

A Cognitive Framework for Sensitive Problem-Solving in Hospitality and Tourism

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Abstract: Emotional intelligence (EI) is often treated as a stable trait or interpersonal skill, yet service contexts in hospitality and tourism demand dynamic emotional reasoning and adaptive foresight. This paper reconceptualizes EI as a developmental capacity grounded in executive functions, specifically inhibitory control and cognitive flexibility, and demonstrates its application to context-sensitive problem-solving in hospitality and tourism. Drawing on neurocognitive, psychological, hospitality, and pedagogical research, this study synthesizes evidence into a unifying model that integrates the Inhibitory–Cognitive–Emotional (ICE) Pathway with the 4Ps of Empathic Foresight (Perception, Projection, Pivot, and Personalization). The ICE Pathway describes how inhibitory control regulates emotional impulses while cognitive flexibility generates reflective alternatives; the 4Ps of Empathic Foresight operationalize this process as a Socratic recursive reasoning cycle that optimizes ICE-generated options according to context-specific goals. In hospitality and tourism, which are domains characterized by intercultural encounters, emotional labor, and service innovation, the ICE–4Ps model offers a teachable scaffold for cultivating empathic foresight and adaptive decision-making. By linking executive function theory with applied service practice, this framework reframes EI as a measurable developmental process that enhances sensitivity, creativity, and resilience in human-centered service environments.

Keywords: Emotional Intelligence, Empathic Foresight, Hospitality Management, Tourism Service Innovation, Emotional Labor

1. Introduction

Hospitality and tourism operate where emotional complexity, intercultural sensitivity, and rapid situational change are the norm rather than the exception. From guest recovery and crisis response to sustainable destination development, effective problem-solving often depends on an individual's capacity to regulate emotion, think flexibly, and respond empathically under pressure. Yet, despite the prominence of emotional intelligence (EI) in service research, its treatment has often remained static and defined as a set of fixed traits or observable interpersonal competencies. This framing risks overlooking the cognitive and developmental foundations that make emotionally intelligent behavior possible in dynamic hospitality contexts.

This paper presents a developmental view of emotional intelligence, proposing that authentic EI emerges from the progressive strengthening of two interrelated executive functions: inhibitory control and cognitive flexibility. Together, these capacities enable service professionals to pause before reacting, reinterpret emotionally charged situations, and adapt decisions to shifting social and cultural contexts. To operationalize this process, the paper introduces the Inhibitory–Cognitive–Emotional (ICE) Pathway (a neurocognitive model) explaining how executive functions give rise to empathic reasoning, and translates it into a practical framework, the 4Ps of Empathic Foresight (Perception, Projection, Pivot, Personalization). The 4Ps function as a goal-directed optimization cycle, continuously evaluating ICE-generated options to select the response that best fits the contextual aims of the situation, whether those goals involve guest satisfaction, staff well-being, or long-term destination sustainability.

In hospitality and tourism, such a framework addresses a critical gap. Emotional intelligence, empathy, and emotional labor have been examined extensively in hospitality education, service encounters, and employee well-being. For instance, Gursoy, Boylu, and Chi (2020) emphasize that emotional intelligence in hospitality students can be cultivated through targeted education, highlighting the need for structured developmental models. Wang and Mattila (2011) demonstrate that perceptions of fairness and satisfaction in service recovery differ across cultures, underscoring the importance of context-sensitive and empathic reasoning. Similarly, Karatepe and Olugbade (2017) link employees' adaptability and social support to satisfaction and retention, suggesting that cognitive flexibility and emotional regulation are central to sustainable performance.

However, existing studies seldom explain how these capacities operate as cognitive processes, specifically, how inhibitory awareness and cognitive flexibility combine to produce the adaptive reasoning that underlies empathic behavior and effective leadership. The ICE Pathway and 4Ps of Empathic Foresight (ICE–4Ps) address this gap by grounding emotional competence in neurocognitive function and expressing it through teachable, recursive cycles of reflective reasoning. This integration provides a measurable foundation for cultivating

emotional intelligence as a reasoning process across training, leadership, and innovation contexts. The Socratic questioning structure embedded within ICE-4Ps serves as its practical mechanism, guiding learners and leaders through iterative reflection that develops empathic foresight and adaptive decision-making in complex service environments.

2. Method

The study employed a conceptual synthesis design, using an integrative literature review to develop a unifying framework. Rather than testing hypotheses empirically, the design compared, aligned, and extended existing theories of emotional intelligence, executive function, and applied pedagogy to construct the ICE-4P framework, addressing calls for stronger integration between theoretical and applied evidence (Zeidner et al., 2004).

2.1 Main Research Question (MRQ)

How does the ICE Pathway, operationalized through the 4Ps of Empathic Foresight, explain the cognitive foundation and applied expression of emotional intelligence in sensitive problem-solving within hospitality and tourism?

2.2 Sub-Research Questions (SRQs)

1. What role does inhibitory control play in regulating impulses and avoiding cognitive traps in emotionally complex service situations?
2. How does cognitive flexibility extend this foundation through subskills supporting reflective and adaptive reasoning?
3. How does the ICE Pathway interact with the 4Ps of Empathic Foresight as a goal-directed optimization cycle for emotionally intelligent decision-making?
4. In what ways can the ICE-4Ps framework be applied to sensitive problem-solving across hospitality, tourism, and service innovation?

The analysis drew on four bodies of literature: (a) neurocognitive studies of executive function, (b) psychological models of emotion regulation, (c) hospitality research on emotional intelligence, and (d) pedagogical interventions fostering reflective reasoning. Each was reviewed to identify convergent findings on inhibitory control and cognitive flexibility, revealing conceptual gaps in existing EI theory and informing the development of a unified, executive-function-based framework.

3. Literature

3.1 Neurocognitive Domain

Emotional intelligence (EI) relies on neural systems that support core executive functions, particularly inhibitory control and cognitive flexibility (Scott 1962; Spiro et al. 1987; Uddin 2021). Functional magnetic resonance imaging (fMRI) studies demonstrate that inhibitory control is not a unitary skill but one that adapts flexibly to situational demands within individuals, with emotional and motivational contexts recruiting distinct prefrontal and cingulate networks (Liu et al. 2023). This suggests that emotionally intelligent behavior depends on the dynamic strengthening of executive functions in emotionally salient contexts. Emotion regulation involves the conscious modulation of affective states through executive control mechanisms (Gross and Thompson 2007; Gross 2002). Meta-analytic and neuroimaging evidence indicate that cognitive reappraisal and emotion regulation reliably recruit and depend on prefrontal–amygdala networks associated with top-down control of affect (Buhle et al. 2014; Morawetz et al. 2017), aligning with the ICE Pathway’s emphasis on intentional modulation of emotion through executive processes. Neuroimaging studies link mindfulness and executive functioning to prefrontal activation that supports attentional regulation and inhibitory control (Tang, Hölzel and Posner 2015).

Cross-cultural research extends this argument: Xu et al. (2024) conclude that cultural norms shape how emotional cues are prioritized and regulated, showing that while the neural architecture enabling inhibitory–affective coordination may be universal, its developmental expression is socially and culturally modulated. This suggests that interventions must attend not only to neurocognitive mechanisms but also to contextual variation across societies.

Evidence from mindfulness-based interventions demonstrates that these systems are also plastic. Tang et al. (2015) and Hölzel et al. (2011) report increased activation and connectivity in the rostral anterior cingulate cortex (ACC), a region central to attentional monitoring, conflict resolution, and emotional salience processing, following targeted training. From a pedagogical standpoint, this implies that executive functions can be deliberately strengthened through structured interventions, though questions remain about the durability of these effects and their translation into complex, real-world performance domains.

3.2 Psychological Domain

Beyond brain-level mechanisms, psychological models clarify how executive functions shape emotion regulation and critical reasoning in everyday contexts. Gross's updated process model (2015), for example, concludes that effective regulation depends on cognitive change strategies such as reappraisal, which require both suppressing initial appraisals and generating alternative interpretations. Yet the model's emphasis on staged regulation may not fully capture the dynamic, overlapping, and socially embedded nature of regulation in high-pressure contexts such as applied learning, where executive functions must be deployed in real time rather than sequentially.

Facione (1990) and Paul and Elder (2014) conclude that critical thinking relies on processes such as assumption checking, perspective-taking, and implication analysis. Yet from a pedagogical perspective, these frameworks focus largely on normative standards of "good thinking," leaving open questions about how reasoning can be cultivated under affective and interpersonal pressures.

Uddin (2021) says that cognitive flexibility is essential for reasoning in ill-structured domains where situational demands shift rapidly and cannot be resolved through scripted responses. At the same time, Uddin highlights that flexibility depends on the integrity of large-scale neural networks: distributed systems such as the salience, default mode, and frontoparietal control networks that coordinate attention, emotion, and executive regulation. From an instructional standpoint, this raises the question of how far pedagogy alone can enhance such capacities without complementary supports.

3.3 Hospitality and Service Domain Evidence

Hospitality research confirms that EI influences both learning outcomes and service performance. Schlegel et al. (2021) found in a longitudinal study that emotion-management ability predicted success in teamwork-based modules, while fluid intelligence predicted performance in theoretical modules. Although this pattern appears to suggest a dichotomy between emotional and cognitive predictors, evidence from neurocognitive and psychological research indicates that these capacities are interdependent rather than separable. Teamwork requires analytic reasoning just as theoretical learning is influenced by motivation and social dynamics. A more consistent interpretation, therefore, is that cognitive and emotional capacities operate together, with their relative weighting shifting by context. This is further illustrated by Llorca and Martínez (2023), who concluded that employees' EI predicted guests' perceptions of service quality, but only when it was accompanied by adaptive emotional reasoning.

3.4 Pedagogical Interventions

Evidence-based teaching strategies can strengthen executive functions in applied contexts. Paul and Elder (2014) conclude that bias-interruption techniques improve reasoning quality by forcing learners to surface and evaluate assumptions. Tang et al. (2022) demonstrate that structured protocols such as STOP (pause, take a breath, observe, proceed) help learners inhibit impulsive responses and regain regulatory control. Roessger (2021) shows that perspective-reversal exercises deepen reflective practice by requiring learners to adopt alternative viewpoints, thereby fostering flexibility and adaptive judgment. Yet despite their demonstrated effectiveness, these tools have been applied piecemeal.

3.5 Summary

Taken together, the evidence across these domains underscores both the promise and the limits of existing approaches to emotional intelligence. Neuroscientific studies demonstrate that inhibitory control and cognitive flexibility are malleable, yet they also reveal context-sensitivity and cultural modulation that complicate generalizability. Psychological models clarify the mechanisms of emotion regulation and critical thinking but often emphasize idealized reasoning processes without accounting for the pressures of real-world application.

Hospitality research confirms that EI predicts learning and service outcomes, yet it tends to frame EI as a stand-alone skill set rather than as the developmental outcome of deeper cognitive processes. Pedagogical interventions show that executive functions can be strengthened through targeted strategies, but these tools remain fragmented and rarely integrated into a coherent framework. These findings point to a pressing need for an approach that bridges neuroscience, psychology, domain-specific evidence, and pedagogy; one that treats emotional intelligence as a developmental capacity grounded in executive functions and cultivated through structured, context-sensitive instruction.

4. The Inhibitory-Cognitive-Emotional Pathway

This section examines the first two sub-research questions (SRQ1 and SRQ2) by examining how inhibitory control and cognitive flexibility together constitute the ICE Pathway as the cognitive engine for emotional intelligence. It outlines a developmental sequence that positions emotional intelligence not as an isolated trait or skill, but as the emergent product of a preemptive and continuous reasoning process. Inhibitory awareness provides the essential foundation for reflective reasoning, sustaining a pause for composure and regulating impulse and bias throughout cognitive activity. Cognitive flexibility operates within this reflective stance, enabling multidimensional and adaptive reasoning.

4.1 Inhibitory Control

Inhibitory control serves as the foundational executive function that enables individuals to suppress automatic responses, emotional impulses, and habitual reasoning in favor of reflective cognition (Diamond 2013; Zelazo and Lyons 2022; Zelazo and Carlson 2012). Inhibitory control is particularly essential for counteracting the four pervasive cognitive traps that if left unscreened will inhibit the development of cognitive flexibility. These are groupthink, disciplinary dogma, confirmation bias, and impulsivity as elaborated on below:

- Groupthink arises when a desire for social harmony overrides critical evaluation, leading to premature consensus and suppressed dissent (Janis 1972, Esser 2018). For example, team members may avoid voicing disagreement during team discussions, mistaking non-dissent for professionalism. Inhibitory control enables pause in order to create space for independent thought.
- Disciplinary dogma reflects the uncritical acceptance of prevailing norms or values within a field. In hospitality, for instance, this may manifest as unquestioned adherence to customer-is-always-right paradigms or emotional display rules that prioritize guest satisfaction over the emotional cost to employees. Developing inhibitory control helps resist such automatic disciplinary scripts and invites more context-sensitive responses (Paul and Elder 2014).
- Confirmation bias, the tendency to favor information that aligns with existing beliefs, undermines objectivity and adaptive emotional reasoning. In emotionally ambiguous situations this bias may result in the misinterpretation of employee behavior in ways that reinforce preconceptions. Inhibitory control is necessary to suspend these cognitive shortcuts and engage more neutrally with evidence (Nickerson 1998).
- Impulsivity remains one of the most visible barriers to EI. Individuals often act or speak prematurely rather than with measured response. Inhibitory control functions as a cognitive "brake" that allows the individual to delay reaction and engage reflective mechanisms (Moffitt et al. 2011; Peterson et al. 2023).

4.2 Cognitive Flexibility

Paul and Elder (2008) originally proposed clarity, accuracy, precision, relevance, depth, breadth, logic, significance, fairness as intellectual standards for evaluating reasoning. They also list purpose, question, information, interpretation, concept, assumption, implication and point of view as elements of thought.

The ICE Pathway's six subskills of cognitive flexibility reframe Paul and Elder's evaluation criteria and elements of thought into actionable cognitive operations, enabling learners not only to recognize the structure of reasoning but to inhabit it as a skillful practice in developing emotional intelligence for real-world problem solving (Miyake and Friedman 2022):

- Clarity: The disciplined practice to establish precision in the recognition of signals, meanings, and contexts so that reasoning begins from unambiguous foundations.

- Assumption Checking: The disciplined practice to surface and interrogate the implicit premises underlying thought and judgment, ensuring that reasoning does not proceed on unexamined foundations.
- Sound Reasoning: The disciplined practice to connect premises, evidence, and interpretations into coherent structures that withstand logical and contextual scrutiny.
- Perspective-Taking: The disciplined practice to broaden the scope of reasoning by incorporating alternative standpoints, thereby expanding the range of premises under consideration.
- Implication Analysis: The disciplined practice to extend reasoning forward by tracing the potential consequences that follow from chosen premises or courses of action.
- Metacognitive Critique: The disciplined practice of questioning the very questions that guide reasoning. It monitors whether the subskills and screens are being applied appropriately, identifies when the wrong issues are being pursued, and redirects inquiry toward more fruitful lines of reflection.

