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Structural resources or managerial cognition? Explaining hoteliers' perceived impact of artificial intelligence in hospitality

Cindy Yoonjoung Heo [a,*], Roland Schegg [b]

[a] EHL Hospitality Business School, HES-SO / University of Applied Sciences and Art Western Switzerland, Switzerland
[b] The Institute of Tourism, HES-SO Valais / University of Applied Sciences and Arts of Western Switzerland Valais, Switzerland

A B S T R A C T

The hospitality industry is rapidly adopting artificial intelligence (AI), yet hotels differ in, how they perceive its impact. This study examines whether these perceptions are, shaped more by structural resources or by managerial cognition. Survey data from 747, hotel managers across five European countries are used to analyze the effects of hotel, size, staff size, business evaluation scope, and cognitive flexibility. Business evaluation, scope reflects the breadth of performance indicators monitored, while cognitive, flexibility captures managers adaptive thinking. Results show that staff size, business, evaluation scope, and cognitive flexibility are positively associated with perceived AI, impact, whereas hotel size measured by number of rooms is not. The findings suggest, that managerial cognition plays a more important role than physical scale in shaping AI, awareness. This study advances hospitality digital transformation research by, highlighting cognitive readiness as a key driver of AI adoption.

1. Introduction

The hospitality industry is undergoing profound transformation driven by rapid technological advancements and, more recently, the accelerated adoption of artificial intelligence (AI) (Ali et al., 2025; Casaló et al., 2025). While digital innovations have long influenced operational efficiency, distribution channels, and customer experience (Buhalis and Leung, 2018; Cheng et al., 2023), the emergence of AI is expected to generate disruptions of even greater magnitude (Li et al., 2019; Morosan al., 2024; Zhou et al., 2026). Scholars argue that AI will fundamentally alter decision-making processes, customer interaction, and service personalization, thereby reshaping the very fabric of hospitality operations (Ivanov and Webster, 2019; Mariani and Borghi, 2022; Seyfi et al., 2025).

Technological change presents both significant opportunities and notable challenges for the hospitality industry. On the one hand, digitalization and AI offer powerful tools to improve operational efficiency, reduce costs, and generate data-driven insights for revenue optimization (Li et al., 2019; Tussyadiah, 2020). On the other hand, hospitality businesses vary considerably in their capacity to recognize, interpret, and effectively leverage these technological opportunities. Although AI may support operational efficiency, cost reduction, service personalization, workforce planning, and revenue optimization, managers may differ substantially in the extent to which they perceive AI as strategically relevant.

While AI is transforming the broader hospitality sector, hotels provide a particularly suitable empirical context for examining managerial perceptions of technological disruption. Hotels are characterized by high labor intensity, operational complexity, and the integration of multiple service functions within a single organizational setting. Moreover, they are exposed to a wide range of AI applications, spanning both customer-facing technologies and back-end analytical systems. These characteristics make hotels especially sensitive to technological change and require managers to interpret AI's implications across diverse operational domains. In addition, unlike many other industries, hotel operations rely on highly fragmented digital ecosystems in which property management systems, channel managers, OTAs, CRM tools, revenue management systems, and destination platforms must continuously interact. This integration complexity transforms AI adoption from a purely technological issue into a broader managerial and governance challenge, where perceptions of risk, trust, interoperability, and organizational readiness become central. At the same time, hotels are increasingly confronted with the emergence of AI-native travel planning tools such as ChatGPT, Gemini, or Perplexity, which may disrupt traditional customer acquisition and distribution structures by bypassing both OTA and DMO discovery channels. As such, the hotel context offers a theoretically relevant setting for examining how managerial cognition shapes the perceived strategic salience of AI.

Large hotel chains and properties operating under management contracts often benefit from economies of scale, professionalized

* Corresponding author.
E-mail addresses: cindy.heo@ehl.ch (C.Y. Heo), roland.schegg@hevs.ch (R. Schegg).

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management structures, and dedicated innovation budgets, which enable continuous investment in new technologies (Öğüt and Onur Taş, 2012). However, these advantages are frequently accompanied by organizational constraints. Decision-making processes for major technological investments can be slow and bureaucratic, creating inertia, while the need to train a large and geographically dispersed workforce adds further complexity and may delay or even hinder digital transformation initiatives. In contrast, small and independent hotels - particularly common across Europe - face substantial limitations related to financial resources and specialized human capital (Edwards al., 2005; Haddad et al., 2020; Mariani and Baggio, 2022). Yet, their smaller scale can also be a strategic advantage, allowing for greater organizational agility and faster adaptation to emerging technologies and evolving guest expectations. This contrast suggests that structural resources shape a hotel's capacity to act but may not fully explain whether managers perceive AI as strategically important in the first place.

Despite growing research on AI in hospitality, existing studies primarily focus on adoption outcomes, employee reactions, or technological capabilities. Much less is known about how managers interpret the strategic relevance of AI before adoption decisions are made. This gap is critical, as managerial perception represents an early cognitive stage that shapes whether and how organizations respond to technological change.

A fundamental prerequisite for change is awareness: hoteliers must first recognize the magnitude and implications of technological disruption before they can initiate meaningful responses. Without this recognition, even well-capitalized firms may fail to respond appropriately, as opportunities remain unnoticed or underestimated (Helfat and Peteraf, 2015; Teece, 2007). Awareness therefore functions as an early cognitive stage in strategic adaptation, shaping whether managers perceive technological advances as threats, opportunities, or peripheral developments (Christensen al., 2015). Accordingly, this study does not examine AI adoption directly but focuses on managers' perceived strategic salience of AI, defined as the extent to which managers believe AI is influencing the hospitality industry.

To explain variation in these perceptions, we develop an integrated theoretical framework that combines structural and cognitive perspectives. Structural resources represent a hotel's capacity to act, whereas managerial cognition represents the capacity to interpret technological change. This distinction allows us to explain why resources alone may be insufficient: hotels may possess the ability to invest in AI, but managers must first recognize AI as strategically relevant before such resources can be mobilized.

Among managerial characteristics, the ability to evaluate business performance through multiple perspectives is particularly critical. A broader scope reflects a holistic rather than a narrow view of hotel operations and signals a willingness to consider interdependencies across different aspects of the business. The Balanced Scorecard (BSC) framework (Kaplan and Norton, 1996) offers a valuable conceptual foundation for understanding this approach, as it emphasizes that performance should be evaluated across multiple perspectives rather than focusing exclusively on short-term financial results. In a hospitality context, this means that traditional measures such as Occupancy and RevPAR should be complemented by customer-oriented metrics (e.g., guest satisfaction), and operational indicators (e.g., energy consumption, staff turnover). Empirical studies confirm the applicability of the BSC in hospitality: Phillips and Louvieris (2005) demonstrate its effectiveness in integrating financial and non-financial measures in hotels, while Evans (2005) shows how the BSC supports service organizations in linking performance management to strategic priorities.

A key dimension in this regard is business evaluation scope, defined as the breadth of performance indicators that managers monitor. Monitoring such a diverse set of indicators provides richer and more actionable insights than reliance on a single financial metric, enabling managers to capture both current performance and long-term drivers of competitiveness (Alphun al., 2024). In this study, business evaluation scope is conceptualized as a reflection of managerial attention breadth, influencing how managers identify and interpret AI's relevance across multiple operational domains.

At a deeper cognitive level, another critical individual characteristic is cognitive flexibility, which reflects the ability to shift perspectives, adapt thinking, and modify strategies in response to novel challenges and opportunities. Cognitive flexibility has long been studied in psychology as a central dimension of adaptive functioning (Martin and Rubin, 1995; Dennis and Vander Wal, 2010). In organizational behavior, it is regarded as a key enabler of creativity, problem-solving, and innovation (Spiro and Jehng, 2012). Managers who demonstrate higher levels of cognitive flexibility are more likely to interpret complex information effectively, balance competing priorities, and reconfigure strategies in response to environmental change (Helfat and Peteraf, 2015; Haynie and Shepherd, 2009).

In the context of technological disruption, cognitive flexibility is particularly valuable because it enables managers to envision alternative scenarios, reduce rigidity in decision-making, and embrace experimentation with emerging tools such as AI (Tussyadiah, 2020). Conversely, low cognitive flexibility may lead to path dependence and resistance to change. Thus, cognitive flexibility is conceptualized as an adaptive cognitive capability that shapes how managers interpret AI's strategic relevance. Accordingly, this study addresses the following research question: Are differences in perceived AI impact primarily explained by structural resources or by managerial cognition?

This study advances hospitality and tourism research on digital transformation by shifting attention from structural determinants toward managerial cognition. It conceptualizes perceived strategic salience as an early-stage mechanism that shapes how managers interpret the importance of AI before adoption decisions are made. By combining organizational characteristics with managerial-level factors, the study explains why perceptions of AI's impact vary across firms. In doing so, it develops a theoretically grounded framework linking managerial attention, captured through business evaluation scope, and cognitive flexibility to the interpretation of AI's strategic relevance, offering a more comprehensive understanding of how managers make sense of technological change in complex service environments.

2. Theoretical background

2.1. Managerial cognition and strategic interpretation

Understanding how organizations respond to technological disruption requires attention to how decision-makers interpret their environment. Building on Upper Echelons Theory (Hambrick and Mason, 1984), this study argues that organizational responses to technological development are shaped not only by firm-level resources but also by how decision-makers interpret their environment. Managers do not respond to objective technological conditions per se; rather, they act upon their subjective interpretations. As a result, differences in experience, cognitive orientation, and information-processing styles can lead to systematic variation in how emerging technologies such as AI are perceived.

