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The role of conscious awareness in the relationship between entrepreneurs' hubris and the degree of internationalization

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ABSTRACT

Entrepreneurs' internationalization decisions are often shaped not only by market opportunities but also by psychological biases. Among these, hubris—an exaggerated form of confidence—has been recognized as a driver of aggressive expansion, yet its value as a strategic rationale remains questionable. This study argues that hubris-driven internationalization is prone to overreach and examines conscious awareness—the metacognitive ability to recognize and regulate one's own biases—as a corrective mechanism. Results suggest that hubristic entrepreneurs are more likely to internationalize intensively in early venture stages or when they perceive their ventures as innovative. However, higher levels of conscious awareness of contextual realities attenuate this effect, while prior entrepreneurial experience does not consistently constrain hubris and may, under certain conditions, amplify it. By theorizing and testing conscious awareness as a safeguard against hubris, this study provides actionable insights for fostering more reflective and strategically sound internationalization.

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Introduction

Research in international entrepreneurship highlights that cognitive processes play a fundamental role in shaping cross-border expansion strategies (Neely et al., 2020; Zahra et al., 2005), including decisions about when and how to enter foreign markets (Acedo & Jones, 2007; Grégoire et al., 2011; Niittymies & Pajunen, 2020). Entrepreneurs do not act solely based on objective market signals but interpret opportunities through mental models, heuristics, risk perceptions and psychological biases (Baron, 2004; R. K. Mitchell et al., 2002; Williams & Grégoire, 2015), which influence their strategic decisions regarding market entry and the intensity of internationalization (Liguori et al., 2024; Zahra et al., 2005). Among these biases, hubris is recognized as an influential feature in entrepreneurial decision-making (Chatterjee & Hambrick, 2007; Hayward et al., 2006; Tang et al., 2015), often leading to overly ambitious or aggressive strategies (Haynes et al., 2015; Kroll et al., 2000). Defined as an exaggerated confidence in one's knowledge, predictions and personal capabilities, hubris is known to drive entrepreneurs to often underestimate risks and overestimate potential returns (Agnihotri & Bhattacharya, 2021; Moore & Healy, 2008; Picone et al., 2014), as they perceive themselves as exceptionally capable of overcoming challenges (Bastian & Zucchella, 2022).

Despite these advances, little is known about the conditions under which hubristic entrepreneurs may temper or regulate the influence of hubris on their strategic actions. While prior work has explored the outcomes of hubristic behavior, few studies have examined the cognitive mechanisms through which entrepreneurs recognize, interpret, regulate or remain unaware of their own hubristic tendencies. Specifically, the role of conscious awareness, defined as the deliberate recognition and reflection on one's own cognitive biases and perceptions (Endsley, 2000; Fiske et al., 2010; Millon & Lerner, 2003), offers a promising but underexplored lens. Unlike related constructs such as strategic attention or reflection,

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conscious awareness in entrepreneurship entails not only introspective recognition but also the ability to adapt one's cognitive strategies. As such, this gap is critical because understanding how entrepreneurs' conscious awareness influences their strategic decisions could shed light on mechanisms to mitigate risks associated with hubris-driven internationalization (Picone et al., 2021). Therefore, this study aims to answer the following research question: *Under what conditions does hubris lead entrepreneurs to pursue a higher degree of internationalization, and how does conscious awareness shape this relationship?*

To address this question, the study develops a conceptual model that integrates hubris as a dispositional cognitive trait and conscious awareness as a moderating cognitive capacity influencing the degree of internationalization. Drawing from upper echelons theory (UET) (Hambrick & Mason, 1984) and hubris theory of entrepreneurship (HTE) (Hayward et al., 2006), the model posits that while hubris may increase entrepreneurs' willingness to pursue foreign market opportunities, the presence of conscious awareness can temper this effect by shaping how entrepreneurs process their own thoughts, perceptions and strategic contexts. We operationalize conscious awareness through three cognitive resources: lack of perceived innovation, prior entrepreneurial experience and the entrepreneurs' stage in the entrepreneurial process. Firstly, the lack of perceived innovation serves as an indicator of conscious awareness by capturing the entrepreneur's subjective interpretation of their firm's absence of innovative outcomes (Koellinger, 2008). This awareness, stemming from a critical evaluation of a deficiency in innovation, may compel entrepreneurs to adopt a more reflective assessment of their strategic position. This study centers on perceived innovation as a subjective concept that depends on the personal judgment of the observer, where activities do not necessarily need to qualify as new or novel to the whole world to be considered as innovation (Amason et al. 2006; Koellinger, 2008). In contrast, imitative entrepreneurial activity can be triggered by an entrepreneur who observes the data and discovers that a profit opportunity has not yet been realized by other market participants due to asymmetric information or simply pure ignorance (Koellinger, 2008). Several studies have evidenced that perceived innovation is related to the enhancement of growth ambitions (Poblete 2018). Secondly, prior entrepreneurial experience acts as a proxy for conscious awareness, as it provides potentially crucial experiential knowledge that fosters self-regulation and enhances a more nuanced understanding of the entrepreneurial landscape (Liu et al., 2019; Ucbasaran et al., 2010). This accumulated insight may help entrepreneurs interpret information more realistically, reducing the likelihood of hubris-driven overconfidence. Finally, the entrepreneur's stage of the entrepreneurial process represents another dimension of conscious awareness as it reflects developmental learning. As entrepreneurs advance through different stages, they develop more refined cognitive frameworks for evaluating risks and opportunities (J. R. Mitchell et al., 2005; Poblete et al., 2019). This growing maturity fosters a heightened awareness of inherent challenges and limitations, thereby tempering potential hubris. Consequently, these three dimensions were selected because they represent distinct yet complementary pathways through which entrepreneurs can become more aware of their cognitive limitations (Endsley, 2000).

We test our framework using Global Entrepreneurship Monitor (GEM) data, which includes responses from 104,564 entrepreneurs across 77 countries (2015–2017). This large-scale, cross-national dataset is well-suited to capturing cognitive heterogeneity in entrepreneurial decision-making, as it includes detailed measures of hubris, innovation perceptions, prior experience and firm internationalization (Álvarez et al., 2014; Reynolds et al., 2005). The sample's diversity ensures generalizability, while its focus on early-stage ventures allows us to isolate cognitive effects before structural factors become the dominant drivers of strategic outcomes (Acedo & Jones, 2007; Oviatt & McDougall, 2005; Preece et al., 1999).

The empirical analysis reveals that while hubris is positively associated with internationalization, entrepreneurs with higher levels of conscious awareness are less likely to let hubris unconsciously drive aggressive internationalization strategies. However, the interaction effects differ depending on the measurement approach: when hubris is treated as a binary construct, conscious awareness (particularly lack of perceived innovation and entrepreneurial maturity) weakens the positive effect of hubris. Notably, the interaction between hubris and prior entrepreneurial experience is positive and significant when hubris is measured as a continuous variable, suggesting that rather than mitigating the effect of hubris, experience may actually amplify it. One possible explanation for this pattern is that prior entrepreneurial experience, rather than fostering reflective learning or caution, serves as a source of confirmatory feedback, validating cognitive biases and reinforcing a sense of invincibility or personal exceptionality. Despite

this, the findings ultimately highlight that conscious awareness functions as a critical cognitive tool that mitigates the influence of hubris, fostering more strategic and balanced international growth decisions.

This study makes three key contributions. Firstly, it advances UET by identifying cognitive microfoundations—lack of perceived innovation, prior entrepreneurial experience and venture stage—that explain variance in strategic decision-making beyond traditional demographic proxies (Carpenter et al., 2004; Chatterjee & Hambrick, 2007). While extensive attention has been given to exploring how various entrepreneurs rest on heuristic logics for decision-making, we have little understanding of the specific cognitive mechanisms by which entrepreneurs can control their susceptibility or tendency to act driven by the wrong motives (Baron, 2004; Douglas, 2009). This study theorizes and finds that reliance on conscious awareness (i.e. the knowledge of individuals over their own cognitive processes) does help explain the varying relationship between hubris and the degree of internationalization (Bastian & Zucchella, 2022). Secondly, it extends HTE by showing that hubris is not deterministic; rather, its impact depends on entrepreneurs' capacity for conscious awareness (Bastian & Zucchella, 2022; Hayward et al., 2006). Thirdly, it bridges the fields of international entrepreneurship and cognitive psychology by demonstrating how metacognitive processes such as self-regulation shape global expansion decisions, thereby responding to recent calls for a more integrative, cognition-oriented perspectives (Niittymies & Pajunen, 2020; Vlačić et al., 2022). From a practical standpoint, our findings highlight the importance of debiasing interventions, such as training programs that enhance entrepreneurs' awareness of cognitive traps in the internationalization process.

Internationalization and entrepreneurial cognitions

Cognitive processes fundamentally shape all entrepreneurial and organizational outcomes (Caputo & Pellegrini, 2019; R. K. Mitchell et al., 2002), forming a core theoretical foundation of UET (Carpenter et al., 2004; Hambrick, 2007). In a nutshell, this theory posits that the characteristics and actions of top-level executives are key determinants of an organization's strategic choices (Hambrick & Mason, 1984). Prior research has shown that entrepreneurs' mental models and experiences influence their perceptions and decisions, which in turn shape their actions and ultimately affect firm outcomes in multiple ways (Bingham, 2009; Shirokova et al., 2024; Sosik et al., 2012). More specifically, cognitive resources play a crucial role in internationalization decisions by affecting when, where and how firms expand across borders (Williams & Grégoire, 2015). For instance, cognition influences the speed of internationalization (Vlačić et al., 2022), while heuristics and motivations have been found to enhance the performance of internationalizing firms (Grégoire et al., 2008; Groves et al., 2011; Kiss et al., 2013). Given the relevance of entrepreneurial cognition in internationalization decisions (Grégoire et al., 2011; Zahra et al., 2005), this study seeks to explain variation in the use of specific cognitive resources by examining how and under what conditions hubris can contribute to heightened internationalization. Accordingly, the model developed in this study seeks to explain the mechanisms that influence the effect of entrepreneurial cognition on firm-level international expansion decisions.

A conscious awareness model of internationalization processes

Integrating insights from the HTE and UET, this study develops a conceptual model that examines how conscious awareness influences the relationship between hubris and internationalization intensity (see Figure 1). We define conscious awareness as an individual's metacognitive capacity to recognize their own cognitive limitations while processing environmental information (Endsley, 2000; Fiske et al., 2010). This construct reflects a form of metacognitive knowledge in which decision-makers understand and adapt their cognitive processes in response to environmental demands (Millon & Lerner, 2003; Pavlovich & Corner, 2014).

In line with J. R. Mitchell et al. (2005), conscious awareness operates at the cognitive level where perceptions, judgments and knowledge become accessible to the decision-maker and subject to intentional control, particularly under uncertainty, such as international expansion. Although conscious awareness shares similarities with constructs like reflection, mindfulness and strategic attention, it remains conceptually and functionally distinct in ways that are critical to this study. Unlike reflection, which

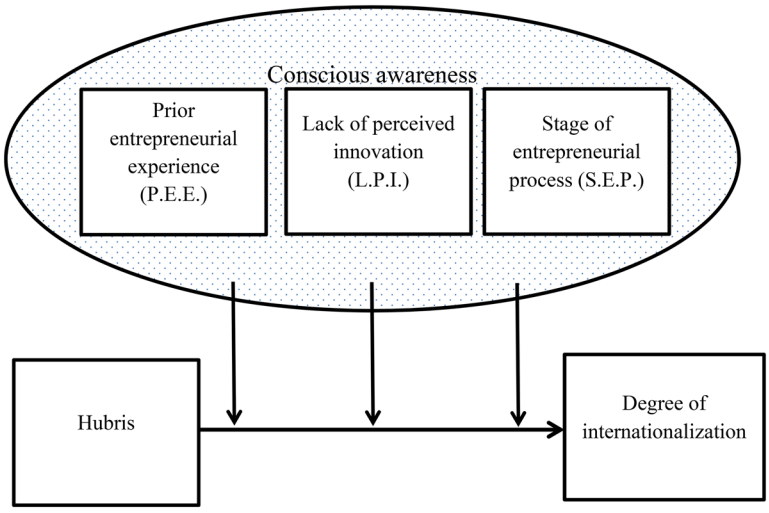

Figure 1. Theoretical model.

typically involves post-hoc evaluations of past actions or decisions, conscious awareness operates in real-time, enabling entrepreneurs to recognize the influence of their own cognitive tendencies during the decision-making process. Mindfulness, by contrast, often downplays goal-directed or evaluative cognition, which is central to strategic entrepreneurship. Meanwhile, strategic attention focuses on the prioritization of external cues in decision environments, but it does not encompass the individual's self-monitoring of how those cues are internally processed. Therefore, conscious awareness, as conceptualized in this study, describes a dynamic cognitive state in which individuals are not only aware of but actively manage the alignment between their internal confidence structures (e.g. hubris) and external complexity (e.g. international uncertainty), thereby serving as a regulatory function that helps determine whether hubris remains unchecked or adaptively redirected in uncertain strategic contexts (Pavlovich & Corner, 2014).

Whereas much of the literature on hubris mitigation has emphasized external governance or structural controls (e.g. Picone et al., 2014), growing scholarship highlights the importance of internal cognitive moderators that are capable of disrupting self-enhancing biases (Bastian & Zucchella, 2022; Kroll et al., 2000). Recent works also call for integrating 'awareness in decision-making' into frameworks examining hubris in international entrepreneurship (Bastian & Zucchella, 2022). Our study addresses this theoretical gap by identifying three cognitive resources that serve as enablers of conscious awareness: (1) perceived innovation, (2) prior entrepreneurial experience and (3) entrepreneurial process stage. These dimensions are conceptually distinct yet interrelated, as each contributes to an entrepreneur's capacity to monitor their own thinking and assess the alignment between internal confidence and external conditions. As such, we do not treat them as interchangeable proxies but as complementary pathways that support the emergence of conscious awareness in varying ways (J. R. Mitchell et al., 2005; Hurst, 2019).

Perceived innovation reflects an entrepreneur's deliberate self-assessment of their venture's competitive limitations, signaling a level of cognitive realism that aligns with conscious awareness. Such an internal acknowledgment of a strategic deficit inherently signals a reflective process that enables a more grounded and realistic evaluation of their firm's capabilities and market position. Entrepreneurs who subjectively perceive their offering as lacking innovation are more likely to engage in introspective evaluations and demonstrate higher self-monitoring capacity. In this sense, this indicator functions as a metacognitive marker, indicating the capacity to monitor and adjust cognitive judgments in response to external stimuli.

Prior entrepreneurial experience can enhance conscious awareness by providing a foundation for analogical reasoning, pattern recognition across different ventures and/or decision environments, and the recalibration of one's judgments based on past feedback and outcomes. The accumulation of such practical and experiential knowledge supports entrepreneurs' ability to self-regulate and develop a more nuanced understanding of the business landscape. While the specific impact of experiences gained from prior ventures may vary, exposure to the complexities and contingencies of entrepreneurship itself

fosters deeper information processing. As a result, this experience equips entrepreneurs to recognize the limits of their past reasoning and accordingly adjust their behavior, both of which are key features of conscious awareness.

The entrepreneurial process stage, viewed as a developmental factor, also contributes to conscious awareness. As ventures evolve, entrepreneurs encounter growing real-world constraints, stakeholder demands and operational complexity, which challenge their initial assumptions and require higher levels of self-regulation (J. R. Mitchell et al., 2005; Poblete et al., 2019). While not a direct measure of conscious awareness, the venture's stage serves as a marker of the entrepreneur's exposure to feedback loops, uncertainty and performance consequences, which are essential for the development of conscious awareness. As entrepreneurs move from nascent to established phases, they are confronted with evolving challenges and accumulate diverse forms of experiential knowledge. Thus, the stage of the entrepreneurial process reflects both developmental learning and the ongoing refinement of cognitive frameworks, as venture progression inherently demands iterative learning and adaptation.

Hubris and internationalization

Hubris represents an extreme form of overconfidence (Haynes et al., 2015), comprising three distinct dimensions: inflated confidence in one's knowledge, predictive abilities and personal competencies (Chatterjee & Hambrick, 2007; Hayward et al., 2006). This psychological bias manifests when individuals exhibit confidence in their judgments that substantially exceeds their objective accuracy (Moore & Healy, 2008; Simon & Houghton, 2003). Hubris-driven decision-makers consistently demonstrate judgmental overreach, maintaining beliefs that significantly diverge from reality (Hayward & Hambrick, 1997). Consequently, they tend to systematically overestimate potential returns and underestimate risks, driven by an inflated sense of personal control over uncertain outcomes (Dorcas et al., 2021; Kroll et al., 2000; Picone et al., 2021).

The organizational consequences of hubris are well-documented across diverse business domains. Prior empirical studies have demonstrated its impact on acquisition premiums (Hayward & Hambrick, 1997), growth aspirations (Poblete, 2022), financial decision-making (Malmendier & Tate, 2005), risk propensity (Li & Tang, 2010) and innovation strategies (Tang et al., 2015). Notably, Picone et al. (2021) highlight how hubristic overconfidence drives aggressive strategic decisions in international contexts, providing a foundation for understanding hubris's role in internationalization. Building on this foundation, the present research explores how hubris shapes decisions in international business contexts by proposing that hubris influences not only the initial foreign market entry decision but also the scale and intensity of international expansion (Agnihotri & Bhattacharya, 2021).

Three key mechanisms explain how hubris drives internationalization decisions. Firstly, the inherently complex nature of international expansion aligns with the psychological profile of hubristic individuals, who are particularly drawn to challenging tasks due to the phenomenon known as the 'difficulty effect' (Griffin & Tversky, 1992). These entrepreneurs tend to overestimate their capacity to navigate complex foreign environments characterized by economic, political and cultural differences (Bastian & Zucchella, 2022; Zahra et al., 2005), despite the inherent unpredictability of outcomes (Picone et al., 2021; Wright & Dana, 2003).

Secondly, hubris is closely associated with an internal locus of control (Tang et al., 2015). Entrepreneurs with this orientation profile attribute outcomes primarily to their own actions rather than external factors (Urbig & Monsen, 2012). This perception of control reduces concerns about international expansion risks, as hubristic individuals believe they can manage foreign market challenges through personal capability (Karabulut, 2016; Trevelyan, 2008).

Thirdly, hubris increases risk-taking propensity by creating unrealistic expectations of success (Fuentelsaz et al., 2023). Hubristic entrepreneurs systematically overestimate potential returns from international ventures (Simon & Houghton, 2003), leading to more aggressive foreign market strategies (Bell et al., 2003). This risk-seeking behavior manifests in rapid, large-scale internationalization efforts pursued with exceptional determination (Galasso & Simcoe, 2011).

Hypothesis 1: There is a positive relationship between hubris and the degree of internationalization.

Nonetheless, the relationship between entrepreneurial cognition and strategic decision-making is neither direct nor immediate. Prior studies emphasize significant gaps in understanding regarding potential moderating factors that shape how cognitive processes translate into organizational actions and outcomes (Neely et al., 2020). To address this, scholars have identified three key moderating dimensions: cognitive mechanisms, relational conditions and situational contingencies. As previously discussed, this study focuses specifically on three cognitive moderators, representing components of a conscious awareness, that may influence the intensity of international expansion efforts among hubristic entrepreneurs.

Perceived innovation, internationalization and hubris

Perceived innovation refers to entrepreneurs' subjective evaluation of their venture's novelty, reflecting the extent to which they believe their products or services are unique within their market (Knight & Cavusgil, 2004; Koellinger, 2008). Distinct from objective innovation, which involves measurable outcomes like patents (Tang et al., 2015), or innovativeness, an individual trait driving creative pursuits (Hyytinen et al., 2015), perceived innovation captures cognitive assessments of competitive distinctiveness that signals conscious awareness (Poblete & Mandakovic, 2021). As such, perceived innovation acts as a critical lens through which hubristic entrepreneurs interpret competitive market conditions, often leading to biased strategic decisions when novelty is overestimated.

Entrepreneurs must carefully consider competitive market factors when making strategic decisions for their ventures (Boone et al., 2019). While some entrepreneurial activities operate within established frameworks of routines, competencies and offerings that differ little from existing businesses, hubristic entrepreneurs often rely on subjective self-assessments rather than objective evaluations of competitive conditions (Frese & Gielnik, 2014; Hayward et al., 2006). This tendency introduces potential biases, as business characteristics become fundamentally shaped by the entrepreneur's personal perspective, making innovation a particularly subjective construct (Carreón-Gutiérrez & Saiz-Álvarez, 2019; Douglas, 2009). Although entrepreneurial success depends on skills and capabilities, hubristic individuals typically anticipate greater returns than their less confident counterparts, though their international market potential may be limited by their perception of innovation (Knight & Cavusgil, 2004; Koellinger et al., 2007; Townsend et al., 2010).

From an economic standpoint, innovation frequently manifests in simple forms, often involving the identification and exploitation of previously overlooked market niches (Minniti & Lévesque, 2010). Global novelty is not always required; localized or market-level newness can suffice to create economic value (Koellinger, 2008). Yet, innovation inherently involves elements of novelty, risk and uncertainty. This fundamental characteristic suggests that innovative entrepreneurs naturally exhibit greater risk tolerance, potentially making them more inclined toward international expansion (Gabriel, 1998; Knight & Cavusgil, 2004). For hubristic entrepreneurs, the self-perception of leading an innovative venture may further amplify this internationalization tendency.

Innovative ventures frequently require decisions made with limited information, a context that demands substantial confidence (Hyytinen et al., 2015). Such high-stakes decisions - involving uncertain outcomes, unpredictable forecasts and delayed feedback - particularly characterize both innovation and internationalization, making them especially appealing to hubristic individuals (Haynes et al., 2015; Poblete, 2022). Consequently, innovative entrepreneurs typically demonstrate higher hubris levels than their imitative counterparts (Sundermeier et al., 2020; Tang et al., 2015). However, in the absence of clear innovative benchmarks, the drive toward internationalization may be substantially weakened.

Because judgmental processes vary significantly across individuals and remain prone to systematic biases (Douglas, 2009; Frese & Gielnik, 2014; Koellinger et al., 2007), hubristic entrepreneurs who do not perceive their venture as innovative typically exhibit more modest internationalization efforts (Tang et al., 2015). Accordingly, these observations lead to the following hypothesis:

Hypothesis 2: The relationship between hubris and the degree of internationalization is negatively moderated by the absence of perceived innovation in the entrepreneurial venture.

Prior entrepreneurial experience, internationalization and hubris

Research has established the significant role of prior experience in shaping entrepreneurs' strategic choices (Knight & Cavusgil, 2004; Sarasvathy et al., 2014). Cognitive studies demonstrate how accumulated experience forms mental frameworks that guide perception and decision-making (Walsh, 1995), primarily through comparative processes that allow entrepreneurs to evaluate new situations against previous ones (Grégoire et al., 2010; Williams & Grégoire, 2015). Although such experiential knowledge can introduce cognitive biases (Souza & Kemelgor, 2008; Brinckmann & Kim, 2015), existing research has yet to fully explain how prior entrepreneurial experience specifically influences the intensity of hubris-driven internationalization.

Literature consistently identifies prior experience as a crucial factor for internationalization decisions (Grégoire et al., 2008; Maitland & Sammartino, 2015), though its effects vary based on the type of experience and associated learning outcomes (Liu et al., 2019). Entrepreneurs vary in how they process and apply experiential knowledge (Mueller & Shepherd, 2016), with international experience in particular impacting both the speed (Aygoren & Kadakal, 2018) and scope (Kiss et al., 2013) of foreign market expansion. The subjective interpretation of experience contributes to diverse internationalization patterns.

Despite mixed findings regarding the link between experience and over-optimism (Ucbasaran et al., 2007), three mechanisms suggest that prior experience may, under certain conditions, amplify hubristic tendencies in the context of internationalization. Firstly, experienced entrepreneurs often misweigh information and display judgmental overconfidence (Shanteau, 1992), with serial entrepreneurs showing heightened optimism (Forbes, 2005). Secondly, reliance on experiential heuristics (Kahneman, 2003) may accelerate international expansion decisions. Thirdly, cognitive biases associated with experience (Tversky & Kahneman, 1974) can intensify hubristic tendencies in foreign market entry.

However, not all prior experience leads to overconfidence. Experience with venture failure may exert a corrective effect, encouraging more calibrated decision-making (Jones & Casulli, 2014). While successful experiences can reinforce hubris, prior failures often enhance self-regulation and reflective thinking (Hayward et al., 2010) by providing comparative frameworks for new situations (Perks & Hughes, 2008). Entrepreneurs who have encountered both success and failure may develop better cognitive calibration (Ucbasaran et al., 2010), although early learning patterns may still anchor persistent decision-making biases. Taken together, these insights suggest that prior entrepreneurial experience may moderate the link between hubris and internationalization. Accordingly, the following hypothesis is proposed:

Hypothesis 3: The relationship between hubris and the degree of internationalization is negatively moderated by prior entrepreneurial experience.

Stage of the entrepreneurial process, internationalization and hubris

Entrepreneurs are frequently faced with complex situations characterized by limited factual information, extreme uncertainty and intense time pressure (Busenitz & Barney, 1997; Mueller & Shepherd, 2016). Within such conditions, the entrepreneurial process refers to progression through distinct stages of venture development, each marked by specific milestones. For example, the 'valley of death' represents a critical phase where firms face institutional, financial and skill-based gaps (Barr et al., 2009); and successfully overcoming this phase is often viewed as surviving the 'liability of newness' (Reynolds et al., 2005). Thus, progression through these stages is generally considered as a key source of experiential learning, facilitating the development of both tacit and explicit knowledge that influences organizational strategies under varying contingencies. This source of learning is especially important in the context where historical precedents or established norms are lacking, as entrepreneurs must rely on their own experiences and the transformation of those experiences into experiential knowledge to guide decision-making. (Johanson & Vahlne, 2009; Kolb, 2014).

Studies shows that the specific stage of the entrepreneurial process influences how entrepreneurs interpret their environment, and how changes in mental models explain subsequent behaviors (Poblete et al., 2019). Further, the way entrepreneurs use intuition, rather than just how they attribute their decisions to it, changes due to the mental script they develop through immersion in the entrepreneurial

process (Blume & Covin, 2011; J. R. Mitchell et al., 2005). The underlying argument behind this idea is that experience differs from expertise, as experts process information differently than novices (Randolph-Seng et al., 2015; Souza & Kemelgor, 2008; Stambaugh & Mitchell, 2018). An expert's extensive experience in a given domain contributes to the development of rich and organized systems of knowledge and thought. These systems enable them to differentiate among the many pieces of available information and make more sophisticated judgments (Chi et al., 2014; Dew et al., 2015; Smith et al., 2009). Therefore, a more experienced decision-maker is likely to possess a richer and more connected mental model than their less experienced counterparts.

Accordingly, entrepreneurs in more advanced stages of the entrepreneurial process are more likely to possess more calibrated mental models, enabling them to better assess the situational factors that emerge from internal or external constraints. For example, entrepreneurs' know-how (Barringer et al., 2005; Phelps et al., 2007; Ray, 1993) and the functionality of the startup' plan (Littunen & