). The corpus is exploratory rather than exhaustive and interpretive rather than predictive; the aim is conceptual breadth and analytical depth, not statistical generalization. Following the standards of critical futures research (Inayatullah, 2008), reflexivity was maintained through two lenses. First, normative reflexivity involved distinguishing

Figure 1 Methodological flow of the narrative futures synthesis. Source: Author



between forecasting what is likely and articulating what is desirable; ethical desirability guided scenario weighting to avoid technocratic determinism. Second, methodological reflexivity entailed documenting the synthesis process, coding decisions and inclusion criteria to enhance transparency and replicability, consistent with qualitative research standards (Tracy, 2010). Finally, limitations stem from the speculative nature of the exercise: futures images are heuristic tools, not empirical findings. Nevertheless, by grounding speculation in multi-disciplinary evidence and transparent logic, the approach meets the criteria of plausibility, consistency and relevance that define high-quality scenario work (Wright *et al.*, 2013).

Given the futures-oriented and exploratory nature of this study, the paper does not propose a causal conceptual model. Instead, the Temporal Tourism Futures Matrix is advanced as a heuristic framework that synthesizes key dimensions and tensions, supporting sensemaking and anticipatory thinking rather than causal explanation or hypothesis testing.

3. Futures scenarios

The outcome of the methodological synthesis is a conceptual foresight framework organized into three interrelated futures strands that together articulate the evolving temporal ecology of tourism and hospitality (Kim *et al.*, 2023; Tzanelli, 2023). This section articulates these three interdependent future strands through which the experience of time may evolve as a defining dimension of tourism and hospitality, each representing a plausible trajectory rather than a singular forecast (Matteucci *et al.*, 2022; Hartman and Postma, 2024). Collectively, these scenarios illuminate how time can be designed, personalized and governed as both an experiential medium and an ethical construct in the tourism of the future.

The three futures strands are not proposed as an exhaustive inventory of temporal tourism forms, but as integrative trajectories that emerged from thematic convergence across the conceptual domains identified in the narrative futures synthesis (Table 1). During interpretive coding and abductive reasoning, a wide range of temporal phenomena were identified, including temporal fragmentation and micro-moments, intentional disconnection and off-grid temporalities, nostalgic and retrograde temporal orientations and algorithmically accelerated pacing. Rather than treating these as discrete scenarios, the synthesis process clustered them according to their dominant logics of value creation and governance. Temporal design and the architecture of slowness integrates practices of deceleration, disconnection and ritualized pacing; chrono-personalization and digital time augmentation encompasses fragmentation, synchronization and individualized tempo modulation; and the ethics of temporal commodification addresses tensions surrounding nostalgia, memory curation and the monetization of lived duration.

This clustering reflects an analytical choice to privilege coherence and explanatory power over exhaustiveness, consistent with futures-oriented sensemaking rather than typological classification. Moreover, the scenarios presented below are not predictions but conditional futures that extrapolate from observable weak signals and current trajectories and should be read as plausible pathways rather than expected outcomes.

While the three strands exhibit areas of overlap, this is an intentional feature rather than a limitation. Each strand foregrounds a different primary mechanism through which temporal experience is shaped: spatial and service design logics, digital and algorithmic modulation, and ethical and governance considerations. In practice, tourism organizations are likely to engage with multiple temporal logics simultaneously, producing hybrid configurations rather than neatly separable futures. The strands therefore function as analytical lenses that isolate dominant dynamics while remaining conceptually interdependent.

3.1 Strand 1 – temporal design and the architecture of slowness

This strand builds on several observable weak signals rather than assumed adoption. These include the emergence of circadian-informed architectural design in hospitality, the growth of

slow and regenerative tourism infrastructures, and the deliberate reintroduction of temporal rituals such as scheduled pauses, device-free zones and extended transition spaces. Industry examples include wellness-oriented resorts experimenting with light, sound, and spatial sequencing to support recovery and attentional restoration, as well as destinations promoting slow mobility and rhythm-based visitor flows. While currently fragmented and unevenly implemented, these signals collectively suggest growing interest in treating deceleration, pacing and temporal coherence as design variables rather than incidental features, indicating a plausible trajectory toward more intentionally structured temporal environments.