In the context of AI, this perspective suggests that hotels operating under similar technological conditions may differ substantially in their perceived level of disruption. Even when exposed to comparable digital infrastructures, vendor solutions, or market pressures, managers may interpret the significance of AI in markedly different ways. Some may view AI as a transformative force with far-reaching implications for pricing, personalization, workforce management, and competitive positioning, while others may perceive it as a set of incremental tools confined to specific operational functions.

Prior hospitality research applying Upper Echelons Theory helps explain why such variation may occur. These studies show that managerial characteristics and cognitive orientations influence strategic decisions across diverse contexts, including restaurant internationalization (Lee et al., 2016), corporate social responsibility in restaurants (Lee

et al., 2018), strategic talent management in hotels during COVID-19 (Garavan et al., 2023), environmental sustainability practices in hotels (Heenipellage et al., 2022), metaverse adoption in hospitality (Agnihotri et al., 2025), and the career experiences of women executives in hospitality and tourism (Fan et al., 2021). Collectively, this body of work demonstrates that managers' backgrounds, values, attention patterns, and interpretive frames shape how they identify strategic issues and respond to environmental change.

Building on this logic, AI perceptions are unlikely to be determined by structural resources alone. Managers may differ in how they connect information across functional domains and how flexibly they update their mental models in response to emerging technologies. As a result, the same technological development may be framed either as a strategic opportunity requiring proactive investment or as a peripheral trend with limited relevance to core operations. This study therefore emphasizes managerial cognition as a key explanatory mechanism underlying variation in perceived AI disruption.

2.2. Attention allocation and business evaluation scope

While Upper Echelons Theory explains why managerial cognition matters, the Attention-Based View (Ocasio, 1997) provides a complementary lens for understanding how these cognitive processes operate in practice. From this perspective, organizational action is shaped by the issues to which decision-makers allocate their limited attention. Because managers cannot process all available information, they selectively focus on a subset of signals, and this selective attention influences how they interpret their environment and prioritize strategic responses.

In this study, business evaluation scope is conceptualized as an indicator of managerial attention breadth. Managers who monitor a wider range of performance indicators—spanning financial, operational, and customer-related metrics—are exposed to more diverse signals about organizational performance and environmental change. This broader attentional focus increases the likelihood that they recognize the cross-functional implications of technological developments such as AI. Prior research grounded in the attention-based view suggests that performance measurement systems do not merely track outcomes but actively direct managerial focus and influence organizational behavior (Tan and Anomasiri, 2017). Similarly, attention allocation has been linked to the development of dynamic capabilities and competitive advantage, as managers who attend to a broader set of issues are better positioned to integrate knowledge and respond to change (Kaur, 2025; Joseph and Wilson, 2018).

Applied to the context of AI, this implies that the perceived strategic relevance of AI depends not only on its objective capabilities but also on how managerial attention is distributed. AI technologies often have simultaneous implications for pricing, service quality, workforce management, and operational efficiency. Managers with a narrow evaluative scope may interpret these developments in isolation and underestimate their broader strategic impact. In contrast, those with a broader attention scope are more likely to connect signals across domains and recognize AI as a system-wide, strategically significant development. Business evaluation scope therefore reflects not only a measurement practice but also an underlying attentional structure that shapes how technological signals are filtered, interpreted, and prioritized.

2.3. Cognitive flexibility and adaptive capability

Beyond attention allocation, the ability to interpret and respond to complex technological change depends on managers' adaptive cognitive capabilities. Drawing on the microfoundations of dynamic capabilities (Teece, 2007; Helfat and Peteraf, 2015), cognitive flexibility can be understood as an individual-level capability that enables managers to sense, interpret, and respond to environmental change. While attention determines which signals are noticed, cognitive flexibility shapes how those signals are processed and translated into strategic meaning.

Cognitive flexibility refers to the capacity to shift perspectives, integrate diverse information, and adapt mental models in response to new situations. In contexts characterized by uncertainty and rapid technological advancement, such as AI, this capability becomes particularly critical. Managers with higher cognitive flexibility are better equipped to process ambiguous and evolving information, question established routines, and reconcile potentially conflicting signals across functional domains. This enhances their ability to recognize AI not merely as an operational tool, but as a driver of broader organizational transformation. Recent hospitality research highlights how emerging technologies such as generative AI require cognitive alignment and adaptive intelligence from decision-makers, reinforcing the importance of flexible thinking in technology-driven contexts (Xinlin et al., 2025). Similarly, cognitive flexibility has been shown to support innovative behavior and adaptive responses in service environments, particularly under conditions of complexity and change (Madaan and Sharma, 2026).

Conversely, managers with lower cognitive flexibility may rely more heavily on existing schemas and established practices, leading them to interpret AI within familiar operational frames and underestimate its transformative potential. As a result, technological change may be perceived as incremental rather than disruptive. Cognitive flexibility therefore plays a central role in shaping how managers make sense of AI, influencing whether it is interpreted as a peripheral efficiency tool or as a strategically significant force requiring broader organizational adaptation.

2.4. Integrated framework: linking cognition, attention, and perception

Taken together, these theoretical perspectives provide a coherent framework for understanding variation in managerial perceptions of AI. Upper Echelons Theory explains why managerial characteristics influence interpretation, the Attention-Based View clarifies how attention structures shape what managers perceive, and the microfoundations of dynamic capabilities explain how managers translate these perceptions into adaptive potential.

This integrated framework distinguishes between structural capacity and cognitive interpretation. While structural resources such as hotel size and staffing may influence the ability to implement technological change, they do not determine whether such change is recognized as strategically important. Instead, managerial cognition—reflected in attention breadth (business evaluation scope) and adaptive capability (cognitive flexibility)—plays a central role in shaping the perceived impact of AI. Accordingly, this study examines whether managerial cognition provides stronger explanatory power than structural characteristics in understanding how hoteliers perceive the impact of AI, thereby offering a more nuanced perspective on early-stage responses to technological disruption.

3. Research method

This study employed a cross-sectional survey design targeting hotel managers across Europe. The sample was developed through collaboration with national hospitality organizations, which facilitated access to industry respondents. Multiple organizations were contacted; however, six agreed to distribute the survey to their member hotels: Wirtschaftskammer Österreich (Austria), Hotelverband Deutschland (IHA) e. V. (Germany), Union des Métiers et des Industries de l'Hôtellerie (UMIH) (France), the Research Institute for Tourism (RIT) of the Hellenic Chamber of Hotels (Greece), the Associazione Albergatori ed Imprese Turistiche della Provincia di Trento (Italy), and HotellerieSuisse (Switzerland). Due to a very low number of responses from Greece, these observations were excluded from the final dataset. Consequently, the analysis focuses on five countries: Germany, France, Italy, Austria, and Switzerland. Country coverage reflects organizational access and response feasibility rather than a predefined sampling design.

The survey was administered between January and April 2025. Respondents were hotel managers who received the questionnaire through their respective national associations. Participation was voluntary, and no incentives were provided. Given the reliance on industry partners for distribution, the sampling approach is characterized as non-probability, association-based sampling. While this approach enabled access to a relevant managerial population, it may introduce nonresponse bias, as participation depends on both organizational distribution and individual willingness to respond.

A total of 1043 responses were collected. After removing incomplete entries, the regression analyses were conducted on 742 observations. The final sample distribution was as follows: France (n = 240), Germany (n = 185), Switzerland (n = 131), Italy (n = 102), and Austria (n = 89).

Regarding measurement, the dependent variable captures the perceived strategic salience of AI at the industry level. Respondents were asked to indicate, on a scale from 1 (no impact at all) to 10 (very large impact), the extent to which they believe AI is influencing the hospitality industry. This single-item measure reflects an overall assessment of AI's strategic relevance rather than specific adoption or implementation behaviors. The use of a single-item measure involves an inherent trade-off. While multi-item scales are generally preferred for capturing complex constructs with greater reliability, the decision to employ a single item was guided by practical considerations related to survey length and respondent burden. Given that the survey was distributed through industry associations to busy hotel managers, maintaining a concise instrument was critical to securing participation and minimizing dropout rates. However, this approach may limit the ability to capture the multidimensional nature of AI's impact and introduces potential measurement constraints, which are acknowledged as a limitation of the study.

The key independent variable, business evaluation scope, is operationalized as the number of key performance indicators (KPIs) that managers report monitoring on a regular basis. Respondents selected from a predefined list of 19 indicators spanning financial performance (e.g., RevPAR, EBITDA), customer-related metrics (e.g., guest satisfaction index), and operational indicators (e.g., energy consumption per available room, staff retention rate). The full list of indicators is provided in Appendix 1. The breadth of KPI monitoring is interpreted as a proxy for managerial attention scope, under the assumption that exposure to a wider range of performance signals enhances the ability to recognize cross-functional implications of AI. However, this measure may also reflect organizational reporting structures, such as chain-imposed monitoring requirements.

Cognitive flexibility was measured using three items - "I consider multiple options before making a decision.", I consider all the available facts and information when attributing causes to behavior.", and "I often look at a situation from different viewpoints", adapted from the Cognitive Flexibility Inventory (Dennis and Vander Wal, 2010), capturing the extent to which managers are able to consider multiple perspectives and adapt their thinking in response to changing environments.

4. Findings

4.1. Descriptive statistics and correlations

Table 1 summarizes the sample distribution across countries and hotel types, reporting average property size, staffing, business evaluation scope, and cognitive flexibility scores. In terms of property size, chain-affiliated hotels tend to be larger on average (e.g., German chains: 161 rooms; Austrian chains: 135 rooms) compared to independent or management contract hotels, which generally fall below 60 rooms. Regarding staffing, larger chains employ more personnel (e.g., German chains: 51.9 employees; Italian chains: 50.0 employees), while independent hotels report substantially smaller teams (e.g., French independents: 10.2 employees). When examining managerial practices, chain hotels consistently demonstrate a broader business evaluation scope, monitoring more indicators (around 7–8 on average) than independents (typically 5–6). Finally, cognitive flexibility scores are relatively stable across countries and hotel types, typically between 5.4 and 6.2.

