

Integrating scenario planning with futures wheels: a sequential framework for exploring tourism futures

Andrus H.L. Nomm, Julia Albrecht and Brent Lovelock

Andrus H.L. Nomm, Julia Albrecht and Brent Lovelock are all based at the Department of Tourism, University of Otago, Dunedin, New Zealand.

Received 19 August 2025
Revised 24 November 2025
Accepted 8 December 2025

© Andrus H.L. Nomm, Julia Albrecht and Brent Lovelock. Published in *Journal of Tourism Futures*. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at [Link to the terms of the CC BY 4.0 licence](#).

Funding: This research received no external funding.

Conflict of interest: The authors declare no conflicts of interest.

Abstract

Purpose – This paper proposes and illustrates a sequential, qualitative framework that combines scenario planning and the futures wheel to enrich futures-oriented research in tourism. The aim is to generate plausible long-term perspectives on tourism decarbonization and to systematically explore their implications for destinations.

Design/methodology/approach – The study followed a sequential exploratory design. First, expert-informed scenario planning was used to develop four plausible 2040 tourism decarbonization scenarios. These scenarios were then introduced in practitioner workshops using the futures wheel method, enabling stakeholders to collaboratively identify and map first-, second- and third-order implications associated with each future. The futures wheel workshops were conducted in New Zealand with 25 representatives from the Regional Tourism Organization and their stakeholders.

Findings – The combined framework provides a structured way to link scenario thinking with participatory exploration of impacts. Scenario planning ensured plausibility and breadth of futures considered, while the futures wheel workshops grounded the analysis in practitioner knowledge and highlighted interdependencies and unintended consequences. The generated implications revealed a misalignment between the systemic transformations highlighted in the scenarios and the institutional capabilities of regional destination management, with marketing-related implications perceived as feasible, while leadership and strategic planning emerged as a critical yet severely constrained response for any of the scenarios.

Practical implications – The approach can support destination managers and policymakers in stress-testing strategies, identifying potential vulnerabilities and co-developing more adaptive and resilient responses to the issues at hand. Beyond the specific context of tourism, the framework offers an accessible example of multi-method futures research that could be adapted in other fields.

Originality/value – While both methods have been applied independently in tourism futures studies, this study is one of the first to integrate them in a sequential design. The framework demonstrates how established foresight methods can be combined to enhance analytical depth and practical relevance without requiring extensive quantitative modelling.

Keywords Futures research, Scenario planning, Futures wheel, Implications wheel, Destination management, Expert knowledge, Qualitative research, Qualitative multi-method, Mix of methods

Paper type Research article

Introduction

The future of the tourism industry is increasingly shaped by uncertainties (Postma *et al.*, 2024) arising from global challenges such as climate change (Gössling *et al.*, 2010, 2023, 2024; Hall, 2019; Hall *et al.*, 2015; Scott and Gössling, 2015), shifting consumer and community behaviours (Amelung *et al.*, 2007; Becken, 2021; Gössling *et al.*, 2020; Soler *et al.*, 2020) and technological advancements (Becken and Shuker, 2019; Edelenbosch *et al.*, 2017; Fletcher *et al.*, 2019; Gössling, 2020; Gota *et al.*, 2019; Soler *et al.*, 2020). As these factors interact in

complex ways, traditional forecasting methods often struggle to capture the full range of possible developments. Approaches utilizing a mix of methods in qualitative futures research offer a valuable means of addressing these complexities and uncertainties by providing deeper insights (Balula and Bina, 2013; Bengston, 2016; Metzger *et al.*, 2010; Postma, 2015; Postma *et al.*, 2017) into the implications and potential transformations for the tourism system and related stakeholders.

Among the various foresight tools available, scenario planning (Amer *et al.*, 2013; Balula and Bina, 2013; Metzger *et al.*, 2010; Postma, 2015; Walton, 2008) and futures wheels (Benckendorff, 2008; Ernst *et al.*, 2018; Farrow, 2022; Kunttu *et al.*, 2022) are gaining momentum as methodologies for exploring plausible futures. Scenario planning facilitates the development of multiple future narratives, enabling researchers and decision-makers to move beyond linear projections and anticipate a range of possible outcomes (Amer *et al.*, 2013; Balula and Bina, 2013; Metzger *et al.*, 2010; Postma, 2015; Walton, 2008). Meanwhile, the futures wheel method systematically maps first-, second- and third-order consequences of emerging trends and events, offering a structured approach to assessing cascading impacts (Benckendorff, 2008; Ernst *et al.*, 2018; Farrow, 2022; Kunttu *et al.*, 2022). Both tools have been rarely applied independently in tourism research, evidenced by a Scopus search on “tourism and futures wheel” yielding only three publications (Benckendorff, 2008; Moscardo *et al.*, 2017; Seegolam *et al.*, 2016) – and their integrated use remains unexplored.

This article proposes a mix-of-methods approach as a sequential exploratory design, where insights from one qualitative method inform the subsequent application of another, also in tourism. The first method, scenario planning, produces key insights and themes that then provide the foundation for the second method, the futures wheel, which builds upon and deepens the initial findings. This ensures the methods are analytically connected as interdependent stages within a coherent research strategy. By combining the strengths of both methods, this framework seeks to provide a more comprehensive means of identifying key uncertainties, of visualizing their effects and of generating actionable insights.

The following sections discuss the theoretical foundations of these tools and then present a case study that illustrates their practical application in tourism futures research.

Literature review

To contextualize the proposed methodological framework, this literature review first provides an overview of futures research in tourism before discussing the two core methods used in this study: scenario planning and futures wheels.

Futures research in tourism

Quantitative system modelling sometimes struggles to incorporate social drivers such as actors, decision-makers and institutions, key elements in sectors undergoing transition (Bell and Olick, 1989; De Cian *et al.*, 2020; Melnikovas, 2018). Although tourism futures studies may still be considered in the early stages of development (Postma, 2015), social constructionist approaches have been effectively employed to explore potential tourism futures (Yeoman *et al.*, 2015; Yeoman and Postma, 2014). Social constructionism in futures studies suggests that knowledge is not about predicting a predetermined future but about constructing plausible scenarios through abstraction and classification (De Smedt *et al.*, 2013; Fuller and Loogma, 2009). While the future remains uncertain, methods can offer presumptive evidence of plausibility (Bell and Olick, 1989). Foresight grounded in social constructionism generates qualitative scenarios to anticipate future developments (Yeoman and Postma, 2014). This approach involves clarifying assumptions, engaging stakeholders and ensuring scenarios are coherent and contextually relevant (Yeoman and McMahon-Beattie, 2018).

Exploratory qualitative research provides a structured way to investigate under-researched phenomena and generate deeper insights in futures research (Kosow and Gaßner, 2008; Melnikovas, 2018). Such studies often serve as a foundation for more structured research approaches. Abduction as an approach to knowledge accumulation is suitable for qualitative futures research, as it allows for knowledge accumulation based on existing insights, progressing toward plausible explanations through iterative learning and revisiting existing knowledge for further explanations (Melnikovas, 2018; Moriarty, 2012; Paavola *et al.*, 2006). Bell and Olick (1989) propose using “knowledge surrogates”, constructed on a “what if” basis for future-oriented social action to further develop depth and plausibility in future research and support decision-making. The authors define knowledge surrogates as substitutes for direct knowledge of the future to construct images of alternative futures (Bell and Olick, 1989). These surrogates serve as cognitive tools in decision-making, enabling social action in contexts of uncertainty. Their credibility relies on making their underlying assumptions explicit and intelligible – both of which allow for critical scrutiny – ensuring logical coherence, alignment with relevant past and present facts and consistency with other plausible projections within the same timeframe (von Bergner and Lohmann, 2014).

Futures research, therefore, is not a static process but a dynamic interplay of discourse, negotiation and evolving social interaction (Yeoman and McMahon-Beattie, 2014). Key uncertainties may stem from external or internal forces (von Bergner and Lohmann, 2014), influenced by sudden disruptive events or gradual developments unfolding at varying speeds.