The ICE Pathway (Figure 1) underscores that emotional intelligence is the result of deliberate, flexible, and reflective cognition underpinned by inhibitory control. Emotional competence, the observable behaviors through which EI is enacted, will reflect this.

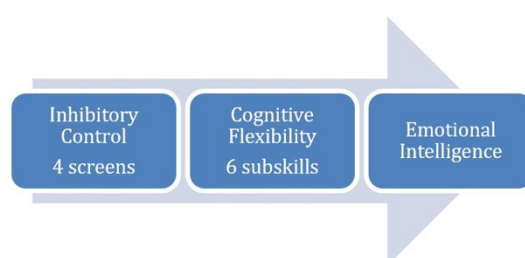


Figure 1: The ICE Pathway

By targeting the cognitive capacities that underlie emotional understanding and regulation, the ICE Pathway shifts the focus away from surface-level behavioral mimicry and toward teachable, executive-function-based competencies. But while the ICE Pathway offers a developmentally grounded approach to emotional intelligence, it is essential to situate this model within the broader EI literature. This is because existing frameworks have shaped how EI is defined, measured, and taught but they vary widely in their treatment of cognition, development, and teachability.

4.3 Contribution of the Present Model

While Zembylas (2007) laid foundational methodological work emphasising the embeddedness of emotion in cognition and social context, more recent applied scholarship has advanced these ideas through empirical studies of emotion regulation, executive function training, and leadership performance. The ICE-4Ps framework thus builds both on his theoretical legacy and on contemporary evidence.

Since 2015, emotional intelligence research has expanded across leadership, education, and service industries, producing a range of behavioural and neurocognitive models. Reviews such as Coronado-Maldonado et al. (2023) synthesise extensive evidence linking emotional intelligence to leadership and teamwork effectiveness, while Bahshwan (2024) identifies self-awareness, self-regulation, and empathy as key predictors of adaptive leadership. Likewise, Prentice, Wang and Loureiro (2020) demonstrate that emotional intelligence strengthens the relationship between customer orientation and performance in hospitality contexts. These contributions affirm the practical value of emotional intelligence but remain largely descriptive, specifying what competencies matter rather than how emotional reasoning unfolds as a cognitive-emotional process.

More process-oriented frameworks have recently emerged but remain partial. The Cascading Model of Emotional Intelligence conceptualises a sequential progression from emotion perception to understanding and regulation (Joseph and Newman 2022), offering valuable insight into developmental ordering. Yet it omits the executive-function mechanisms, such as inhibitory control and cognitive flexibility, that enable the transition between stages, and it lacks a structured training cycle suited to applied service contexts. Similarly, Matsumoto's Multilevel Model of Emotion and Emotion Regulation (Matsumoto et al. 2020) situates affective processes within individual, interpersonal, and cultural layers, underscoring the importance of contextual variability. However, it stops short of operationalising these layers into a teachable scaffold for leadership and team

development. Schlegel, Mast, and Ramseyer’s (2021) contextual-interaction research further demonstrates that emotion recognition and regulation are shaped by situational and relational factors, supporting the call for contextually embedded emotional training. Still, these studies tend to focus on recognition accuracy rather than reflective foresight or adaptive decision cycles.

At the neurocognitive level, work on mindfulness and executive function (e.g., Tang, Hölzel and Posner 2015) clarifies the mechanisms of attention regulation and inhibitory control underlying emotional stability. Complementary meta-analyses in hospitality (Zhu et al., 2021; de Oliveira 2025) confirm that emotionally intelligent behaviour correlates with service performance but rarely translate such evidence into developmental pathways.

The ICE–4Ps framework responds to these limitations by integrating executive-function theory with service-oriented emotional competence. It translates inhibitory control and cognitive flexibility into a four-stage reflective cycle (Perceive, Project, Pivot, Personalize) that enables adaptive reasoning under uncertainty. Where previous models identify discrete emotional competencies or contextual influences, ICE-4P provides a recursive scaffold for cultivating them. By uniting neuroscientific insight with applied foresight practice, ICE-4P advances emotional intelligence from a descriptive trait construct to a trainable cognitive process for empathic leadership and resilient service innovation.

5. The 4Ps of Empathic Foresight

This section examines SRQ3 by showing how the ICE Pathway operates within the sequential 4Ps of Empathic Foresight, allowing the evaluation and narrowing of options in each meta-state. Empathic Foresight is introduced here as a structured framework for decision-making and problem-solving that reframes empathy as a forward-looking, cognitive-emotional process. It is operationalized through a sequence of four meta-states (Perception, Projection, Pivot, and Personalization) that can be revisited recursively as contexts evolve.

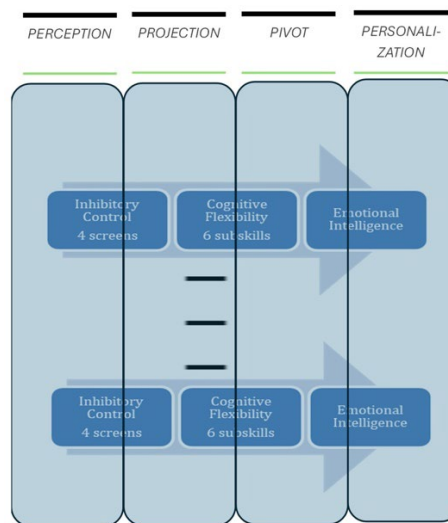


Figure 2: 4Ps of Empathic Foresight

The 4Ps function as an abstract overlay on the options analyzed through the ICE Pathway (Figure 2). The 4Ps of Empathic Foresight serve as a recursive goal-oriented optimization cycle that evaluates and reweights ICE-generated options according to context-specific goals. Each meta-state (Perception, Projection, Pivot, Personalization) refines the fit between cognitive-emotional alternatives and the desired adaptive outcome. Perception directs attention to what is present, surfacing signals and premises. Projection extends this stance toward what could arise, generating forward-looking scenarios that compare the possible developments of different options rather than merely tracing the implications of a single one. Pivot addresses what has dynamically arisen, redirecting judgments or actions in real time when new insights or disruptions occur. Finally, Personalization ensures that the chosen decision is integrated into context-sensitive expression, aligning reasoning with the needs and circumstances at hand.

In this way, each meta-state functions as a container of possibilities and guides their reflective narrowing toward the most fitting solution within its focus. What counts as ‘most fitting’, however, is always contingent on the goals prioritized in context, which shape how options are ultimately weighed.

6. Socratic Questions

To operationalize the model, Socratic questions are employed as structured prompts for reflective reasoning. Unlike ordinary questions, which seek information, Socratic questioning in this framework functions as a deliberate cognitive intervention, engaging inhibitory control and cognitive flexibility to surface hidden premises, test alternative interpretations, and refine reasoning before action.

Traditionally, Socratic questioning has been an open, dialogical method aimed at achieving intellectual clarity through examining assumptions and evidence. Within the present framework, however, it is reconceptualized as a structured cognitive process: the ICE Pathway anchors each question in executive function, while the 4Ps of Empathic Foresight define the sequence in which reflective interventions occur. In this way, Socratic questioning becomes a goal-directed metacognitive discipline, transforming emotional reactions into structured foresight across dynamic service situations.

Table 1: Socratic Questions for Perception Meta-State

ICE Elements	Function	Sample Socratic Questions for Perception Meta-State in Hospitality & Tourism
Groupthink Screen	Filters out conformity pressure that could bias what is noticed or overlooked.	Am I observing guest or team cues independently, or echoing dominant assumptions?
Disciplinary Dogma Screen	Prevents default reliance on professional scripts that predetermine perception.	Am I interpreting this situation through habitual “guest-is-always-right” scripts, or the actual context?
Confirmation Bias Screen	Blocks selective noticing of signals that simply reinforce prior beliefs.	Am I only noticing evidence that confirms my expectations about this guest or situation?
Impulsivity Screen	Creates space before reacting to first impressions	Am I responding too quickly to surface emotions rather than reflecting on intent?
<i>All the cognitive-flexibility subskills below are preceded and governed by the inhibitory-control screens that sustain reflective composure throughout reasoning.</i>		
Clarity Subskill	Establishes precision in identifying signals so perception is not clouded by vagueness or mislabeling.	Do I understand this guest’s reaction clearly, or am I inferring from vague cues?
Assumption Checking Subskill:	Surfaces hidden premises that shape how initial signals are interpreted.	What assumptions guide how I interpret this interaction, and are they warranted?
Sound Reasoning Subskill	Ensures interpretations of signals are coherent with available evidence and context.	Do my perceptions align with other observable indicators of satisfaction or distress?
Perspective-Taking Subskill	Broadens perception by considering how others might construe the same signal differently.	How might this moment appear from the guest’s, employee’s, or community’s perspective?
Implication Analysis Subskill:	Anticipates the risks and consequences of misperceiving or mislabeling signals.	What might happen if I misread this emotion or overlook subtle cues?
Metacognitive Critique:	Monitors whether the subskills are being applied appropriately, identifies when the wrong issues are being pursued, and redirects inquiry toward more fruitful lines of reflection. This is where the 4 screens play an especially important role.	Am I focusing on the right cues, or do I need to ask different questions to perceive accurately?

Table 1 illustrates one meta-state in detail, the same ICE elements operate consistently across all four meta-states. However, the focal point of questioning shifts depending on whether one is recognizing, anticipating scenarios, redirecting, or contextually integrating. Table 2 summarizes the distinct orientations of each meta-state with detailed applications appearing in Section 8.

Table 2: Meta-State Orientation of the 4Ps

	<i>Focus</i>	<i>Core Function</i>	<i>Guiding Shift in Socratic Questions</i>
Perception	Recognizing	Providing an orientation for accurately noticing and clarifying signals in the present.	How am I noticing and interpreting what is happening now?
Projection	Anticipating	Providing an orientation for exploring forward-looking scenarios across options.	How am I imagining what could happen?
Pivot	Redirecting	Providing an orientation for adaptively reconsidering and redirecting judgments or actions.	How am I adjusting my course in light of new insight?
Personalization	Contextually Integrating	Providing an orientation for integrating reasoning into context-sensitive expression that is authentic and responsive.	How am I expressing judgment in ways that remain responsive to the needs and circumstances of others?

7. Discussion

Hospitality and tourism are characterised by emotionally charged, intercultural, and service-intensive encounters that constantly test professionals' capacity for sensitive problem-solving. Service failures, guest dissatisfaction, cultural misunderstandings, and crises such as pandemics or natural disasters demand reasoning that is simultaneously logical, adaptive, and empathic. The ICE–4Ps framework provides a cognitive–emotional scaffold for navigating precisely these conditions.

The ICE Pathway functions as a cognitive logic engine grounded in continuous awareness. Inhibitory control functions as an ongoing preemptive stance that activates before and during reasoning, screening emotional impulses and cognitive bias as they arise while cognitive flexibility generates alternative reasoning pathways, each representing a distinct premise about how the situation could unfold. The 4Ps of Empathic Foresight then serve as a meta-framework for evaluating and refining these pathways: Perception clarifies what is occurring in the present, Projection anticipates how futures may unfold, Pivot redirects reasoning as new insights emerge, and Personalization integrates judgment into authentic, context-responsive expression. Together, ICE and the 4Ps form a recursive reasoning cycle that transforms emotional awareness into structured, adaptive foresight, balancing empathy with analytical logic in high-pressure, people-centred environments.

8. Implications for Hospitality and Tourism Practice

This section addresses SRQ4 by exploring how the ICE Pathway and 4Ps of Empathic Foresight can be applied across hospitality, tourism, and service innovation as a scaffold for socially attuned and context-sensitive decision-making.