Table 1
Descriptive statistics of sample.

Country	Hotel Typ	N	Capacity (Mean / SD)	Staff (Mean / SD)	BES (Mean / SD)	CF (Mean / SD)
Austria	Chain	7	135.0 (63.3)	26.86 (20.19)	8.14 (4.34)	6.14 (0.88)
	Independent	81	44.74 (70.25)	21.05 (56.55)	5.81 (3.97)	5.7 (1.35)
	MC	1	28.0 (0.0)	5.0 (0.0)	7.0 (0.0)	6.33 (0.0)
France	Chain	56	71.27 (42.87)	22.93 (29.4)	7.59 (4.35)	5.92 (1.07)
	Independent	141	34.91 (26.96)	10.21 (12.41)	5.62 (3.3)	5.91 (1.01)
	MC	43	43.02 (26.45)	23.58 (30.06)	6.67 (3.43)	5.93 (1.09)
Germany	Chain	15	161.33 (88.34)	51.87 (43.61)	8.27 (4.35)	5.71 (1.44)
	Independent	146	57.64 (209.66)	17.86 (24.55)	4.91 (3.12)	5.41 (1.24)
	MC	23	75.0 (72.59)	35.65 (39.2)	7.04 (4.1)	5.48 (1.46)
Italy	Chain	5	91.4 (71.47)	50.0 (41.69)	6.6 (3.51)	5.6 (0.55)
	Independent	94	38.45 (27.06)	18.67 (22.85)	6.22 (4.04)	5.63 (0.94)
	MC	3	21.67 (11.59)	8.67 (10.02)	5.67 (2.31)	6.67 (0.58)
Switzerland	Chain	5	76.4 (32.75)	21.4 (16.62)	4.4 (2.88)	5.8 (0.84)
	Independent	113	32.65 (25.61)	22.1 (37.22)	6.03 (3.48)	5.68 (0.95)
	MC	13	39.23 (25.14)	21.0 (15.29)	8.0 (3.81)	5.51 (1.19)

(Note)
– Capacity refers to the number of rooms of the property; Staff refers to the number of employees of the property; MC refers to Management contract; SD refers to standard deviation.

– Business evaluation scope (BES) operationalized as the number of KPIs tracked.

To identify the areas in which AI is perceived to be most useful for hotels, respondents were asked to select all applicable domains from a predefined list. The list of AI application areas was developed based on a synthesis of industry reports, discussions with tourism and hospitality scholars, and consultations with industry practitioners, ensuring both academic relevance and practical grounding. The full descriptive results are presented in Appendix 2.

A total of 937 respondents answered this question, generating 4713 selections, which corresponds to an average of approximately 5.0 areas selected per respondent. This indicates that hotel managers tend to view AI as applicable across multiple functional domains rather than confined to a single area. Reservations emerged as the most frequently selected application area (66.6%), followed by marketing (60.8%) and customer relationship management (54.1%). These results suggest that managers perceive strong potential for AI in demand handling, customer communication, and relationship management. Similarly, a substantial proportion of respondents identified personalization of the customer experience (45.1%) and data analysis and reporting (42.2%) as key areas, reflecting the growing importance of data-driven decision-making and tailored service delivery in hospitality.

Operational and efficiency-related applications were also recognized, with 33.4% of respondents selecting operational process efficiency and 31.9% identifying finance-related uses. By contrast, areas such as human resources, predictive maintenance, and kitchen-related

applications received comparatively lower levels of selection, although still representing meaningful shares of respondents. This pattern suggests that managers may currently perceive these applications as more specialized or less immediately impactful. Overall, the results indicate that AI is primarily associated with functions linked to commercial performance, customer interaction, and data-driven decision-making, rather than being viewed solely as a tool for back-office automation. This distribution of responses reinforces the interpretation that AI is understood as a broadly applicable and strategically relevant technology within the hotel context.

Table 2 presents the correlations among structural and managerial variables and the perceived strategic salience of AI. The number of rooms is positively correlated with business evaluation scope (r = .18), indicating that larger properties tend to evaluate performance across a broader set of indicators. By contrast, the number of rooms shows little relationship with staff size (r = .02), cognitive flexibility (r = –.04), or the perceived strategic salience of AI (r = .00), suggesting that physical scale does not strongly influence managerial cognition or perceptions of AI's strategic relevance. Staff size is likewise weakly related to the other variables, reflecting diverse staffing structures across hotels.

The most consistent pattern emerges among the managerial variables. Business evaluation scope is positively correlated with both cognitive flexibility (r = .17) and the perceived strategic salience of AI (r = .15), indicating that managers who adopt a broader evaluative perspective tend to be more cognitively adaptable and more likely to recognize the strategic relevance of AI. Cognitive flexibility is also positively associated with the perceived strategic salience of AI (r = .16), further suggesting that more adaptable managers are more inclined to view AI as strategically important.

4.2. Regression analysis

To examine the joint influence of structural and managerial factors on the perceived strategic salience of AI in the hospitality industry, a multiple regression analysis was conducted. The perceived strategic salience of AI served as the dependent variable, with number of rooms and staff size representing structural characteristics, and business evaluation scope and cognitive flexibility capturing managerial-level factors. The overall model was statistically significant, $F(4, 737) = 9.23$, $p < .001$, explaining a modest proportion of variance ($R^2 = .048$, Adj. $R^2 = .043$).

As shown in Table 3, the structural variables produced divergent effects. The number of rooms was not a significant predictor (B = –0.001, p = .170), indicating that physical scale does not meaningfully shape managers' perceptions of AI. In contrast, staff size was positively associated with the perceived strategic salience of AI (B = 0.008, β = .117, p = .003), suggesting that hotels with larger workforces—likely facing greater coordination complexity and labor-related challenges—are more inclined to view AI as strategically relevant.

Consistent with the study's theoretical framework, managerial factors also showed significant effects. Business evaluation scope was positively related to the perceived strategic salience of AI (B = 0.059, β = .097, p = .012), supporting the attention-based view that broader monitoring of performance indicators enhances managers' ability to recognize the cross-functional implications of technological change. Similarly, cognitive flexibility exhibited a positive and significant effect (B = 0.238, β = .119, p = .001), indicating that managers with greater adaptive capacity are more likely to interpret AI as a strategically important development.

To account for cross-country heterogeneity, additional models including country dummy variables (France as the reference category) were estimated. The results indicate that managers in Germany, Italy, and Austria report significantly higher perceived AI impact, with Switzerland showing a marginal difference. Importantly, the inclusion of country controls does not materially alter the main findings. Business evaluation scope and cognitive flexibility remain significant predictors, confirming the robustness of managerial cognition effects across national contexts.

Taken together, the results demonstrate that staff size, business evaluation scope, and cognitive flexibility are positively associated with perceived strategic salience of AI, while hotel capacity is not. The findings should therefore be interpreted as evidence of correlates of AI perception, not as evidence of actual AI adoption or implementation.

Table 2
Correlation matrix.

	Capacity	Staff	BES	CF	Perceived Impact of AI
Capacity	1				
Staff	0.02	1			
BES	0.18	-0.01	1		
CF	-0.04	0.04	0.17	1	
Perceived Imapact of AI	0	0.03	0.15	0.16	1

(Note)
– CF refers to cognitive flexibility.

– Business evaluation scope (BES) operationalized as the number of KPIs tracked.

5. Discussion

The results offer insight into how structural characteristics and managerial cognition jointly shape the perceived strategic salience of AI in the hospitality industry. Structural variables do not operate uniformly. While staff size shows a positive association with perceived strategic salience, the number of rooms does not, indicating that operational complexity linked to workforce management may matter more than physical scale in shaping how AI is interpreted.

A clearer pattern emerges for managerial factors. Both business evaluation scope and cognitive flexibility are positively related to perceived strategic salience. Managers who track a broader set of performance indicators—and who are more adaptable in their thinking—tend to assign greater strategic importance to AI. Rather than reflecting objective technological conditions alone, these perceptions appear to be filtered through managerial attention and interpretive capacity.

The robustness analysis with country controls adds an additional layer of interpretation. Differences across countries remain visible—Germany, Italy, and Austria show higher baseline perceptions than France—yet the core relationships persist. This pattern suggests that while institutional and cultural contexts influence overall levels of perceived strategic salience, the role of managerial cognition remains stable across settings.

6. Implications

6.1. Theoretical implications

The findings shift attention away from purely structural explanations of digital transformation toward the cognitive processes through which managers interpret emerging technologies. Rather than examining AI adoption or implementation directly, the study focuses on an earlier and more foundational stage: how managers come to perceive AI as strategically relevant in the first place.

From an Upper Echelons Theory perspective, the findings support the argument that strategic perceptions are shaped by the cognitive bases of decision-makers. Managers do not interpret technological change in a purely objective manner; instead, their evaluations are filtered through the information they attend to and the way they process that information. In this regard, business evaluation scope extends the upper echelons logic by showing how broader monitoring of organizational and market indicators can expand managerial attention. This aligns with the

Table 3
Multiple regression predicting perceived AI impact.

	Model 1 (Baseline)					Model 2 (Country Controls)				
Predictor	**B**	**SE**	**β**	**t**	**p**	**B**	**SE**	**β**	**t**	**p**
Constant	4.676	0.425	—	10.994	< .001***	4.120	0.460	—	8.957	< .001***
Capacity	-0.001	0.001	-0.053	-1.374	.170	-0.001	0.001	-0.048	-1.566	.118
Staff	0.008	0.003	0.117	2.953	.003**	0.007	0.003	0.105	2.520	.012*
BES	0.059	0.023	0.097	2.518	.012*	0.068	0.023	0.110	2.890	.004**
CF	0.238	0.073	0.119	3.253	.001**	0.274	0.070	0.135	3.910	< .001***
Germany						0.793	0.210	0.182	3.778	< .001***
Italy						0.586	0.250	0.102	2.344	.019*
Austria						1.480	0.300	0.210	4.933	< .001***
Switzerland						0.439	0.240	0.078	1.830	.067
N	742					742				
R	.218					.300				
R^2	.048					.090				
Adjusted R^2	.043					.080				
Std. Error	2.205					2.157				
F	9.231***					8.96***				

(Note)
– For model 2, France is the reference category

– *p < .05, **p < .01, ***p < .001.
– Capacity refers to the number of rooms of the property; Staff refers to the number of employees of the property; CF refers to cognitive flexibility.

– Business evaluation scope (BES) operationalized as the number of KPIs tracked.

Attention-Based View, as managers who track a wider range of performance indicators are more likely to encounter diverse signals and recognize connections across functional areas. Such broader attention may make the strategic implications of AI more visible.

The role of cognitive flexibility further deepens this explanation. While business evaluation scope captures the breadth of information managers attend to, cognitive flexibility reflects their ability to reinterpret information, consider alternative perspectives, and adjust existing mental models. This suggests that recognizing AI as a transformative development depends not only on exposure to diverse information but also on the cognitive capacity to make sense of that information in new ways.

By integrating Upper Echelons Theory, the Attention-Based View, and the microfoundations of dynamic capabilities, the findings offer a more comprehensive explanation of variation in managers' perceptions of AI. Organizational characteristics may provide the structural context in which managers operate, but attention and cognitive flexibility shape how that context is interpreted. This perspective highlights that perceived AI salience is not simply a function of firm size or resources, but also of how managers notice, process, and cognitively frame technological change.

6.2. Managerial implications

The practical implications extend beyond investments in technology alone. The findings suggest that managerial capabilities play an important role in shaping openness toward AI and in determining whether managers recognize its strategic relevance. In particular, developing cognitive flexibility through adaptive thinking exercises, scenario analysis, and AI literacy training may help managers move beyond narrow operational views of AI and better understand its broader strategic implications.

The findings also point to the importance of performance evaluation systems. Expanding the range of indicators that managers monitor can broaden their attentional focus and expose them to more diverse performance signals. In this sense, KPI systems do more than measure outcomes; they also shape how managers notice, interpret, and prioritize technological change. A broader evaluation scope may therefore support greater awareness of how AI can create value across different areas of hotel operations.

Finally, the positive relationship between staff size and perceived strategic salience suggests that managers responsible for larger teams may be more aware of AI's potential benefits, particularly in relation to coordination, labor allocation, and operational efficiency. Smaller hotels, by contrast, may have fewer opportunities to observe these potential benefits directly. They may therefore require more targeted awareness initiatives, practical demonstrations, or simplified AI solutions to support similar levels of strategic recognition.

7. Limitations and future research

Several limitations should be considered when interpreting the results. First, the cross-sectional design constrains the ability to capture how managerial perceptions of AI evolve over time. Perceived strategic salience is likely to be dynamic, shaped by ongoing exposure to technological developments, organizational learning, and changes in competitive conditions. The current design therefore provides only a snapshot of managerial interpretations at a particular point in time. Longitudinal research would be particularly valuable in tracing how early perceptions of AI develop, how they influence subsequent adoption and implementation decisions, and whether cognitive factors such as attention and flexibility become more or less salient as organizations gain experience with AI.

Second, business evaluation scope was operationalized as the number of key performance indicators monitored. While this provides a useful proxy for the breadth of managerial attention, it does not fully capture how managers interpret, prioritize, or integrate information. Two managers may track a similar number of indicators yet differ substantially in how they connect signals across domains or translate them into strategic insight. Moreover, the measure may partly reflect organizational reporting requirements rather than purely individual attention patterns. Future research could address these limitations by incorporating qualitative or mixed-method approaches, such as interviews or process tracing, to better understand how managers make sense of performance information and how attentional structures shape strategic interpretation.

Third, the dependent variable—perceived strategic salience of AI—was measured using a single-item scale. This decision was guided by the practitioner-oriented survey context and the need to maintain a concise instrument to ensure participation among busy hotel managers. However, this approach involves a trade-off between practicality and measurement depth. A single item cannot fully capture the

multidimensional nature of AI's impact, including differences across technological applications (e.g., analytics, automation, generative AI, robotics) and functional domains (e.g., operations, marketing, human resources). It also does not account for variation in respondents' level of understanding or familiarity with AI. Future studies should therefore employ multi-item scales and more fine-grained measures to better reflect the complexity of AI perceptions and to distinguish between different types and levels of engagement.

Fourth, the sample is limited to five European countries, which constrains the generalizability of the findings. Although the inclusion of multiple countries introduces variation in institutional and market conditions, the results remain contextually bounded. The robustness analysis incorporating country controls provides additional insight into this issue. While baseline levels of perceived strategic salience differ across countries—with higher values observed in Germany, Italy, and Austria compared to France—the core relationships between structural and cognitive factors remain stable. This pattern suggests that managerial cognition exerts a consistent influence across national contexts, even as broader institutional and cultural factors shape overall perception levels. Nevertheless, extending the analysis to regions with different regulatory environments, levels of technological maturity, and cultural orientations toward innovation would strengthen external validity and allow for a more comprehensive assessment of contextual effects.

Fifth, the empirical model includes a limited set of control variables, which may constrain the robustness of causal interpretation. Although key structural and cognitive factors are incorporated, the analysis does not fully account for potentially relevant managerial and organizational characteristics, such as managerial experience, tenure, education, hierarchical role, and hotel segment. The omission of these variables raises the possibility of unobserved heterogeneity influencing the estimated relationships. While robustness checks with country controls provide additional confidence in the stability of the findings, future research should employ more fully specified models with a broader set of controls to better isolate the relative effects of structural and cognitive factors and reduce the risk of omitted variable bias.

More broadly, several relevant influences were not directly captured in the current model. For example, differences in AI literacy may shape how managers interpret technological developments, independent of cognitive style. Organizational culture may also influence perceptions by shaping norms around experimentation, data use, and openness to innovation. In addition, hierarchical position and prior exposure to digital technologies may affect how AI is understood, with senior executives and more digitally experienced managers potentially interpreting its implications differently. Generational differences may further influence sensitivity to AI's potential, as younger managers or those more familiar with digital technologies may be more receptive to its strategic relevance. Emotional responses to AI—ranging from enthusiasm and curiosity to uncertainty or resistance—represent another important but underexplored dimension that may interact with managerial interpretation. Incorporating these factors in future research would provide a more nuanced understanding of how perceptions of AI are formed and how they translate into organizational action.

8. Conclusion

The findings of this study show that the perceived strategic salience of AI in the hospitality industry is shaped not only by organizational characteristics but also, and more importantly, by how managers interpret technological change. By highlighting the roles of managerial attention and cognitive flexibility, the results demonstrate that responses to AI are filtered through cognitive processes rather than determined solely by structural conditions.

This perspective shifts the focus of digital transformation research toward an earlier stage—how managers come to recognize the strategic relevance of emerging technologies before adoption decisions are made. In doing so, it suggests that variation in organizational responses to AI may originate less from differences in resources and more from differences in how decision-makers perceive and make sense of technological developments.

A deeper understanding of digital transformation in hospitality therefore requires closer attention to the cognitive foundations of managerial decision-making. Recognizing how managers interpret technological change provides a critical starting point for explaining how AI adoption unfolds across organizations and contexts, and how firms position themselves in an increasingly technology-driven competitive landscape.

CRediT authorship contribution statement

Cindy Yoonjoung Heo: Writing – review & editing, Writing – original draft, Validation, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization, Supervision. **Roland Schegg:** Writing – review & editing, Supervision, Resources, Project administration, Conceptualization.

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

Generative AI was utilized exclusively for language refinement and grammatical editing. It was not used to generate data, ideas, or scientific conclusions, and the authors accept full responsibility for the final text.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix 1. The full list of indicators

Average Daily Rate (ADR)
Guest Satisfaction Index (GSI)
Revenue per Available Room (RevPAR)
Average Length of Stay (ALOS)
Labor Cost Ratio
Revenue per Occupied Room (RevPOR)
Customer Acquisition Cost (CAC)
Local Sourcing / Procurement Percentage
Revenue per Square Meter/Foot (RevPAM)
Direct Booking Ratio
Net Average Daily Rate (NetADR)
Total Revenue per Available Room (TRevPAR)

EBITDA Margin
Occupancy Rate (OR)
Total Gross Operating Profit (TGOP)
Gross Operating Profit per Available Room (GopPAR)
Energy Consumption per Occupied Room
Percentage of Renewable Energy Used
Staff Retention Rate

Appendix 2. Descriptive analysis of perceived useful AI application areas

AI application area	n	% of respondents
Reservations	624	66.6%
Marketing	570	60.8%
Customer relationship management	507	54.1%
Personalization of customer experience	423	45.1%
Data analysis and reporting	395	42.2%
Operational process efficiency	313	33.4%
Finance	299	31.9%
Cybersecurity and fraud detection	280	29.9%
Financial analysis and forecasting	247	26.4%
Inventory and supply chain management	223	23.8%
Human resources	216	23.1%
Predictive maintenance	206	22.0%
Kitchen menu ideas/menu validation	202	21.6%
Kitchen food waste monitoring	183	19.5%
Others	25	2.7%

Data availability

The authors do not have permission to share data.

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