Building on these principles, a mix-of-methods approach has been suggested to enhance the robustness of scenario planning (Benckendorff, 2008; Truong *et al.*, 2020) by integrating expert-driven analysis with participatory research techniques. This study operationalizes such an approach, employing literature analysis and expert interviews to identify drivers of change and then using futures wheel workshops to explore the implications of tourism decarbonization for destination management. Such integration strengthens the reliability of foresight research (Star *et al.*, 2016), although challenges such as power dynamics and participant fatigue remain (Derbyshire and Wright, 2017; Fuller, 2017; Patomäki, 2006). To understand how specific methods can be integrated to leverage these strengths while navigating potential challenges, the following sections detail the theoretical foundations of scenario planning and futures wheels.

Scenario planning: strengths, limitations and applications in tourism research

Scenario planning is a strategic foresight method used to explore plausible future developments by identifying key drivers of change and uncertainties (Metzger *et al.*, 2010). Rather than predicting the future, it constructs alternative scenarios (Amer *et al.*, 2013; Balula and Bina, 2013; Khosravi and Jha-Thakur, 2019) that illustrate possible pathways without explicit claims about probability (Yeoman and Postma, 2014). The intuitive logic approach to scenario planning asserts that the future operating environment is shaped by a complex interplay of political, economic, social, technological, environmental and legal (PESTEL) factors, resulting in hypothetical scenarios that map out causal processes and key decision points (Amer *et al.*, 2013; Derbyshire and Wright, 2017; Keseru *et al.*, 2021; Melnikovas, 2018; Star *et al.*, 2016). While certain factors such as demographics are precise and quantifiable, many, such as consumer attitudes, political dynamics, financial conditions and product demand, remain qualitative and unpredictable, a complexity that this approach explicitly acknowledges (Amer *et al.*, 2013; Metzger *et al.*, 2010).

This approach has been widely applied also in destination management at national and organizational levels (Amer *et al.*, 2013) and is often an iterative process that evolves with shifting drivers and improved understanding (Postma, 2015). Scenarios can range from optimistic to apocalyptic (Bergman *et al.*, 2010; Walton, 2008), though research often focuses on pragmatic scenarios that balance technological and societal shifts (Dator, 1979 as cited in Amer *et al.*, 2013). When integrated with strategic planning, scenario planning helps decision-makers manage risks and navigate toward desirable futures (Benckendorff, 2008).

Despite its long history (Amer *et al.*, 2013; Walton, 2008), scenario planning has gained traction in tourism research only in recent decades (Ahmadi Kahnali *et al.*, 2020; Clark *et al.*, 2022; Khosravi and Jha-Thakur, 2019; Postma, 2015; Scott and Gössling, 2015; Yeoman, 2012). Seyitoğlu and Costa (2022) note that much of this research remains internally focused on tourism matters, often overlooking broader external influences. This narrow scope may be a result of tourism's entrenched growth paradigm, driven by consumerism and neoliberal capitalism (Becken, 2017).

Scenario planning as a method, driven by identifying key forces, is inherently qualitative, relying on dialogue, creativity and intuition (Walton, 2008). The process involves categorizing key PESTEL drivers based on impact and unpredictability (Keseru *et al.*, 2021). Key uncertainties serve as the foundation for constructing scenario narratives, which illustrate causal relationships and decision points (Amer *et al.*, 2013). Given its qualitative nature, scenario planning is heavily influenced by facilitator expertise, participant diversity and communication dynamics (Derbyshire and Wright, 2017).

The methodology follows structured steps to ensure internal coherence. Moriarty (2012) outlines a widely used framework that involves identifying key issues, clustering related elements, prioritizing uncertainties and constructing scenario narratives. Earlier iterations of scenario planning were criticized for lacking reproducibility (Moriarty, 2012), but rigorous logical structuring and internal consistency are proposed to mitigate these concerns (Amer *et al.*, 2013).

A combination of qualitative research methods enhances scenario planning's effectiveness and the robustness of outcomes. For example, expert consultations, brainstorming, interviews and document analysis help identify and interpret drivers of change (Ahmadi Kahnali *et al.*, 2020; Amer *et al.*, 2013; Ernst *et al.*, 2018). Yeoman and McMahon-Beattie (2014) developed tourism scenarios by synthesizing literature, engaging experts in workshops and prioritizing key driving forces. Postma *et al.* (2017) similarly combined literature reviews with expert consultations to construct European tourism futures. Additionally, Barbosa *et al.* (2022) used a literature review to frame a study on the future of work in 2050, demonstrating the importance of integrating existing knowledge into foresight methodologies.

Scenario planning enables the exploration of multiple future trajectories, serving as a tool for providing plausible insights into structuring decision-making processes at the later stages. By acting as an interpretative framework, it may help stakeholders navigate uncertainties, anticipate challenges and adapt to evolving conditions in tourism and beyond. While scenario planning excels at constructing these broad future narratives, a complementary method is necessary to uncover implications in the evolving conditions and adaptations in the future.

The futures wheel: application and relevance in tourism research

The futures wheel is a structured foresight method designed to systematically capture expert knowledge and assess the direct and indirect implications of possible future changes (Kunttu *et al.*, 2022). By mapping out causal relationships, it facilitates an exploration of complex interconnections between related issues and their potential impacts (Ernst *et al.*, 2018; Farrow, 2022). Although originally developed in the 1970s (Benckendorff, 2008), its limited application in tourism means this research draws on broader applications of the method from other domains.

Recent studies have successfully employed the futures wheel to examine the long-term social impacts of COVID-19 and the future of work (Barbosa *et al.*, 2022), assess geopolitical disruptions on supply chains (Krykavskyy *et al.*, 2023) and evaluate European policy impacts on the Finnish forestry sector (Kunttu *et al.*, 2022). The method has also been successfully employed in tourism research. Benckendorff (2008) evaluated the method for envisioning sustainable tourism futures, demonstrating how it can map systemic implications of emerging trends. Benckendorff *et al.* (2009) combined the futures wheel with backcasting to explore tourism's impact on host community quality of life, generating actionable insights for policy and planning. More recently, Kononov *et al.* (2021) applied the futures wheel in participatory workshops to

examine destination community well-being, revealing its value for fostering innovative and inclusive tourism futures. Given its flexibility and efficiency (Farrow, 2022), the method is well suited for examining complex futures, including tourism decarbonization.

The method is typically implemented in workshop settings lasting between 2.5 and 4.5 h (Ernst *et al.*, 2018), depending on group dynamics and the complexity of identified implications. The futures wheel structure places a central issue of the future at its core, with successive concentric rings illustrating first-, second- and third-order implications (Barbosa *et al.*, 2022; Farrow, 2022). Clearly defining the central issue enhances data comprehensiveness (Bengston, 2016), while structured brainstorming fosters creative and critical thinking (Benckendorff, 2008; Toivonen and Viitanen, 2016). Participatory approaches ensure diverse perspectives, but effective facilitation is crucial to prevent speculative or unstructured outcomes (Ernst *et al.*, 2018).

Workshops typically proceed in stages: stakeholders identify first-order implications, which then inform second- and third-order implications on the wheel that stem from the previous upper-level implication (Benckendorff, 2008; Kunttu *et al.*, 2022). Some studies incorporate predefined likelihood and desirability matrices to refine evaluation of the mapped implications (Bengston, 2016). This visual and qualitative method is efficient in terms of research resources, as it requires minimal data processing and enables clear identification of key linkages (Bengston, 2016, 2019; Bengston *et al.*, 2022).

A notable limitation of the futures wheel is the potential for researcher bias, particularly in workshop facilitation. To mitigate this, facilitators should provide neutral information at the outset and avoid steering discussions (Benckendorff, 2008). Despite this challenge, the futures wheel is still a useful tool for exploring tourism futures, especially when dealing with complex and layered transition issues.