In a world saturated by acceleration, the capacity to slow down becomes a luxury and a therapeutic act. The first scenario envisions the rise of temporal design – the deliberate orchestration of environments, service rhythms and sensory stimuli to alter the subjective flow of time. Rather than emphasizing opulence or novelty, future destinations differentiate themselves by curating the tempo of experience. Hotels, spas and retreats no longer compete on square footage or amenities but on their ability to engineer temporal depth: spaces where moments feel longer, richer and more restorative. The foundations of this trajectory are already observable in slow tourism (Lee *et al.*, 2025), wellness architecture (Chrysikou, 2025) and the growing popularity of digital detox travel (Gong *et al.*, 2023). Yet temporal design goes beyond these trends – it integrates environmental psychology, chronobiology and sensory semiotics to craft experiences that re-synchronize human rhythms with natural and architectural time. Building on research in chronemics (Hall, 1983) and attention restoration theory (Kaplan and Kaplan, 1989), designers manipulate light spectra, acoustics and temperature gradients to induce temporal elongation, while service sequences are scripted with deliberate pauses to promote cognitive recalibration.

Future hospitality spaces might therefore operate as “temporal sanctuaries.” Check-in processes could begin with a decompression ritual where guests surrender devices and pass through multisensory “tempo tunnels” that decelerate heart rate and breathing. Similar temporal aesthetics have already been popularized in cultural media – for instance, in *The White Lotus* (Season 3; released 2025), where slow rituals, sensory cues and enforced disconnection form part of the hospitality experience’s narrative fabric. Room environments may use circadian lighting, scent diffusion and biofeedback loops to synchronize bodily rhythms to diurnal cycles (Spence, 2020). Restaurants could serve “slow menus” that unfold in deliberate intervals, turning meals into time-based performances of patience and anticipation. Such choreography reframes hospitality as temporal therapy – a form of experiential medicine against the pathologies of acceleration. The managerial implications are substantial. Timecraft becomes a core competency: staff trained not only in-service etiquette but in pacing awareness – how micro-pauses, tone and sequencing shape guests’ temporal perception (Maister, 1984; Noone *et al.*, 2009). Other examples include destinations experimenting with time-based visitor dispersal, slow mobility corridors or rhythm-based seasonality strategies led by DMOs. Experience design shifts from delivering variety to composing rhythm, echoing Rosa’s (2013) call for “resonance” over speed. Theoretically, this strand extends the Experience Economy framework into a Temporal Economy, where value arises from the quality of duration rather than the quantity of stimuli. In a post-acceleration era, to “sell time well” becomes the ultimate mark of hospitality excellence.

3.2 Strand 2 – chrono-personalization and digital time augmentation

If the first strand imagines the design of collective temporal environments, the second explores personalized and data-driven manipulation of individual time perception. This strand is grounded in weak signals emerging from the convergence of digital personalization, artificial intelligence and experience optimization technologies. Relevant signals include AI-supported itinerary planning, dynamic time-slot allocation, wearable-driven feedback on fatigue and attention, and platform-based synchronization of travel schedules across services. Here, advances in neurotechnology, affective computing and AI-driven itinerary systems converge to enable chrono-personalization (Majid *et al.*, 2023; Panigrahy and Verma, 2025) – real-time adaptation of travel pacing and

experience density to travelers' cognitive and emotional states (Law *et al.*, 2024). Emerging developments in wearable biosensors, eye-tracking and emotion recognition already allow systems to detect stress, fatigue and engagement (Phuthong *et al.*, 2022).

By the mid-2030s, these capabilities may evolve into temporal feedback ecosystems: platforms that continuously monitor users' physiological and behavioral signals to modulate the tempo of their travel (Buhalis *et al.*, 2023). A traveler's itinerary could dynamically expand, or contract based on attention levels, mood patterns and predicted flow states. For instance, if biometric data indicate cognitive overload, the system might introduce a "temporal buffer" – a silent commute, guided breathing session or scenic pause – before resuming activities. This emerging form of temporal AI extends personalization beyond content (what to see) to cadence (when and how fast). Conceptually, it draws on the Extended Mind hypothesis (Clark and Chalmers, 1998), positing that digital systems co-constitute human cognition, and from posthuman design perspectives that dissolve boundaries between user and environment. Chrono-personalization thus transforms tourists into cyborg temporalities, whose perception of duration is algorithmically co-managed by intelligent infrastructures (Gössling and Mei, 2025).

At the experiential frontier, virtual and augmented reality (VR/AR) technologies may simulate nonlinear temporality: replaying highlights, slowing down awe moments or compressing long transfers into emotionally meaningful sequences (de Lurdes Calisto and Sarkar, 2024). Immersive media can induce temporal distortion similar to the psychological phenomenon of time dilation experienced during high arousal (Wittmann, 2013; Choirisa, 2022). For example, a destination might offer "48 h of memory in a 24-h stay" through curated intensity cycles and memory-enhancing cues, effectively increasing memory density per clock time (Kostyk *et al.*, 2024). Managerially, chrono-personalization introduces both opportunities and challenges (Pratisto *et al.*, 2022). Comparable practices are emerging in platform-mediated tourism, where companies increasingly optimize waiting times, itinerary density and temporal coordination across services.

On one hand, it enables precise orchestration of guest journeys, reducing fatigue and enhancing satisfaction. On the other, it raises ethical concerns around algorithmic paternalism – who decides the optimal pace of someone's life experience? The possibility of predictive "mood engineering" also questions the boundaries between personalization and manipulation. Regulatory frameworks may need to evolve to ensure temporal transparency, where guests understand how their data and pacing are being modulated. In summary, Strand 2 envisions a tourism ecosystem where time becomes data – quantified, optimized and traded as a new layer of personalization. The traditional trip itinerary gives way to a temporal algorithm, dynamically scripting travelers' rhythms in pursuit of seamlessness, well-being or profit.

3.3 Strand 3 – ethics of temporal commodification

While the first two strands explore design and technological innovation, the third addresses the ethical and political implications of a future where time itself becomes a commercial asset. As tourism organizations begin to market time experiences – "slow stays," "instant adventures," "compressed getaways" – they participate in what Rosa (2013) describes as a temporal regime of acceleration, in which control over tempo and rhythm becomes a marker of privilege. In this emerging economy of time, the central question shifts from "Who can travel?" to "Who controls time?". Temporal commodification unfolds along three interrelated dimensions. First is temporal inequality between consumers and workers (Ferrer-Roca *et al.*, 2021). Affluent tourists may purchase serenity and unstructured time through all-inclusive slow retreats, while service employees remain locked in hyper-efficient labor rhythms to sustain that illusion (Erickson and Wajcman, 2023; Ladkin *et al.*, 2023).

This strand draws on weak signals that reveal growing tensions around the commercialization and governance of time in tourism. These include the monetization of waiting through premium time access, the algorithmic curation of memory and attention and the increasing use of data-driven

nudging to shape tourist behavior under the guise of convenience or optimization. Emerging debates around time-based pricing, digital detox commodification and platform-mediated control over pacing and access further indicate ethical frictions surrounding autonomy, equity and transparency.

This mirrors existing spatial and economic asymmetries but introduces a new moral fault line: the right to one's own tempo. Without ethical guidelines, "selling slowness" risks becoming another form of extractive luxury. These dynamics resonate with critiques of surveillance capitalism and data colonialism, which highlight how personalization and convenience can mask asymmetric power relations and extractive control over attention, behavior and lived time (Zuboff, 2019; Couldry and Mejias, 2019). Second, algorithmic temporal governance extends corporate control into travelers' lived duration. If itinerary AI determines pacing to maximize engagement or spending, tourists' autonomy over their temporal flow may erode (Tuomi and Ascenção, 2023). Critical scholarship on platform capitalism warns that personalization often conceals manipulation, reframing leisure as continuous productivity (Christou *et al.*, 2025). In this light, temporal tourism becomes an arena of datafied habitus, where subjective time is optimized for value extraction.

Finally, ecological temporalities challenge human-centered notions of convenience. Accelerated visitation cycles may conflict with the slower regenerative rhythms of ecosystems and host communities. Future destination governance may need to integrate temporal sustainability metrics, balancing tourist turnover with ecological recovery rates and cultural festivals' natural cadence (Hall, 2019; Rongna and Sun, 2022). Emerging movements for "planetary health" tourism already hint at an ethics of alignment – matching human leisure time with ecological time. Addressing these challenges requires a temporal ethics of hospitality, grounded in principles of care, reciprocity and temporal justice (Inversini *et al.*, 2024).

While temporal tourism is often framed as enhancing well-being through slowness, personalization or restoration, these benefits are unevenly distributed. Access to unstructured time, privacy and decelerated environments frequently aligns with socio-economic privilege, raising the question of whether "buying time" or "buying slowness" constitutes a new form of luxury consumption. Moreover, temporal design choices affect not only guests but also workers, whose labor rhythms may be intensified, fragmented or algorithmically managed to sustain curated temporal experiences. In this sense, temporal tourism risks reproducing existing inequalities by externalizing temporal pressure onto less visible actors, underscoring the need to interrogate who gains temporal autonomy and who absorbs temporal costs.

Building on the ethics of care, such an approach treats time not as a commodity but as a relational resource – shared between hosts, guests, workers and environments. Policy innovations could include "temporal transparency" labels (disclosing labor and algorithmic pacing), fair scheduling standards or certifications for slow and regenerative operations. Theoretically, this strand extends discussions of sustainability and corporate responsibility into the chronopolitical domain, urging scholars to analyze tourism as a temporal governance system rather than a purely spatial or economic one. Just as the carbon footprint measures environmental impact, the temporal footprint may one day quantify how experiences consume or regenerate collective time.

4. Discussion

The synthesis across the three futures strands indicates that tourism is entering a temporal era of differentiation, where time, rather than space, becomes the key axis of value creation. For decades, tourism scholarship has emphasized movement, mobility and place as the defining metaphors of travel (Sheller and Urry, 2006; Hall, 2019). Yet beneath these spatial imaginaries lies a neglected temporal infrastructure – waiting, pacing, rhythm, anticipation and memory – that fundamentally structures how experiences are felt, sequenced and remembered (Pearce, 2020; Kim *et al.*, 2023). The temporal turn advanced here reframes time as both the medium and

measure of tourism, a resource whose orchestration determines guest satisfaction, ethical legitimacy and competitive advantage.

Across the three strands, a consistent transformation emerges: tourism is shifting from spatial consumption to temporal design. The first strand revealed how the architecture of slowness reconfigures hospitality environments into affective technologies that choreograph collective rhythms and embodied stillness. Time is intentionally crafted through sensory cues, ritualized routines and architectural affordances that extend or compress perceived duration (Kaplan and Kaplan, 1989; Chrysikou, 2025). This reframes hospitality as a practice of temporal care, where service encounters are evaluated not by length but by qualitative texture – the sense that moments are meaningful, paced and coherent in memory (Lee *et al.*, 2025). Conceptually, this extends Pine and Gilmore's (2013) experience economy toward a design of duration, aligning with emerging research on wellness architecture and regenerative hospitality (Inversini *et al.*, 2024).

The drivers of temporal tourism are distributed across multiple actor groups. Destination management organizations influence temporal rhythms through crowd management, seasonality strategies and infrastructure pacing. Hospitality firms operationalize temporal design through service sequencing, labor scheduling and experiential curation. Technology companies shape chrono-personalization through platforms, data analytics and algorithmic coordination. Policymakers affect temporal governance through regulation of labor time, platform accountability and access to public space. Consumers, in turn, co-produce temporal experience through preferences, adoption practices and resistance to acceleration or surveillance.

The second strand exposed the algorithmic frontier of chrono-personalization, where time perception becomes datafied and modulated through artificial intelligence and biometric sensing (Majid *et al.*, 2023; Buhalis *et al.*, 2023). Advances in adaptive interfaces now enable “real-time pacing,” adjusting itineraries, lighting or sensory intensity according to travelers’ physiological or affective states (Law *et al.*, 2024). While such systems enhance recovery and engagement, they raise critical tensions between autonomy and automation (Gössling and Mei, 2025). As travelers delegate self-regulation to intelligent infrastructures, agency risks being absorbed into algorithmic optimization. Theoretically, this extends posthumanist and critical algorithm studies (Tuomi and Ascenção, 2023; Christou *et al.*, 2025), positioning tourists not merely as users but as co-regulators in hybrid human–machine temporalities. A reflexive ethics of algorithmic transparency and temporal governance thus becomes essential.

The third strand foregrounded the political economy of time. Building on Sharma's (2014) critique of chrono-capitalism, temporal privilege mirrors economic privilege: affluent tourists purchase unstructured time through “slow” experiences, while service workers sustain that illusion through accelerated labor rhythms (Ferrer-Roca *et al.*, 2021; Ladkin *et al.*, 2023). This moral asymmetry reframes tourism's ethical terrain as one of temporal justice – who controls, sells or is deprived of time. Integrating the ethics of care (Jamal and Camargo, 2014) and sustainable tourism frameworks (Hall, 2019; Inversini *et al.*, 2024), the analysis proposes temporal stewardship as a guiding principle: valuing rhythm diversity, rest and reciprocity as counterweights to efficiency. Time is thus repositioned not as a commodity but as a relational commons shared among hosts, guests and environments.

Finally, the concept of temporal tourism is shaped by modern, predominantly Western temporal imaginaries that privilege individual experience, clock-based scheduling and optimization. In many cultural contexts, time is understood relationally, cyclically or cosmologically rather than as a scarce resource to be managed. Moreover, longer temporal horizons associated with environmental degradation, slow violence and extinction consciousness challenge the short-term experiential focus of tourism altogether. These tensions highlight the limits of temporal tourism as a universal framework and point to the need for culturally situated and ecologically grounded approaches to temporal design.

Taken together, these findings articulate tourism as a temporal ecology in which design, technology and ethics converge around the governance of duration. Time is relational and co-produced – emerging from the interplay between human intention, technological mediation and environmental rhythm (Orlikowski and Yates, 2002; Rosa, 2013). The temporal turn challenges tourism scholarship to rethink its ontological foundations: from movement to rhythm, from consumption to resonance and from space to temporality. It unites disparate literatures – experience design, algorithmic mediation and care ethics – into a unified framework of temporal governance.

4.1 Integrative framework and contributions

The interpretive synthesis culminates in the temporal tourism futures matrix (TTFM) – a framework that systematizes how time operates as a designed, mediated and governed dimension of tourism. The TTFM conceptualizes time as a socially and technologically co-produced phenomenon, offering a heuristic tool to analyze how temporal value is created, distributed and contested.

The framework rests on three premises. First, time is relational, arising from dynamic interactions among humans, technologies and environments (Orlikowski and Yates, 2002). Second, time is designable, as material, sensory and narrative interventions can recalibrate felt duration and rhythm (Kaplan and Kaplan, 1989; Wittmann, 2013). Third, time is political, since control over pacing and access reflects hierarchies of privilege, labor and power (Sharma, 2014). These dimensions intersect within the TTFM, organized along two continua. First, the horizontal axis distinguishes human-centered orchestration from algorithmic mediation. And secondly, the vertical axis differentiates care-based from commodified temporal economies. This yields four archetypes (Table 2):

- 1. Curated slowness – human-centered, care-based time as restorative medium (Rosa, 2013; Lee et al., 2025).
- 2. Participatory resonance – human-centered but commodified time as shared cultural capital (Reisinger and Steiner, 2006).
- 3. Algorithmic acceleration – algorithmic and commodified time as data-driven efficiency (Buhalis et al., 2023; Couldry and Mejias, 2019).
- 4. Temporal justice – algorithmic yet care-based time as equitable and regenerative resource (Becken and Kaur, 2021; Inversini et al., 2024).

Table 2 Summary of temporal tourism futures matrix (TTFM)				
Quadrant	Temporal mediation	Value orientation	Core logic	Example manifestations
I. Curated Slowness	Human-centered	Care-based	Time as restorative medium	Slow retreats, sensory architecture, ritualized hospitality
II. Participatory Resonance	Human-centered	Commodified	Time as shared cultural capital	Heritage festivals, communal crafting, rhythm-based tourism
III. Algorithmic Acceleration	Algorithmic	Commodified	Time as data-driven efficiency	Smart itineraries, biometric pacing, predictive planning
IV. Temporal Justice	Algorithmic	Care-based	Time as equitable and regenerative resource	AI for workload fairness, ecological pacing, temporal sustainability dashboards
Source(s): Author				

These archetypes coexist dynamically within what [Pickett et al. \(2022\)](#) call a pluralized temporal ecology. The TTFM enables scholars and practitioners to trace how forms of mediation and value orientation evolve – how slow-tourism models drift toward commodification or how AI systems mature toward ethical transparency. Theoretically, it extends the experience economy ([Pine and Gilmore, 2013](#)), service-dominant logic ([Shaw et al., 2011](#)) and social acceleration ([Rosa, 2013](#)) by positioning time as an active system of mediation linking micro-level experience with macro-level governance.

The TTFM advances theoretical discourse in three interrelated ways. First, it shifts the analytical lens from space to time, reframing tourism as a temporal experience system in which rhythm, sequencing and perceived duration become central determinants of value and meaning ([Pearce, 2020](#)). Second, it moves from experience to temporal design, extending design scholarship toward the deliberate crafting of time quality as a distinctive dimension of differentiation ([Kaplan and Kaplan, 1989](#); [Chrysikou, 2025](#)). Third, it evolves from sustainability to temporal ethics, broadening sustainability discourse to include fairness in the distribution, regeneration and stewardship of time across human and ecological systems ([Hall, 2019](#); [Inversini et al., 2024](#)).

For researchers, the framework invites new inquiries: How do travelers define time quality vs time quantity? What cognitive and affective mechanisms underpin perceived temporal distortion? How do workers experience rhythm inequities in fast vs slow service models? And what governance mechanisms can ensure algorithmic pacing respects autonomy and well-being ([Tuomi and Ascensão, 2023](#); [Hoang et al., 2023](#))? For practitioners, the TTFM provides a strategic foresight tool. Destination managers can map their temporal positioning – balancing algorithmic efficiency with human-centered care – while policymakers might adopt temporal impact assessments, analogous to carbon footprints, to evaluate how tourism infrastructures affect community and ecological rhythms ([Rongna and Sun, 2022](#)). By integrating temporal design, personalization and ethics, the framework positions time not as what tourism consumes, but as what it must now learn to steward.

5. Conclusion

This paper has argued that time, rather than space, constitutes the next conceptual and practical frontier of tourism. By advancing the notion of temporal tourism, it has proposed that the future of hospitality and leisure could be defined less by where people go and more by how they inhabit duration. The rapid acceleration of daily life, pervasive digital mediation and globalized attention economies have turned time into both a scarce commodity and a site of existential negotiation. Against this backdrop, tourism emerges as one of the few domains where time can still be reclaimed, stretched and made meaningful. Through a narrative futures synthesis, three strands emerged: temporal design and slowness, re-engineering how time is felt; chrono-personalization, where artificial intelligences shape travelers' rhythms; and temporal ethics, addressing inequalities that arise when time becomes a tradable experience. Integrated through the TTFM, these strands reveal time as simultaneously a design material and a moral resource. The resulting framework portrays future tourism organizations as temporal orchestrators, entities that mediate the interplay between human perception, technological mediation and ethical responsibility. The term temporal orchestrators is used to describe tourism organizations that actively shape experiential rhythms and durations through design, service practices and digital systems.

Several key insights emerged. First, temporal experience is designable. Spatial architecture, sensory cues and narrative pacing can actively shape subjective duration, meaning and memory. The capacity to choreograph rhythm and resonance becomes a new form of hospitality artistry. Second, temporal personalization is likely to redefine service intelligence. As technologies learn to read and predict cognitive tempo, future experiences could adapt in real time to users' biological and emotional states. This shift from static scheduling to dynamic temporality transforms tourism from the management of logistics into the curation of lived time. Third, temporal ethics may become essential. The same technologies that enable seamless pacing can also deepen inequity

and erode autonomy. The future of tourism must therefore balance innovation with care, embedding temporal justice into organizational design, labor practices and ecological stewardship. If the twentieth century's tourism innovation focused on conquering space and making the world smaller through mobility, the twenty-first century's challenge is to liberate time.

Temporal reflexivity calls for not only designing experiences but questioning the kinds of time they create – hurried or contemplative, extractive or regenerative superficial or resonant. Designing with time is, ultimately, designing with consciousness itself. Like all foresight work, this paper's projections are explorative, not predictive. The scenarios presented are heuristic devices designed to stimulate reflexive inquiry. Their value lies not in forecasting outcomes but in expanding the imagination of scholars, designers and decision-makers. The framework should therefore be seen as a living construct, open to empirical testing and cultural contextualization. Future research might examine how different societies – monochronic vs polychronic, industrialized vs post-industrial – construct and consume temporal experiences. Similarly, more attention is needed to the embodied and neurocognitive dimensions of time perception in tourism, an area ripe for interdisciplinary collaboration. As society enters an age of attention scarcity and perpetual acceleration, the hospitality sector holds the rare capacity to potentially restore the humane pace of being.

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