The ICE–4Ps framework provides a measurable structure for training emotional intelligence as a cognitive skill, not merely an interpersonal attitude. Training programs can sequence exercises to build inhibitory control (e.g., pause-and-reflect routines, mindfulness micro-practices) and cognitive flexibility (e.g., role reversal, assumption-challenging simulations). Embedding these within the 4Ps cycle allows staff to practice perceiving subtle guest signals, projecting service outcomes, pivoting under uncertainty, and personalizing responses for diverse cultural profiles. This structure advances emotional training beyond generic empathy workshops toward evidence-based executive function coaching for service excellence (Sternberg 2021).

Hospitality leaders operate amid ambiguity: balancing employee welfare, guest experience, and financial sustainability. The ICE–4Ps cycle equips managers with a reflective decision-making blueprint: perceiving emergent operational signals without groupthink, projecting scenarios of strategic impact, pivoting decisions as conditions evolve, and personalizing communication to sustain authenticity and trust. This aligns with the growing need for empathic foresight in tourism organizations, where leadership involves not only rational analysis but emotionally attuned sensemaking that anticipates the human consequences of decisions (Carmeli 2006).

In tourism innovation and experience design, empathy provides the foundation for meaningful differentiation, but ICE–4Ps supplies the reasoning logic. Perception recognises latent guest or resident needs; Projection anticipates multiple service futures and sustainability implications; Pivot facilitates iterative prototyping as assumptions are reconsidered; and Personalization contextually integrates final concepts so that they remain culturally and ethically responsive. This recursive reasoning cycle encourages service-sensitive innovation grounded in ICE-defined emotional intelligence, where empathy operates through reflective, logic-based foresight that sustains both resilience and long-term destination sustainability.

Tourism organisations and destinations are frequently exposed to crises that demand rapid yet reasoned recalibration: from guest conflicts to destination-level disruptions. The ICE–4Ps model provides a structured logic for emotional resilience: inhibitory control sustains composure and reflective control under pressure, while cognitive flexibility enables the generation and evaluation of adaptive reasoning pathways. Guided by the 4Ps cycle, teams can recognise emergent signals, anticipate evolving scenarios, redirect judgments as new insight arises, and integrate contextually responsive communication. Applied at organisational scale, this recursive reasoning process transforms emotional disruption into foresight learning and strengthens adaptive capacity for future uncertainty (Prentice, Wang and Loureiro, 2020).

9. Conclusion

Situating ICE–4Ps within hospitality and tourism extends emotional intelligence theory into a context-sensitive model of empathic foresight. The framework reconceptualises emotional intelligence as a cognitive–emotional reasoning process grounded in continuous awareness, logical evaluation, and reflective adaptability. It integrates inhibitory awareness and cognitive flexibility within a recursive foresight cycle that cultivates sensitivity, adaptability, and ethical judgment in service interactions.

Whether applied to intercultural guest encounters, sustainability dilemmas, or organisational resilience, ICE–4Ps provides a structured method for developing the reflective elasticity that underpins empathic and human-centred hospitality practice.

For scholars, the model opens new avenues to empirically test how executive functions predict adaptive service reasoning. The four screens of inhibitory control, six subskills of cognitive flexibility and four meta-states of empathic foresight can be operationalised into behavioural indicators or training rubrics. Future research can examine whether strengthening inhibitory awareness and cognitive flexibility improves decision accuracy, guest satisfaction, staff well-being, and innovation outcomes, linking cognitive neuroscience with hospitality performance metrics.

Ethics Declaration

This study did not involve human participants or the collection of new data. Institutional review board (IRB) approval was therefore not required, and the research was determined to be exempt from ethics review.

AI Declaration

The author declares that no generative artificial intelligence tools were used in the preparation, writing, or editing of this manuscript. All work is original and produced solely by the author.

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