Building on the previous discussion, combining scenario planning with the futures wheel method provides a structured way to explore possible futures in tourism and future-related uncertainties. Using expert interviews and literature reviews as knowledge surrogates strengthens the plausibility of future scenarios by drawing on existing research and expert insights. Additionally, framing futures wheels around well-defined scenarios expands the exploration of potential implications and impacts of the future scenarios when contributions come from a separate group of experts. The next section will examine how this approach can be applied in practice.

Integrating scenario planning and futures wheels

Given the absence of standardized qualitative futures methodologies, integrating diverse approaches enhances the comprehensiveness of futures research and mitigates biases (Barbosa *et al.*, 2022; Toivonen, 2021; Toivonen and Viitanen, 2016). Combining techniques such as the Delphi method and cross-impact analysis has proven effective in structuring tourism foresight studies (Benckendorff, 2008; von Bergner and Lohmann, 2014). Scenario planning remains relatively underutilized in tourism research (Khosravi and Jha-Thakur, 2019; Schwenker and Wulf, 2013; Scott and Gössling, 2015), though it has recently gained momentum (Losekoot 2025; Postma *et al.*, 2024). The futures wheel has been recognized (Benckendorff, 2008; Toivonen, 2021) as a valuable tool for understanding the cascading impacts of future developments. By leveraging these complementary methods, tourism foresight research can more effectively inform strategic decision-making and long-term policy planning. The following section illustrates a sequential exploratory design that integrates scenario planning and futures wheels with a view to enhancing qualitative futures research in tourism.

Application of the mix of methods: sequential exploratory integration of scenario planning and futures wheels

This section details the application of the sequential exploratory design used in this study. In this logically structured flow, insights from scenario planning (Step 1) directly inform the futures wheel workshops (Step 2), integrating the two methods into a single, analytically connected framework.

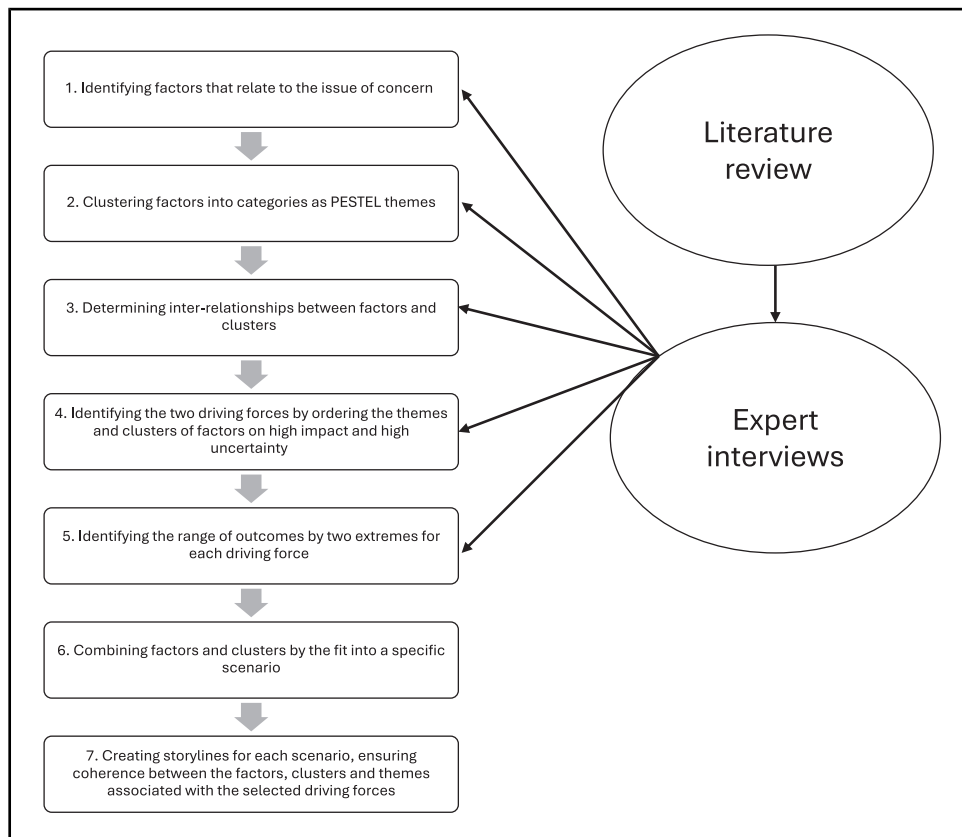
Step 1: identifying key drivers of change and constructing future scenarios

The scenario development process, discussed hereafter, followed Moriarty's (2012) seven-step approach (Figure 1). As a starting point, this study employed a systematic literature review to identify key drivers of change and uncertainties around tourism concerned with decarbonization, and this provided a foundation for expert interviews and scenario planning. The literature review followed a structured four-phase process (Moher et al., 2009, 2015), namely identification, screening, eligibility and inclusion, using Scopus as the primary database to source the titles. Initial searches yielded 1,068 articles, which were refined to a final sample of 279 relevant publications. These were categorized based on key research topics and interests related to tourism carbon emissions, decarbonization efforts in tourism, drivers for related change and destination management approaches. Thematic analysis of the literature identified factors influencing the decarbonization of tourism, which were then used as an input to inform the subsequent expert interviews.

Experts interviewed were selected as knowledge surrogates (Patton, 2014) based on their recent scholarly contributions to tourism futures, destination management and decarbonization. An initial sample of eight academics was identified, with four ultimately participating in semi-structured interviews. These interviews focused on envisioning tourism in 2040, assessing uncertainties and identifying critical drivers of change. Experts were provided with preliminary factors derived from the literature and asked to validate, refine and prioritize these findings with their insights.

Data collected during the expert interviews underwent the usual coding and thematic clustering using the PESTEL framework (Derbyshire and Wright, 2017). Subsequently, each factor was

Figure 1 Process of scenario planning



assigned a fuzzy value to reflect its impact and uncertainty, which was then normalized to prioritize key uncertainties (Mitic *et al.*, 2021). The analysis identified 21 critical factors within 17 sub-clusters, further refined through expert input, compared to 10 factors within 8 sub-clusters that were elicited through the literature analysis. Following this, mind-mapping was carried out by the lead researcher to illustrate interconnections.

In the fourth step of the seven-step process (Moriarty, 2012), the two most impactful and uncertain driving forces were identified through an XY scatter chart, highlighting factors with high impact but low predictability. These forces formed the foundation for scenario building. Extreme outcome variations for each force and cluster were then formulated based on the findings from the expert interviews. In step six, a scenario matrix was developed, mapping intersections of the driving forces and their possible outcomes. Finally, in step seven, four scenario storylines were crafted, providing logically coherent narratives that synthesized interrelationships between earlier identified factors and potential trajectories for tourism decarbonization in 2040 as projected by the matrix.

These four “tourism and decarbonization 2040” scenarios then served as the direct input for the next phase of the research, which explored their implications for regional tourism destinations through futures wheels.

Step 2: constructing futures wheels and rating the generated implications

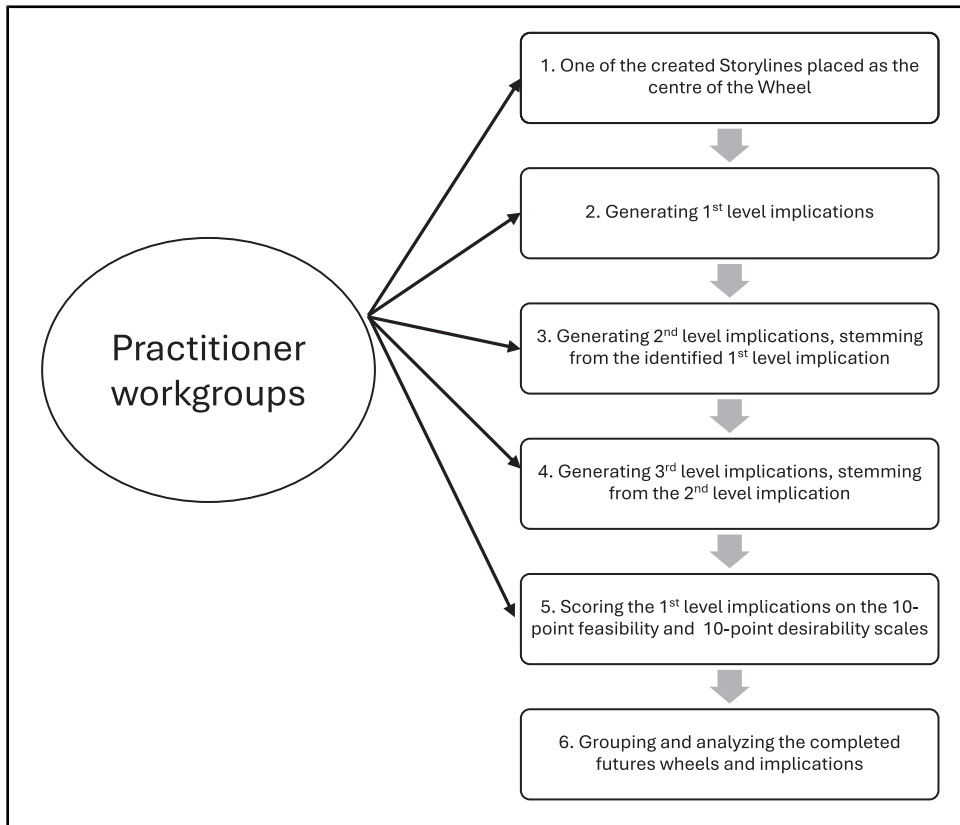
With the scenarios established, this phase employed purposive sampling (Patton, 2014) to select representatives from New Zealand’s 31 Regional Tourism Organizations (RTOs). A consultation with Regional Tourism New Zealand, an umbrella organization for RTOs, helped identify RTOs with an interest in reducing tourism’s carbon footprint. Seven RTOs were initially shortlisted, but all declined participation. To expand the pool, a snowball sampling approach (Patton, 2014) was adopted, leading to the inclusion of two RTOs from the original list and five additional representatives from other RTOs.

To gather data, 6 futures wheel workshops were held with 25 representatives from RTOs and their associated stakeholders such as attraction operators, airport managers, transportation providers, accommodation operators, destination consultants and resource managers. Prior to the workshops, participants were sent an overview of the project, an introduction to the futures wheel methodology and participant consent forms. The workshops averaged 2 h and 17 min in duration and were recorded for later review purposes.

During the workshops, a designated future scenario was placed at the centre of the futures wheel (Figure 2). Participants familiarized themselves with this scenario and generated potential implications for the destination, tourism and its stakeholders by addressing the prompt, “What if [...]?” These implications were organized into a three-tier structure: first-, second- and third-order implications. Across six completed workshops, participants identified a total of 179 implications: 47 first-order, 79 second-order and 53 third-order – with second-order implications typically outnumbering first-order ones, as is common with this method (Benckendorff, 2008; Epp *et al.*, 2022; Nielsen *et al.*, 2023; Toivonen and Viitanen, 2016). Additionally, workshops with larger participant groups produced more comprehensive outcomes, while variations in complexity were linked to the region’s stage of tourism development and the diversity of its wider economy, as well as the extent of active involvement in destination management.

In the following phase of the workshop, participants scored their first-order implications on a nine-point feasibility/likelihood scale (Bergesen *et al.*, 2017; Farrow, 2022), considering factors such as technical, financial and operational constraints, as well as support from the community and stakeholders. The objective was to assess the suitability of the current destination management approach to address these implications in case the future scenario actually unfolded.

Figure 2 Process of futures wheel



Subsequent data analysis involved converting the completed futures wheels into a digital format and using thematic analysis (Bengston, 2016) to identify recurring themes among the first-order implications. The analysis employed open coding (Patton, 2014) to identify major themes, and further coding was applied to examine implications specific to destination management functions. The data were cross-referenced to ensure consistency in interpretation. Seven key themes emerged: alignment with community values; tourism system effectiveness and streamlining; evolving industry practices and product offerings; alignment between visitor and community values; tourism-related carbon emissions; legislative frameworks and intervention; alterations in visitor profiles and revamped marketing strategies. The feasibility scoring revealed that implications relating to strategic development and leadership received lower scores, indicating that the current destination management approach may be ill-suited for implementing the systemic changes required.

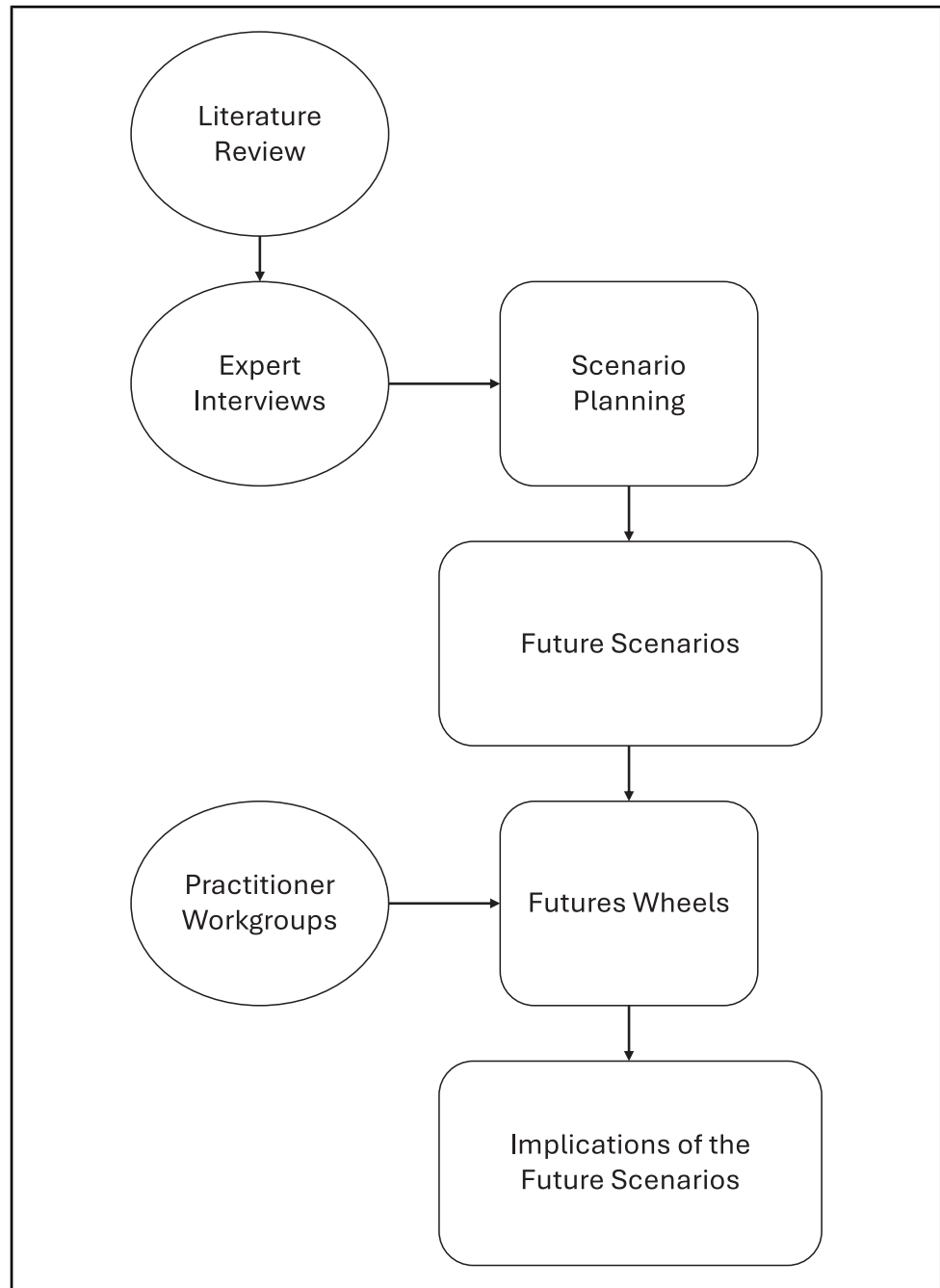
The analysis of these themes identified several negative yet manageable implications that regional destination management deemed within their capacity to handle. In contrast, implications that fell outside the control of regional destinations and their stakeholders were considered unmanageable under the current framework. Overall, scenarios in which regional destination management organizations maintained control or received support from national leadership were assessed as both more desirable and more manageable, whereas initiatives led at the global level, despite their feasibility, were viewed as less desirable.

Having detailed the application of the integrated methodology, the discussion that follows will analyse its methodological synergy and implications.

Discussion

This paper proposes and analyses an integrated methodological framework designed to enhance qualitative foresight and futures research (Figure 3). The integration of scenario planning with the futures wheel method offers a comprehensive and structured approach to exploring future uncertainties in tourism based on a sequential exploratory design. This framework combines qualitative insights with systematic mapping techniques to construct plausible future narratives and identify their related implications.

Figure 3 Integrating scenario planning and the futures wheel in tourism foresight research



The framework recognizes the importance of integrating diverse data collection methods and involving multiple participant groups to capture the multifaceted nature of future scenarios. In the case presented here, combining these methods leveraged the strengths of academic rigour and practical tourism industry experience, offering a more complete and nuanced picture of potential futures (Derbyshire and Wright, 2017; Fuller, 2017; Patomäki, 2006; Star *et al.*, 2016; von Bergner and Lohmann, 2014). Although underutilized in tourism research (Khosravi and Jha-Thakur, 2019; Schwenker and Wulf, 2013; Scott and Gössling, 2015), this mix-of-methods framework revealed a broader array of insights than traditional single-method approaches could have.

In the case study presented here, this process was implemented as an integrated and coherent research strategy, not a segmented application of isolated tools. It began with scenario planning, where academic experts provided deep insights into uncertainties and driving forces (Balula and Bina, 2013; Metzger *et al.*, 2010; Postma *et al.*, 2017). Guided by an intuitive logic approach (Melnikovas, 2018), the researchers developed narrative-based scenarios (Moriarty, 2012; Walton, 2008) that incorporated both predictable trends and unexpected shifts.

These scenarios then formed the foundation for futures wheel (Barbosa *et al.*, 2022; Kunttu *et al.*, 2022; Toivonen, 2021) workshops conducted with regional tourism organization stakeholders. In these sessions, a previously created scenario storyline was placed at the centre of the wheel (Figure 1), and participants were tasked with mapping out first-, second- and third-order implications (Barbosa *et al.*, 2022; Ernst *et al.*, 2018; Farrow, 2022; Krykavskyy *et al.*, 2023; Kunttu *et al.*, 2022) – essentially tracing the cascading impacts that might affect destination management. This dual-phase process created a dynamic feedback loop: the academic insights that shaped the scenarios were enriched by practitioner-led analysis of potential outcomes. This framework not only enhanced the plausibility of the future scenarios by drawing on established research and expert perspectives but also broadened the exploration of implications by engaging a separate group of experts in evaluating the consequences.

Evaluating the implications using likelihood and desirability scales provided additional depth, highlighting which impacts were likely to occur and how they might influence destination management practices if any of the future scenarios were to unfold. The workshop data indicated that groups of 4–6 participants yielded a greater number and diversity of implications and optimal group dynamics, underscoring the importance of participant group size and composition.

Findings from the case indicate that engaging both academic and practitioner perspectives enhances the credibility and applicability of futures research. Academic expert-driven scenario development broadened the range of factors and clarified uncertainties, while practitioner-led futures wheels provided a context-specific assessment of implications at the regional level. Such comprehensive insights would not be possible if only one of these methods were used in isolation.

While this integrated framework offers considerable strengths, its application involves several methodological considerations common to mix-of-methods futures research in relation to the number and nature of the participants and their contextual environments and the role of the researcher. Stakeholder engagement and sampling require close attention. Participatory research often requires adaptive recruitment strategies, especially when engaging senior stakeholders with significant time constraints (Patton, 2014). Researchers must be mindful that the chosen sampling approach can influence the composition of the participant pool and the subsequent breadth of perspectives gathered. For instance, in this study, the initial purposive sampling of seven RTOs was unsuccessful, necessitating a shift to a snowball sampling strategy to successfully recruit the required number of participants.

The role of researcher-led synthesis: In a sequential design, the researcher plays a crucial role in bridging the different methodological stages. This involves an interpretative synthesis of data from the initial phase to create the stimulus materials for the subsequent phase (Benckendorff, 2008; Melnikovas, 2018; Moriarty, 2012; Walton, 2008). In this project, this involved synthesizing the literature review and expert interviews into four distinct “tourism and decarbonization 2040” scenarios, which were then presented as the direct stimulus for the futures wheel workshops. This

process, along with the careful facilitation of group dynamics in workshops, is an inherent part of the methodology that requires reflexivity to ensure consistency and minimize potential bias.

Context-dependent nature of outcomes: The outputs of participatory foresight methods are naturally shaped by the context of the participants involved. The richness and character of the data generated can vary depending on the professional backgrounds, expertise and specific operating environments of the stakeholders (Derbyshire and Wright, 2017; Kunttu *et al.*, 2022; Star *et al.*, 2016; Yeoman and McMahon-Beattie, 2014). This was evident in the findings, where workshops with participants from regions with more advanced destination management plans yielded a greater number and diversity of implications, highlighting the influence of the local context. This variability yields deep, situated insights but also requires careful consideration when analysing and comparing results across different participant groups.

These points underscore that the framework's application should be tailored to its specific context and highlight opportunities for ongoing methodological refinement. Future research could continue to explore the integration of complementary foresight techniques to further strengthen and adapt these mix-of-method approaches for diverse settings.

Implications for practice and research

For practitioners such as destination managers and policymakers, this framework offers a structured yet flexible tool for strategic foresight. It provides a practical, step-by-step process to move beyond abstract futures thinking and toward actionable insights that support resilient and adaptive planning processes. The structured outcomes generated by the futures wheel are ideally suited for use in sequence with backcasting methodology (Bengston *et al.*, 2020; Konovalov *et al.*, 2021), allowing practitioners to determine the necessary policy steps and milestones required to achieve the desirable futures identified during the workshop. By visualizing cascading implications, the method enables organizations to identify potential triggers, assess strategic vulnerabilities and pinpoint critical inflection points, thereby strengthening proactive risk management in an increasingly complex and dynamic environment.

For researchers, this article provides a detailed and adaptable template for conducting robust qualitative futures research. It responds to the need for more structured qualitative methodologies and can be modified to explore other complex issues beyond tourism decarbonization, such as technological disruption or shifting consumer behaviours.

Conclusion

This article presented a mix-of-methods framework that integrates scenario planning with futures wheels to advance qualitative futures research in tourism. This sequential exploratory design functions as an integrated and coherent research strategy, not a segmented application of isolated tools. By combining intuitive logic-based scenario development with practitioner-led mapping exercises, the framework offers a robust mechanism for identifying key uncertainties, visualizing their cascading impacts and generating actionable insights. For tourism practitioners, this integrated approach provides valuable tools to identify potential triggers, assess strategic vulnerabilities and pinpoint critical inflection points – thereby supporting the development of proactive risk management strategies in an increasingly complex and dynamic environment.

In the sampled case, scenario planning provided a structured framework to identify key drivers and their uncertainties by incorporating insights from academic experts. In parallel, futures wheels enabled practitioners to systematically explore first-, second- and third-order implications, offering nuanced insights into how various future scenarios might unfold. Additionally, participant scoring on feasibility and desirability further underpinned perspectives on the potential implications of the scenarios. The combination of these methods facilitated a holistic exploration of systemic constraints, challenges and potential leverage points, offering a

structured yet flexible means for practitioners to navigate uncertainty, thereby supporting more resilient and adaptive planning processes.

Ethics approval

This study was approved by the University Human Ethics Committee (Ref: D21/410). Informed consent was obtained from all participants.

Data availability

Data are not publicly available due to confidentiality agreements but may be requested from the corresponding author.

References

- Ahmadi Kahnali, R., Biabani, H. and Baneshi, E. (2020), "Scenarios for the future of tourism in Iran (case study: hormozgan province)", *Journal of Policy Research in Tourism, Leisure and Events*, Vol. 0 No. 2, pp. 1-17, doi: [10.1080/19407963.2020.1839087](https://doi.org/10.1080/19407963.2020.1839087).
- Amelung, B., Nicholls, S. and Viner, D. (2007), "Implications of global climate change for tourism flows and seasonality", *Journal of Travel Research*, Vol. 45 No. 3, pp. 285-296, doi: [10.1177/0047287506295937](https://doi.org/10.1177/0047287506295937).
- Amer, M., Daim, T.U. and Jetter, A. (2013), "A review of scenario planning", *Futures*, Vol. 46, pp. 23-40, doi: [10.1016/j.futures.2012.10.003](https://doi.org/10.1016/j.futures.2012.10.003).
- Balula, L. and Bina, O. (2013), "Key references for scenario building", doi: [10.13140/RG.2.2.21442.17609](https://doi.org/10.13140/RG.2.2.21442.17609).
- Barbosa, C.E., de Lima, Y.O., Costa, L.F.C., dos Santos, H.S., Lyra, A., Argôlo, M., da Silva, J.A. and de Souza, J.M. (2022), "Future of work in 2050: thinking beyond the COVID-19 pandemic", *European Journal of Forest Research*, Vol. 10 No. 1, p. 25, doi: [10.1186/s40309-022-00210-w](https://doi.org/10.1186/s40309-022-00210-w).
- Becken, S. (2017), "Evidence of a low-carbon tourism paradigm?", *Journal of Sustainable Tourism*, Vol. 25 No. 6, pp. 832-850, doi: [10.1080/09669582.2016.1251446](https://doi.org/10.1080/09669582.2016.1251446).
- Becken, S. (2021), "In for the long haul – carbon-proofing New Zealand tourism",
- Becken, S. and Shuker, J. (2019), "A framework to help destinations manage carbon risk from aviation emissions", *Tourism Management*, Vol. 71, pp. 294-304, doi: [10.1016/j.tourman.2018.10.023](https://doi.org/10.1016/j.tourman.2018.10.023).
- Bell, W. and Olick, J.K. (1989), "Problems and possibilities of prediction", *Futures*, Vol. 21 No. 2, pp. 115-135, doi: [10.1016/0016-3287\(89\)90001-3](https://doi.org/10.1016/0016-3287(89)90001-3).
- Benckendorff, P. (2008), "Envisioning sustainable tourism futures: an evaluation of the futures wheel method", *Tourism and Hospitality Research*, Vol. 8 No. 1, pp. 25-36, doi: [10.1057/thr.2008.2](https://doi.org/10.1057/thr.2008.2).
- Benckendorff, P., Edwards, D., Jurowski, C., Liburd, J.J., Miller, G. and Moscardo, G. (2009), "Exploring the future of tourism and quality of life", *Tourism and Hospitality Research*, Vol. 9 No. 2, pp. 171-183, doi: [10.1057/thr.2009.7](https://doi.org/10.1057/thr.2009.7).
- Bengston, D.N. (2016), "The futures wheel: a method for exploring the implications of social-ecological change", *Society and Natural Resources*, Vol. 29 No. 3, pp. 374-379, doi: [10.1080/08941920.2015.1054980](https://doi.org/10.1080/08941920.2015.1054980).
- Bengston, D.N. (2019), "Futures research methods and applications in natural resources", *Society and Natural Resources*, Vol. 32 No. 10, pp. 1099-1113, doi: [10.1080/08941920.2018.1547852](https://doi.org/10.1080/08941920.2018.1547852).
- Bengston, D.N., Westphal, L.M. and Dockry, M.J. (2020), "Back from the future: the backcasting wheel for mapping a pathway to a preferred future", *World Futures Review*, Vol. 12 No. 3, pp. 270-278, doi: [10.1177/1946756720929724](https://doi.org/10.1177/1946756720929724).
- Bengston, D.N., Adwan, N., Bierwerth, A., Cahill, M.S., Deaven, M.H., Dohm-Palmer, C.M., Esch, N., Gillette, E.E., Grandbois, C.L., Jopp, E.A., Kelley, D.J., Knauss, T., Kubik, G.H., Schroeder, J.D., Shankar, S., Silver, E.R. and Wille, K.L. (2022), "Accelerating climate change: an exploration of cascading future implications", *Journal of Futures Studies*, Vol. 27, pp. 29-40.
- Bergesen, J.D., Suh, S., Baynes, T.M. and Musango, J.K. (2017), "Environmental and natural resource implications of sustainable urban infrastructure systems", *Environmental Research Letters*, Vol. 12, 125009, doi: [10.1088/1748-9326/aa98ca](https://doi.org/10.1088/1748-9326/aa98ca).

- Bergman, A., Karlsson, J. and Axelsson, J. (2010), "Truth claims and explanatory claims—an ontological typology of futures studies", *Futures*, Vol. 42 No. 8, pp. 857-865, doi: [10.1016/j.futures.2010.02.003](https://doi.org/10.1016/j.futures.2010.02.003).
- Clark, C., Nyaupane, G.P., Timothy, D.J. and Buzinde, C. (2022), "Scenario planning as a tool to manage tourism uncertainties during the era of COVID-19: a case study of Arizona, USA", *Current Issues in Tourism*, Vol. 25 No. 7, pp. 1063-1073, doi: [10.1080/13683500.2022.2032617](https://doi.org/10.1080/13683500.2022.2032617).
- De Cian, E., Dasgupta, S., Hof, A.F., van Sluisveld, M.A.E., Köhler, J., Pfluger, B. and van Vuuren, D.P. (2020), "Actors, decision-making, and institutions in quantitative system modelling", *Technological Forecasting and Social Change*, Vol. 151, 119480, doi: [10.1016/j.techfore.2018.10.004](https://doi.org/10.1016/j.techfore.2018.10.004).
- De Smedt, P., Borch, K. and Fuller, T. (2013), "Future scenarios to inspire innovation", *Technological Forecasting and Social Change*, Vol. 80 No. 3, pp. 432-443, doi: [10.1016/j.techfore.2012.10.006](https://doi.org/10.1016/j.techfore.2012.10.006).
- Derbyshire, J. and Wright, G. (2017), "Augmenting the intuitive logics scenario planning method for a more comprehensive analysis of causation", *International Journal of Forecasting*, Vol. 33 No. 1, pp. 254-266, doi: [10.1016/j.ijforecast.2016.01.004](https://doi.org/10.1016/j.ijforecast.2016.01.004).
- Edelenbosch, O.Y., McCollum, D.L., van Vuuren, D.P., Bertram, C., Carrara, S., Daly, H., Fujimori, S., Kitous, A., Kyle, P., Ó Broin, E., Karkatsoulis, P. and Sano, F. (2017), "Decomposing passenger transport futures: comparing results of global integrated assessment models", *Transportation Research Part D: Transport and Environment*, Vol. 55, pp. 281-293, doi: [10.1016/j.trd.2016.07.003](https://doi.org/10.1016/j.trd.2016.07.003).
- Epp, F.A., Moesgen, T., Salovaara, A., Pouta, E. and Gaziulusoy, İ. (2022), "Reinventing the wheel: the future ripples method for activating anticipatory capacities in innovation teams", *Designing Interactive Systems Conference, DIS '22*, Association for Computing Machinery, New York, NY, pp. 387-399, doi: [10.1145/3532106.3534570](https://doi.org/10.1145/3532106.3534570).
- Ernst, A., Biß, K.H., Shamon, H., Schumann, D. and Heinrichs, H.U. (2018), "Benefits and challenges of participatory methods in qualitative energy scenario development", *Technological Forecasting and Social Change*, Vol. 127, pp. 245-257, doi: [10.1016/j.techfore.2017.09.026](https://doi.org/10.1016/j.techfore.2017.09.026).
- Farrow, E. (2022), "Determining the human to AI workforce ratio – exploring future organisational scenarios and the implications for anticipatory workforce planning", *Technology in Society*, Vol. 68, 101879, doi: [10.1016/j.techsoc.2022.101879](https://doi.org/10.1016/j.techsoc.2022.101879).
- Fletcher, J., Longnecker, N. and Higham, J. (2019), "Envisioning future travel: moving from high to low carbon systems", *Futures*, Vol. 109, pp. 63-72, doi: [10.1016/j.futures.2019.04.004](https://doi.org/10.1016/j.futures.2019.04.004).
- Fuller, T. (2017), "Anxious relationships: the unmarked futures for post-normal scenarios in anticipatory systems", *Technological Forecasting and Social Change*, Vol. 124, pp. 41-50, doi: [10.1016/j.techfore.2016.07.045](https://doi.org/10.1016/j.techfore.2016.07.045).
- Fuller, T. and Loogma, K. (2009), "Constructing futures: a social constructionist perspective on foresight methodology", *Futures*, Vol. 41 No. 2, pp. 71-79, doi: [10.1016/j.futures.2008.07.039](https://doi.org/10.1016/j.futures.2008.07.039).
- Gössling, S. (2020), "Utopian visions or dystopian prospects for tourism? A perspective article", *Tourism Review*, Vol. 75 No. 1, pp. 179-181, doi: [10.1108/TR-01-2019-0034](https://doi.org/10.1108/TR-01-2019-0034).
- Gössling, S., Hall, C.M., Peeters, P. and Scott, D. (2010), "The future of tourism: can tourism growth and climate policy be reconciled? A mitigation perspective", *Tourism Recreation Research*, Vol. 35 No. 2, pp. 119-130, doi: [10.1080/02508281.2010.11081628](https://doi.org/10.1080/02508281.2010.11081628).
- Gössling, S., McCabe, S. and Chen, N.(C.) (2020), "A socio-psychological conceptualisation of overtourism", *Annals of Tourism Research*, Vol. 84, 102976, doi: [10.1016/j.annals.2020.102976](https://doi.org/10.1016/j.annals.2020.102976).
- Gössling, S., Balas, M., Mayer, M. and Sun, Y.-Y. (2023), "A review of tourism and climate change mitigation: the scales, scopes, stakeholders and strategies of carbon management", *Tourism Management*, Vol. 95, 104681, doi: [10.1016/j.tourman.2022.104681](https://doi.org/10.1016/j.tourman.2022.104681).
- Gössling, S., Vogler, R., Humpe, A. and Chen, N.(C.) (2024), "National tourism organizations and climate change", *Tourism Geographies*, Vol. 0 No. 3, pp. 1-22, doi: [10.1080/14616688.2024.2332368](https://doi.org/10.1080/14616688.2024.2332368).
- Gota, S., Huizenga, C., Peet, K., Medimorec, N. and Bakker, S. (2019), "Decarbonising transport to achieve Paris Agreement targets", *Energy Efficiency*, Vol. 12 No. 2, pp. 363-386, doi: [10.1007/s12053-018-9671-3](https://doi.org/10.1007/s12053-018-9671-3).
- Hall, C.M. (2019), "Constructing sustainable tourism development: the 2030 agenda and the managerial ecology of sustainable tourism", *Journal of Sustainable Tourism*, Vol. 27 No. 7, pp. 1044-1060, doi: [10.1080/09669582.2018.1560456](https://doi.org/10.1080/09669582.2018.1560456).

- Hall, C.M., Amelung, B., Cohen, S., Eijgelaar, E., Gössling, S., Higham, J., Leemans, R., Peeters, P., Ram, Y. and Scott, D. (2015), "On climate change skepticism and denial in tourism", *Journal of Sustainable Tourism*, Vol. 23 No. 1, pp. 4-25, doi: [10.1080/09669582.2014.953544](https://doi.org/10.1080/09669582.2014.953544).
- Keseru, I., Coosemans, T. and Macharis, C. (2021), "Stakeholders' preferences for the future of transport in Europe: participatory evaluation of scenarios combining scenario planning and the multi-actor multi-criteria analysis", *Futures*, Vol. 127, 102690, doi: [10.1016/j.futures.2020.102690](https://doi.org/10.1016/j.futures.2020.102690).
- Khosravi, F. and Jha-Thakur, U. (2019), "Managing uncertainties through scenario analysis in strategic environmental assessment", *Journal of Environmental Planning and Management*, Vol. 62 No. 6, pp. 979-1000, doi: [10.1080/09640568.2018.1456913](https://doi.org/10.1080/09640568.2018.1456913).
- Konovalov, E., Moscardo, G. and Murphy, L. (2021), *Chapter 6 Transforming Tourism Governance Futures Thinking for Destination Community Well Being*, Edited by Pappas, N. and Farmaki, A. Goodfellow, Oxford, doi: [10.23912/9781911635932-4947](https://doi.org/10.23912/9781911635932-4947).
- Kosow, H. and Gaßner, R. (2008), *Methods of Future and Scenario Analysis: Overview, Assessment, and Selection Criteria, DIE Studies*, Deutsches Institut für Entwicklungspolitik gGmbH, Bonn.
- Krykavskyy, Y., Chornopyska, N., Dovhun, O., Hayvanovych, N. and Leonova, S. (2023), "Defining supply chain resilience during wartime", *Eastern-European Journal of Enterprise Technologies*, Vol. 1 No. 13 (121), pp. 32-46, doi: [10.15587/1729-4061.2023.272877](https://doi.org/10.15587/1729-4061.2023.272877).
- Kunttu, J., Wallius, V., Kulvik, M., Leskinen, P., Lintunen, J., Orfanidou, T. and Tuomasjukka, D. (2022), "Exploring 2040: global trends and international policies setting frames for the Finnish wood-based economy", *Sustainability*, Vol. 14 No. 16, 9999, doi: [10.3390/su14169999](https://doi.org/10.3390/su14169999).
- Losekoot, E. (2025), *Scenario Planning and Tourism Futures: Theory Building, Methodologies and Case Studies*, By A. Postma, S. Hartman, and I. Yeoman, Channel View Publications, Bristol, 2025, pp. 258, US\$50.00, ISBN: 978-1-84541-886-1 (paperback); ISBN: 978-1-84541-887-8 (hardback). *Tourism Planning & Development*, 1-4, doi: [10.1080/21568316.2025.2465382](https://doi.org/10.1080/21568316.2025.2465382).
- Melnikovas, A. (2018), "Towards an explicit research methodology: adapting research onion model for futures studies", *Journal of Futures Studies*, Vol. 23, p. 16, doi: [10.6531/JFS.201812_23\(2\).0003](https://doi.org/10.6531/JFS.201812_23(2).0003).
- Metzger, M., Rounsevell, M., Van den Heiligenberg, H., Pérez-Soba, M. and Soto Hardiman, P. (2010), "How personal judgment influences scenario development: an example for future rural development in Europe", *Ecology and Society*, Vol. 15 No. 2, art5, doi: [10.5751/ES-03305-150205](https://doi.org/10.5751/ES-03305-150205).
- Mitic, V., Kankaras, M., Nikolic, D., Dimic, S. and Kovac, M. (2021), "Rationalization of the scenario development process under conditions involving extensive dynamics", *Futures*, Vol. 125, 102642, doi: [10.1016/j.futures.2020.102642](https://doi.org/10.1016/j.futures.2020.102642).
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D.G. and Group, T.P. (2009), "Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement", *PLoS Medicine*, Vol. 6 No. 7, e1000097, doi: [10.1371/journal.pmed.1000097](https://doi.org/10.1371/journal.pmed.1000097).
- Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P. and Stewart, L.A. (2015), "Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement", *Systematic Reviews*, Vol. 4, pp. 1-9, doi: [10.1186/2046-4053-4-1](https://doi.org/10.1186/2046-4053-4-1).
- Moriarty, J.P. (2012), "Theorising scenario analysis to improve future perspective planning in tourism", *Journal of Sustainable Tourism*, Vol. 20 No. 6, pp. 779-800, doi: [10.1080/09669582.2012.673619](https://doi.org/10.1080/09669582.2012.673619).
- Moscardo, G., Konovalov, E., Murphy, L., McGehee, N.G. and Schurmann, A. (2017), "Linking tourism to social capital in destination communities", *Journal of Destination Marketing and Management*, Vol. 6 No. 4, pp. 286-295, doi: [10.1016/j.jdmm.2017.10.001](https://doi.org/10.1016/j.jdmm.2017.10.001).
- Nielsen, A.F., Michelmann, J., Akac, A., Palts, K., Zilles, A., Anagnostopoulou, A. and Langeland, O. (2023), "Using the future wheel methodology to assess the impact of open science in the transport sector", *Scientific Reports*, Vol. 13, pp. 1-15, doi: [10.1038/s41598-023-33102-5](https://doi.org/10.1038/s41598-023-33102-5).
- Paavola, S., Hakkarainen, K. and Sintonen, M. (2006), "Abduction with dialogical and Trialogical means", *Logic Journal of IGPL*, Vol. 14 No. 2, pp. 137-150, doi: [10.1093/jigpal/jzk010](https://doi.org/10.1093/jigpal/jzk010).
- Patomäki, H. (2006), "Realist Ontology for futures studies", *Journal of Critical Realism*, Vol. 5, pp. 1-31, doi: [10.1558/jocr.v5i1.1](https://doi.org/10.1558/jocr.v5i1.1).
- Patton, M.Q. (2014), *Qualitative Research and Evaluation Methods: Integrating Theory and Practice*, SAGE Publications, Los Angeles.

- Postma, A. (2015), "Investigating scenario planning – a European tourism perspective", *Journal of Tourism Futures*, Vol. 1, pp. 46-52, doi: [10.1108/JTF-12-2014-0020](https://doi.org/10.1108/JTF-12-2014-0020).
- Postma, A., Cavagnaro, E. and Spruyt, E. (2017), "Sustainable tourism 2040", *Journal of Tourism Futures*, Vol. 3 No. 1, pp. 13-22, doi: [10.1108/JTF-10-2015-0046](https://doi.org/10.1108/JTF-10-2015-0046).
- Postma, A., Hartman, S. and Yeoman, I. (2024), *Scenario Planning and Tourism Futures: Theory Building, Methodologies and Case Studies*, Channel View Publications, Bristol.
- Schwenker, B. and Wulf, T. (2013), *Scenario-based Strategic Planning: Developing Strategies in an Uncertain World*, Springer Science & Business Media, Berlin.
- Scott, D. and Gössling, S. (2015), "What could the next 40 years hold for global tourism?", *Tourism Recreation Research*, Vol. 40 No. 3, pp. 269-285, doi: [10.1080/02508281.2015.1075739](https://doi.org/10.1080/02508281.2015.1075739).
- Seegolam, A., Sukhoo, A. and Bhoyroo, V. (2016), "Spurring innovation through open government data for Africa", *Presented at the 2016 IST-Africa Conference, IST-Africa 2016*, pp. 1-12, doi: [10.1109/ISTAfrICA.2016.7530638](https://doi.org/10.1109/ISTAfrICA.2016.7530638).
- Seyitoğlu, F. and Costa, C. (2022), "A systematic review of scenario planning studies in tourism and hospitality research", *Journal of Policy Research in Tourism, Leisure and Events*, Vol. 0 No. 4, pp. 1-18, doi: [10.1080/19407963.2022.2032108](https://doi.org/10.1080/19407963.2022.2032108).
- Soler, I.P., Gemar, G. and Correia, M.B. (2020), "The climate index-length of stay nexus", *Journal of Sustainable Tourism*, Vol. 28 No. 9, pp. 1272-1289, doi: [10.1080/09669582.2020.1734603](https://doi.org/10.1080/09669582.2020.1734603).
- Star, J., Rowland, E.L., Black, M.E., Enquist, C.A.F., Garfin, G., Hoffman, C.H., Hartmann, H., Jacobs, K.L., Moss, R.H. and Waple, A.M. (2016), "Supporting adaptation decisions through scenario planning: enabling the effective use of multiple methods", *Climate Risk Management*, Vol. 13, pp. 88-94, doi: [10.1016/j.crm.2016.08.001](https://doi.org/10.1016/j.crm.2016.08.001).
- Toivonen, S. (2021), "Advancing futures thinking in the real estate field", *Journal of European Real Estate Research*, Vol. 14 No. 1, pp. 150-166, doi: [10.1108/JERER-01-2020-0003](https://doi.org/10.1108/JERER-01-2020-0003).
- Toivonen, S. and Viitanen, K. (2016), "Environmental scanning and futures wheels as tools to analyze the possible future themes of the commercial real estate market", *Land Use Policy*, Vol. 52, pp. 51-61, doi: [10.1016/j.landusepol.2015.12.011](https://doi.org/10.1016/j.landusepol.2015.12.011).
- Truong, D., Xiaoming Liu, R. and Yu, J.(J.) (2020), "Mixed methods research in tourism and hospitality journals", *International Journal of Contemporary Hospitality Management*, Vol. 32 No. 4, pp. 1563-1579, doi: [10.1108/IJCHM-03-2019-0286](https://doi.org/10.1108/IJCHM-03-2019-0286).
- von Bergner, N.M. and Lohmann, M. (2014), "Future challenges for global tourism: a Delphi survey", *Journal of Travel Research*, Vol. 53 No. 4, pp. 420-432, doi: [10.1177/0047287513506292](https://doi.org/10.1177/0047287513506292).
- Walton, J.S. (2008), "Scanning beyond the horizon: exploring the ontological and Epistemological basis for scenario planning", *Advances in Developing Human Resources*, Vol. 10 No. 2, pp. 147-165, doi: [10.1177/1523422307304101](https://doi.org/10.1177/1523422307304101).
- Yeoman, I. (2012), *Tourism 2050: Scenarios for New Zealand*, Victoria University of Wellington, Wellington, N.Z.
- Yeoman, I. and McMahon-Beattie, U. (2018), "What would a historian know about the future?", *Journal of Tourism Futures*, Vol. 4 No. 3, pp. 179-181, doi: [10.1108/JTF-09-2018-077](https://doi.org/10.1108/JTF-09-2018-077).
- Yeoman, I. and McMahon-Beattie, U. (2014), "New Zealand tourism: which direction would it Take?", *Tourism Recreation Research*, Vol. 39 No. 3, pp. 415-435, doi: [10.1080/02508281.2014.11087009](https://doi.org/10.1080/02508281.2014.11087009).
- Yeoman, I. and Postma, A. (2014), "Developing an ontological framework for tourism futures", *Tourism Recreation Research*, Vol. 39 No. 3, pp. 299-304, doi: [10.1080/02508281.2014.11087002](https://doi.org/10.1080/02508281.2014.11087002).
- Yeoman, I., Palomino-Schalscha, M. and McMahon-Beattie, U. (2015), "Keeping it pure: could New Zealand be an eco paradise?", *Journal of Tourism Futures*, Vol. 1, pp. 19-35, doi: [10.1108/JTF-12-2014-0017](https://doi.org/10.1108/JTF-12-2014-0017).

Corresponding author

Andrus H.L. Nomm can be contacted at: andrus.h.nomm@gmail.com

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgroupublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com