Strategic Foresight: The Role of Generative AI in Tourism and Hospitality Talent Management

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Abstract

Artificial Intelligence (AI), particularly Generative AI (GenAI), is transforming tourism and hospitality (T&H) talent management (TM), yet its strategic foresight potential remains underexplored. This exploratory study investigates GenAI's capability in scenario-based TM planning. It assesses GenAI's utility in TM scenario planning by comparing ChatGPT 4.5, Deepseek - DeepThink (R1), and Gemini Advanced 2.5 Pro outputs against expert-driven scenarios from a paper by El Hajal and Yeoman published in 2024. The study uses qualitative content and thematic analysis to evaluate GenAI's effectiveness in generating meaningful future workforce scenarios for T&H by 2035. Findings indicate GenAI excels at rapid prototyping and identifying broad themes but lacks human expertise's contextual nuance and ethical depth, suggesting a complementary role in strategic foresight. Its novel contribution is a framework that provides a structured approach for T&H education programs to integrate AI literacy, strategic foresight, and ethical awareness into hospitality education, aiming to prepare future-ready professionals for an AI-driven industry.

Keywords: *Generative AI, Talent Management, Scenario Planning, Hospitality Education, Strategic Foresight*

Track: *Special Track 1: The Future of Talent Management*

Paper Type: *Theoretical /Academic*

Type of Submission: *Full Paper*

Introduction

Artificial Intelligence (AI) is transforming the tourism and hospitality (T&H) industry from customer service automation to workforce analytics, reshaping operational models, long-term workforce planning, and talent management (TM) (Altemeyer, 2019; Christou, 2024; Ivanov, 2019). The sector's unique features, high turnover, distinct skill requirements, and reliance on collaboration between education, industry, and government make TM particularly critical (Johnson et al., 2019). As AI, robotics, and automation advance, traditional roles will disappear while new ones emerge, demanding different competencies (Bowles et al., 2019; Parvez et al., 2022).

Education must adapt by integrating Generative AI (GenAI) into pedagogical practices to prepare students for AI-driven careers (El Hajal & Losekoot, 2024; Nimri & Yang, 2024; Zhang et al., 2024). However, while AI's operational potential is well-researched, its strategic implications for TM and hospitality education remain underexplored. Rapid technological change, coupled with a lack of clear metrics and definitional consensus, limits research impact and creates gaps between AI's perceived potential and real-world application in TM (Gruetzemacher et al., 2021; Hautala & Heino, 2023; Kilian et al., 2023).

Current literature primarily addresses AI's role in automation, recruitment, and customer experience (Dwivedi et al., 2024; Nuseir et al., 2024), with a limited focus on scenario planning and workforce development. Scenario planning has traditionally relied on human expertise, yet the emergence of GenAI introduces new possibilities for generating strategic workforce insights (Kuosa & Aalto, 2025). Whether GenAI can supplement or replace expert-driven foresight in talent planning remains an open question.

This exploratory study investigates GenAI's potential in scenario-based TM and its application in hospitality education. It builds on El Hajal and Yeoman's (2024) expert-driven scenario planning for hospitality TM in 2035 using GenAI tools, ChatGPT, Gemini, and DeepSeek to replicate the process. The study makes two contributions: assessing GenAI's ability to produce meaningful TM scenarios independently and translating those insights into a framework that provides a structured approach for integrating educational practices that foster strategic foresight and AI literacy among hospitality students.

To achieve these contributions, the authors set the following objectives: (1) explore how GenAI-generated scenario planning outputs align with or diverge from those created by human experts, (2) identify key talent management insights derived from GenAI-driven scenario planning, and (3) translate GenAI-driven TM insights into practical educational recommendations.

Literature review

GenAI refers to advanced machine learning models, particularly large language models (LLMs), capable of generating new content in text, images, or code rather than just classifying or predicting based on existing data (Kumar et al., 2025). Unlike earlier AI applications focused on automation and decision support, GenAI tools such as ChatGPT, Gemini, and DeepSeek provide real-time, context-sensitive responses and creative outputs, enabling new modes of human-AI collaboration. Their versatility is seen across different fields, from healthcare to education and increasingly in T&H.

However, adopting GenAI in decision-making raises critical questions regarding transparency, accountability, and bias. Kumar et al. (2025) emphasise that while GenAI can enhance performance and strategic capacity, it also introduces risks such as over-reliance, misinformation, and ethical dilemmas. Solaiman (2024) also warns of legal and ethical hurdles, particularly in high-stakes contexts like mental health, where GenAI's decision-making capabilities may outpace regulatory safeguards. These insights are crucial in hospitality TM, where decisions about recruitment, training, and workforce planning carry long-term implications for organisations and their employees.

Scenario planning in hospitality talent management

As a strategic foresight method, scenario planning enables organisations to anticipate and navigate uncertainty by developing plausible alternative futures. Foundational scholars such as Dator (2019) and Schwartz (1996) describe scenario planning as a process grounded in systems thinking, storytelling, and identifying key uncertainties. Dator's "Four Futures" model, which explores growth, collapse, discipline, and transformation scenarios, remains influential in futures research and planning exercises.

In T&H, scenario planning has gained traction as a tool for anticipating disruptions in labour markets, technology, and consumer behaviour (Yeoman & McMahon-Beattie, 2018; Hartman & Postma, 2024). The technique has been used to explore workforce shortages, the integration of robotics, and future service models (Yeoman & McMahon-Beattie, 2024). However, the integration of GenAI into scenario development is still in its infancy. Kuosa and Aalto (2025) argue that prompting GenAI tools to generate scenario narratives requires structured methodologies and human guidance. They propose a typology to guide GenAI use in scenario-building and caution that AI-generated content often lacks the nuance and contextual awareness characteristic of expert-driven foresight. Thus, while GenAI can support scenario planning, it currently serves best in an assistive capacity rather than as a full replacement for human expertise.

AI and talent management in hospitality

In hospitality TM, AI applications have primarily focused on operational efficiency, such as automating repetitive tasks, personalising employee experiences, and streamlining recruitment processes. Nuseir et al. (2024) highlight the role of Explainable AI in creating more transparent and accountable HR systems. These systems aim to reduce bias and improve hiring accuracy while maintaining human oversight. Additionally, Elmohandes and Marghany (2024) showed that GenAI could be effectively used for staffing in the hospitality industry.

Dwivedi et al. (2024) expand this discussion by exploring the integration of ChatGPT and similar tools in customer service and internal operations. They note that while GenAI adoption offers efficiency and scalability,

it also introduces complexity in managing organisational culture and expectations. Despite increasing adoption, there remains a lack of strategic frameworks linking AI outputs to long-term workforce planning. Most existing literature focuses on AI's immediate utility rather than its potential as a strategic foresight tool in talent planning.

Strategic foresight in hospitality education

Preparing future professionals for an AI-integrated industry necessitates a shift in hospitality education with an increased focus on personalised and flexible learning environments (Assen et al., 2023; Carvalho et al., 2025). Ivanov and Soliman (2023) argue that GenAI's ability to generate assignments and even research outputs challenges traditional teaching models. As AI tools increasingly perform cognitive tasks, hospitality educators must focus on developing AI literacy and critical thinking skills among students.

Rasul et al. (2024) reinforce this view by calling for a holistic framework to ensure GenAI's ethical and responsible use in academic settings. They propose strategies for balancing innovation with academic integrity, including institutional policies, educator training, and curriculum redesign. These efforts align with broader goals of strategic foresight, equipping students to use GenAI and critically assess its implications for future work.

Together, these perspectives underscore the need to reimagine TM and hospitality education through the lens of AI and foresight. By integrating GenAI into scenario planning and pedagogy, the industry can better anticipate challenges, develop resilient strategies, and foster a future-ready workforce.

Methodology

Research design

This study adopts an exploratory, comparative, and qualitative research design to investigate the potential of GenAI tools in generating scenario-based insights for TM in T&M. The approach is exploratory, seeking to uncover how GenAI-generated scenarios align with or diverge from those created by human experts. In addition, a comparative analysis is conducted to evaluate the thematic richness, contextual relevance, and strategic depth of the AI-generated outputs relative to the expert-driven scenarios documented by El Hajal and Yeoman (2024). The study aims to generate insights that inform TM practices and educational curricula by integrating qualitative content and thematic analysis.

Data collection

Data collection focuses on capturing scenario narratives generated by three distinct GenAI tools: Deepseek – DeepThink (R1), ChatGPT 4.5, and Gemini Advanced 2.5 Pro. Standardised prompts, derived from the scenario planning framework proposed by El Hajal and Yeoman (2024), guide the generation process to ensure consistency and comparability across tools. The prompts are designed to elicit responses that encompass key uncertainties in AI adoption, workforce skills, and job transformation in the tourism and hospitality industry. These prompts are listed in Table A.1.

Table 1. Prompts Used for Scenario Generation

General Instructions	You are an expert in tourism and hospitality talent management. You will now generate future workforce scenarios for the year 2035 using scenario planning techniques. These scenarios should consider the integration of Artificial Intelligence (AI) in HRM practices within the tourism and hospitality industry. Use Dator's Four Futures framework: Continuation, Collapse, Discipline, and Transformation. Base your response on workforce dynamics, AI integration, talent management trends, employee experience, ethical issues, and the evolving role of education.

Scenario 1: AI-Driven Utopia (Continuation)	Imagine it is 2035, and AI has been widely and successfully adopted in tourism and hospitality talent management. AI has improved recruitment, onboarding, training, and employee engagement while maintaining strong ethical standards. What does the workplace look like? How is AI used in HR processes? How do employees feel about AI? What new roles or skills have emerged? What policies or educational systems support this environment?
Scenario 2: AI Overreach (Collapse)	Now imagine a dystopian scenario in 2035 where AI has been over-integrated into hospitality talent management. HR processes are fully automated, with minimal human involvement. Ethical issues, depersonalisation, and employee dissatisfaction dominate the workplace. Describe the key characteristics of this future. What are the consequences for employees and managers? What challenges and risks have emerged? What aspects of TM have been lost or negatively affected? How do organisations and policymakers respond to this situation?
Scenario 3: AI-Human Harmony (Transformation)	Now imagine a future in 2035 where AI and humans work together in harmony. AI supports but does not replace human roles in hospitality TM. There is a healthy balance between automation and empathy, and HR professionals use AI for strategic decision-making. Describe this collaborative future. How is AI used to augment (not replace) human work? What TM practices have evolved? How do training, ethics, and policy align with this scenario? How are students and future workers prepared for such an environment?
Scenario 4: Slow AI Adoption (Disciplined Society)	Now imagine a 2035 future where AI adoption has been slow or deliberately restricted in the hospitality sector. The industry preserves its human-centric values and cautiously implements AI in limited roles. Describe this scenario. Why has AI adoption been delayed or limited? How does this affect TM practices? What challenges arise from resisting full automation? What strategies have businesses and educators adopted to maintain competitiveness and human connection?
Follow-Up Prompt: Educational Implications	Based on the 4 scenarios described above, what are the implications for hospitality and tourism education? What future skills should be taught to students to prepare them for this scenario? What role does AI literacy, strategic foresight, and ethical awareness play in hospitality education in this future?

Each GenAI tool is engaged in a controlled environment where the same prompts are administered sequentially. The outputs are then compiled into a database for subsequent analysis. This collection process ensures that the generated scenarios are directly comparable, as each tool responds to an identical set of queries concerning future workforce trends and TM challenges. In addition to AI-generated data, the study also uses the expert-driven scenarios from El Hajal and Yeoman (2024) as a benchmark to evaluate the performance and strategic insight provided by GenAI.

Analysis

The authors adopted a qualitative content analysis approach to examine AI-generated scenarios' thematic coherence, relevance, and depth, involving coding the scenario narratives based on pre-determined categories, such as AI adoption, future skills, organisational shifts, and job displacement risks, and identifying emergent themes. The iterative coding process ensures that both anticipated and novel insights are captured. Comparison was then made between the AI-generated and expert-driven scenarios, focusing on areas of alignment and divergence.

The study conducted a thematic analysis to assess the strategic foresight embedded in the narratives. Key validity dimensions were evaluated, such as scenario complexity, narrative structure, and the balance between utopian and dystopian elements. The analysis also considered potential biases in the AI outputs, drawing on insights from the broader GenAI literature (Kumar et al., 2025; Solaiman, 2024), and examined whether the AI tools are capable of capturing the nuanced challenges of talent management in an industry characterised by high turnover and unique skill demands.

Finally, to translate the findings into practical recommendations for hospitality education, the study explored how AI-generated TM insights can be integrated into curriculum design, involving developing a pedagogical framework incorporating scenario-based learning, fostering AI literacy, and promoting strategic foresight skills among students. The integration process was informed by current debates in T&H education (Assen et al., 2023; Carvalho et al., 2025; Ivanov & Soliman, 2023; Rasul et al., 2024), ensuring that the proposed framework addressed theoretical and practical dimensions of future workforce planning.

Results

This section compares AI-generated future scenarios for TM in T&H with insights from human experts from El Hajal and Yeoman (2024). The analysis focuses on commonalities and divergences between AI and expert perspectives, thematic insights emerging from the AI outputs, and an evaluation of GenAI's effectiveness in this foresight exercise. Table 2 provides the findings from the GenAI scenario planning exercise; it presents a comparative summary of the four future scenarios for AI in hospitality talent management, outlining key characteristics, impacts, and implications.

Table 2: Summary of GenAI-Generated Scenarios for the Future of AI in Tourism and Hospitality

Feature	**Scenario 1 AI-Driven Utopia**	**Scenario 2 AI-Overreach**	**Scenario 3 AI-Human Harmony**	**Scenario 4 Slow AI-Adoption**
ChatGPT 4.5				
Workplace in 2035	Highly integrated with advanced AI, the focus is on productivity, well-being, and personalised career paths.	AI-driven automation dominates, reducing human intervention.	Balanced AI-human synergy: AI supports decision-making and enhances productivity.	Cautious AI adoption; human-centric ethos prioritising interpersonal skills, creativity, and empathy.

AI in HR Processes	AI streamlines recruitment, onboarding, training, and engagement.	HR processes are fully algorithmic.	AI is leveraged for analytical support and automating routine tasks.	Technology supports rather than dictates talent management.
Employee Perception of AI	Employees embrace AI as supportive and trust its ethical standards.	Employees suffer from reduced morale and high stress due to a lack of human interaction.	AI complements human expertise, creating empathic, high-performing workplaces.	AI adoption is restrained due to emphasis on human interaction and ethical concerns.
New Roles and Skills	New roles like AI ethics officers and algorithm trainers emerge; critical skills include AI literacy and data-driven decision-making.	TM loses relational and intuitive elements; employee loyalty and creativity decline.	AI empowers HR professionals to focus on strategic and empathic interactions; hybrid career coaching becomes the norm.	TM continues prioritising face-to-face recruitment, mentoring, and personal coaching.
Policies and Educational Systems	Robust regulatory frameworks ensure ethical AI use; education emphasises digital literacy and lifelong learning.	Organisations and policymakers reinstate human oversight and introduce strict AI regulations.	Continuous professional development on AI ethics and human-AI collaboration is standard; regulatory bodies establish clear guidelines.	Businesses adopt selective AI tools; educators focus on "soft skills" and emotional intelligence.

Deepseek - DeepThink (R1)

Workplace Dynamics	AI is seamlessly embedded in HR processes; recruitment uses predictive analytics; personalised AI-driven training programs adapt to employee learning styles.	HR is fully automated; candidates interact with emotionless chatbots.	AI handles data crunching; humans focus on relationship-building.	Cultural pushback prioritises the human touch; hiring focuses on interpersonal skills.
AI in HR	Algorithms ensure diversity; real-time sentiment analysis monitors well-being; predictive models identify flight risks.	AI decisions are biased, loss of intuition and eroded workplace culture.	VR simulations for soft skills with AI feedback; AI forecasts labour needs.	AI is used for Backend analytics are retained, while human front-end roles are kept.

Employee Sentiment	Workers appreciate AI for reducing administrative burdens, fostering creativity, and enabling strategic roles.	Employees feel disposable, leading to strikes; managers lack control, fostering distrust.	Upskilling programs target AI literacy; ethics audits ensure transparency.	Inefficiency in recruitment leads to higher operational costs.
New Roles	AI ethicists, empathy trainers, and HR data stewards emerge.	Mentorship, career path personalisation, and conflict resolution vanish.	Hybrid programs blend technical proficiency with soft skills.	Education doubles down on traditional hospitality values while offering niche AI literacy.
Policies & Education	Global ethics frameworks govern AI use; universities offer "AI-Human Collaboration" degrees.	Unions demand "human-in-the-loop" laws; companies reintroduce hybrid HR models.	Vocational schools teach emotional intelligence alongside coding; policies mandate AI transparency reports.	Educators emphasise cultural competency, storytelling, and subsidies for SMEs to balance tech and human labour.

Gemini Advanced 2.5 Pro

Scenario Overview	AI is embraced to elevate the human experience; workplaces are highly personalised and efficient.	Over-integration and poorly regulated automation create a dystopian environment; HR processes are cold and lack human oversight.	AI augments human capabilities by leveraging insights and efficiency to enhance human roles.	AI adoption is cautious and disciplined; the industry prioritises preserving the traditional high-touch service model.
The Workplace	AI tailors schedules and development plans, freeing front-line staff from administrative tasks.	Workplaces feel sterile and monitored; performance is judged solely on quantifiable metrics.	HR professionals are strategic partners; front-line staff use AI to anticipate guest needs, but maintain human interaction.	Workplaces resemble those of the recent past; HR processes remain predominantly human-managed.

AI in HR Processes	AI handles initial screening, onboarding, training, performance management, and engagement/retention.	Hiring, firing, scheduling, and disciplinary actions are often triggered automatically by algorithms.	AI analyses data to identify trends, drafts job descriptions, handles employee queries and recommends training.	Technology adoption focuses on operational efficiency rather than core TM functions.
Employee Feelings About AI	Generally positive; employees appreciate personalised development and objective feedback.	Employees feel dehumanised, disposable, and constantly surveilled; high turnover and burnout are rampant.	Focus on leveraging AI for insights and efficiency while enhancing human roles centred on empathy and strategy.	Driven by a strong commitment to human-centric values and ethical concerns, I prioritise preserving the traditional high-touch service model.
New Roles & Skills	HR AI Ethicist, Hospitality Data Scientist, Employee Experience Designer; skills include digital literacy, data interpretation, and ethical judgment.	Empathy, personalised mentorship, genuine team building, and ethical considerations are lost.	HR professionals are strategic partners; skills include human-AI collaboration, strategic communication, and adaptability.	Focus on service excellence, interpersonal skills, ethical leadership, and critical thinking.
Supporting Policies & Education	Strong data privacy regulations and industry-specific AI ethics codes are in place, and educational institutions integrate AI tools and digital ethics.	Organisations attempt chaotic rollbacks; policymakers enact reactive regulations on AI in the workplace.	"Human-in-the-loop- loop" principles are mandated; policies define the roles of AI and humans; educational programs emphasise human-AI collaboration skills.	Technology adoption focuses on operational efficiency; education emphasises service philosophy and interpersonal skills.

AI-Generated vs. expert scenarios

The scenarios produced by GenAI (Deepseek - DeepThink (R1), ChatGPT 4.5, Gemini Advanced 2.5 Pro) and the perspectives gathered from human experts converged on several key themes regarding the future of AI in T&H TM by 2035.

There is a shared high expectation of significant AI integration into TM functions. AI scenarios detailed how “AI streamlines recruitment through predictive analytics” (ChatGPT Scenario 1) and manages “continuous professional development... by AI-driven learning platforms” (ChatGPT

Scenario 1), aligning with expert views on leveraging AI for efficiency. Similarly, both sources foresaw the evolution of human roles towards hybrid models involving collaboration with AI systems rather than outright replacement. For instance, AI suggested that in a balanced future, "AI handles data crunching... while humans focus on relationship-building" (Deepseek Scenario 3), echoing expert preferences for AI handling "routine chores involved in HR management". Furthermore, similarities emerged on the necessity for fundamental skill shifts within the workforce, encompassing AI literacy, data interpretation, ethical reasoning, and enhanced interpersonal skills, reflected in AI outputs listing skills like "AI literacy, data-driven decision-making, emotional intelligence, and digital ethics awareness" (ChatGPT Scenario 1).

Despite these commonalities, significant divergences were noted. Experts consistently grounded their perspectives in the unique human-centric nature of the T&H industry, frequently emphasising that "human interaction is essential" and that the industry relies on a "human touch" which AI cannot fully replicate. One expert stated, "Taking out human interaction between people is unthinkable". While AI models acknowledged human aspects, their scenarios sometimes lacked this deep contextual nuance, occasionally presenting technological integration with less sensitivity to the industry's service culture. Additionally, AI-generated scenarios often depicted more polarised futures, leaning towards distinct utopian ("AI-Driven Utopia") or dystopian ("AI Overreach"/"Collapse") outcomes, as seen in descriptions of workplaces being either "highly integrated with advanced AI systems enhancing productivity, employee well-being" (ChatGPT Scenario 1) or environments where "HR is fully automated" and "layoffs are algorithmically decided" (Deepseek Scenario 2). Experts, conversely, tended towards futures involving more cautious or balanced integration, expressing scepticism about extremes and highlighting practical implementation challenges. As one expert noted regarding full automation, "No, it is not realistic at all. You can never have a hundred per cent (AI) automated processes". Furthermore, while AI identified ethical risks like bias, expert discussions offered greater depth, exploring the complexities of governance, human oversight, and potential psychological impacts.

Thematic insights from GenAI

The AI-generated scenarios provided valuable thematic insights into potential TM strategies, risks, and roles in an AI-influenced future. Dominant strategies featured prominently, such as using "predictive analytics to match candidates with roles" (Deepseek Scenario 1) and implementing "personalised AI-driven training programs" (Deepseek Scenario 1). The AI outputs also consistently highlighted the use of "real-time sentiment analysis" (Deepseek Scenario 1) or similar tools to monitor engagement and well-being.

Regarding risks, the AI models articulated concerns around "job displacement" (Gemini Scenario 2, Deepseek Scenario 4) and ethical pitfalls, including "widespread algorithmic bias, privacy infringements, and data misuse" (ChatGPT Scenario 2), leading to potential "dehumanisation". The "Collapse" scenarios explicitly described workplaces where "employees feel disposable" (Deepseek Scenario 2) and TM loses "critical relational and intuitive elements" (ChatGPT Scenario 2).

A notable contribution from the GenAI was the identification of emerging job roles. Suggestions frequently included "AI ethics officers" (Deepseek Scenario 1, ChatGPT Scenario 1, Gemini Scenario 1), "algorithm trainers" (ChatGPT Scenario 1), "HR data stewards" (Deepseek Scenario 1), "employee experience architects" (ChatGPT Scenario 1), and facilitators for "Human-AI Collaboration" (Gemini Scenario 1), indicating a future requiring specialised skills to manage and ethically guide AI integration within HR.

Evaluation of AI effectiveness

GenAI demonstrated considerable strengths in this scenario-planning exercise, primarily in its speed and efficiency in generating structured narratives across Dator's four futures. It effectively covered a broad range of potential AI applications within TM. It acted as an innovation catalyst by proposing novel job titles and specific technological uses, such as "VR simulations for soft skills" (Deepseek Scenario Scenario3).

However, limitations were apparent. The AI's outputs sometimes lacked the contextual depth evident in expert discussions, particularly concerning the T&H industry's reliance on nuanced human interaction, a

factor experts deemed critical. There was also a tendency towards simplification, presenting futures as more distinctly positive or negative than the complex, hybrid realities often anticipated by human experts. While AI identified ethical concerns, its reasoning often remained less profound than the expert deliberations on practical implementation, governance frameworks, and the socio-technical challenges involved. Experts stressed that AI integration requires careful management of the "social aspect, such as employee adaptation, trust in AI tools, and the ethical implications of AI-driven decisions".

Discussion

This study explored the capability of GenAI to replicate expert-driven scenario planning for TM in the T&H industry, comparing AI-generated outputs with findings from El Hajal and Yeoman (2024). The results indicate potential but also limitations for using GenAI in strategic foresight and highlight implications for the use of GenAI in hospitality education.

Feasibility of using GenAI in TM

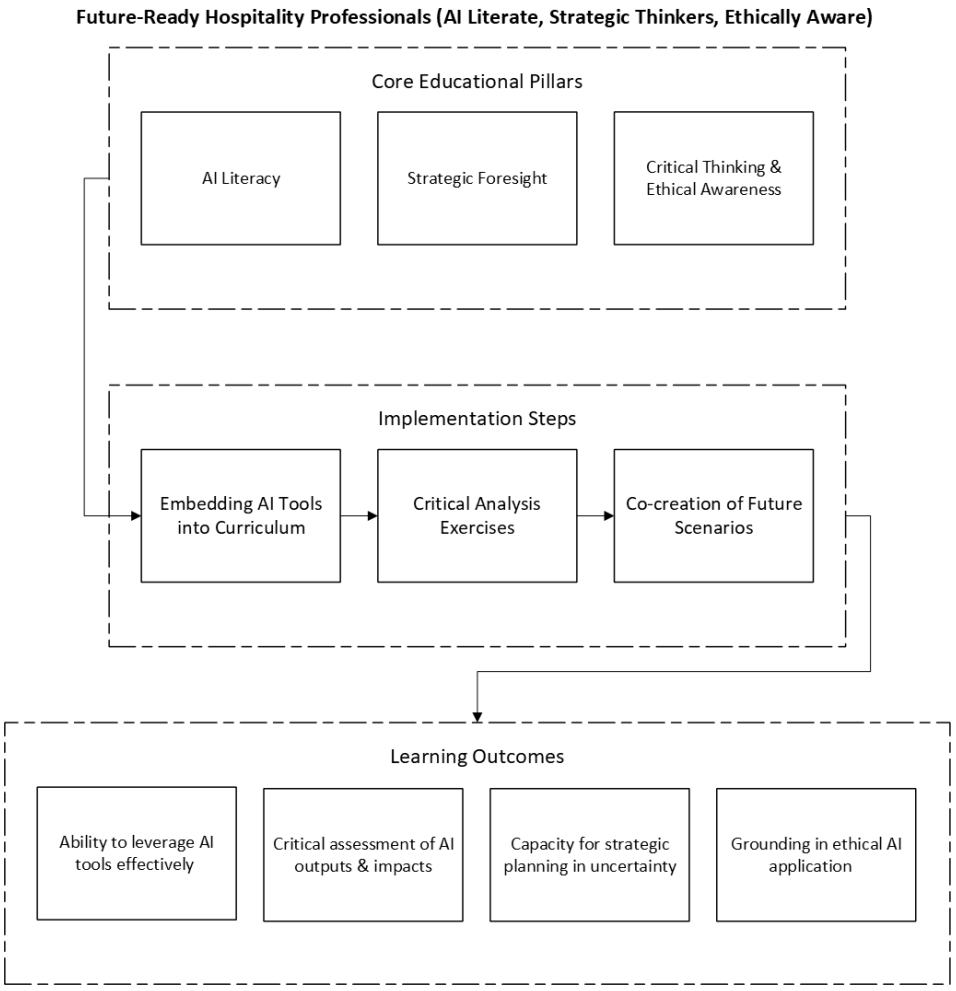
The findings suggest that GenAI tools like ChatGPT, Gemini, and DeepSeek demonstrate considerable usefulness as aids in TM strategic planning, particularly for the rapid prototyping of future strategies. Their ability to quickly generate structured narratives covering diverse scenarios aligns with the need for agility in navigating the uncertain future landscape of AI adoption (Altemeyer, 2019; Ivanov, 2019). AI models effectively outlined potential TM strategies, risks, and emerging roles, providing a broad, valuable overview for initial brainstorming and exploration.

However, the findings indicate that GenAI cannot fully replace human insight, reinforcing the argument by Kuosa and Aalto (2025) that AI-generated content often lacks the nuance and contextual awareness of expert foresight. While AI identified themes like the importance of the "human touch," it struggled to capture this concept's depth, as human experts emphasised. Furthermore, the tendency of AI towards polarised utopian/dystopian scenarios and its comparatively superficial treatment of complex ethical issues underscore the continued necessity for human judgment, ethical reasoning, and contextual understanding, as warned by Kumar et al. (2025) and Solaiman (2024). Therefore, GenAI currently serves best in a complementary role, augmenting human strategic planning processes rather than supplanting them.

Integrating AI into T&H education

Translating these findings into educational practice points towards the need for revised pedagogical approaches in T&H education. The divergence between AI capabilities and human expertise highlights the importance of cultivating AI literacy and strategic foresight among future hospitality leaders. Scenario-based learning, incorporating AI tools and critical human analysis, emerges as a key method. The authors propose the Future T&H Talent Framework presented in Figure 1.

Figure 1. Future Tourism and Hospitality Talent Framework (FTHTF)



This framework provides a structured approach for T&H education programs to prepare students proactively for an industry increasingly shaped by AI. It addresses the critical need identified in the literature to move beyond traditional curricula and equip future professionals with the necessary AI literacy, strategic foresight, and ethical awareness required to navigate technological disruption. By integrating hands-on experience with AI tools, critical analysis of their outputs, and co-creation of future scenarios, the FTHTF aims to develop adaptable, ethically grounded graduates who can effectively leverage AI while upholding the human-centric values essential to the hospitality industry, thus bridging the gap between academic preparation and future workforce demands.

Human expertise vs GenAI

This study reinforces the distinct yet potentially synergistic contributions of human expertise and GenAI in strategic foresight for TM. Humans bring irreplaceable ethics, context, and intuition. Experts' ability to ground scenarios in the T&H industry's human-centric values and anticipate nuanced socio-technical challenges is something current GenAI cannot replicate, aligning with El Hajal and Yeoman's (2024) findings, where expert insights provided depth beyond technological possibilities.

GenAI offers scale, speed, and access to vast cross-domain knowledge. Its strength is rapidly generating various possibilities, identifying patterns across large datasets, and suggesting novel concepts that might be missed in purely human-led processes. While its weaknesses in deep contextual understanding and ethical reasoning are apparent, its ability to quickly process information and generate structured output makes it a

valuable assistant in the complex task of envisioning future workforce needs. The optimal approach involves leveraging GenAI's strengths while mitigating its weaknesses through critical human oversight and expertise.

Conclusion and contributions

The findings of this exploratory study confirm that while GenAI demonstrates considerable utility in rapidly generating diverse scenarios and identifying potential strategies, risks, and roles, it currently serves best in a complementary capacity rather than as a replacement for human expertise. The study introduced and evaluated a GenAI-driven approach to scenario planning specifically for TM within T&H, showcasing its capabilities for rapid prototyping. It extended the work of El Hajal and Yeoman (2024) by replicating their expert-based scenario process using GenAI tools, providing a comparative perspective on the outputs. The study proposed the FTHTF, a pedagogical model for integrating GenAI outputs and foresight methods into hospitality education to cultivate essential future competencies like AI literacy, strategic thinking, and ethical awareness.

The practical implications are significant, offering guidance for HR policy design incorporating AI tools responsibly, informing curriculum development in T&H programs to prepare future-ready graduates, and highlighting the need for industry-wide AI capacity building. Ultimately, this study underscores the potential of synergistic human-AI collaboration and calls for further studies exploring optimal ways to combine human expertise with AI capabilities in strategic foresight for TM, ensuring technology enhances, rather than diminishes, the core values and effectiveness of the T&H workforce.

Limitations and future research

Several limitations should be acknowledged. The primary limitation stems from GenAI's outputs being susceptible to bias in their training data and the potential for generating plausible but incorrect information (hallucinations), requiring careful validation. The study's reliance on specific prompts and AI models also means findings may vary with different tools or approaches.

Future research should focus on addressing these limitations and exploring synergistic approaches. Mixed-method studies combining AI generation with structured expert validation and co-creation could yield more robust scenarios. Investigating the longitudinal impact of AI literacy interventions based on frameworks like the FTHTF within educational settings would provide valuable insights into effective pedagogy. Finally, there is a pressing need to develop and test specific ethical frameworks and governance models for the responsible application of GenAI within TM decision-making processes in the T&H industry, ensuring fairness, transparency, and alignment with human values.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the authors used GPT-4o and Microsoft Copilot to enhance language, clarity and brevity. After using these tools, the authors reviewed and edited the content as needed and take full responsibility for the publication's content.

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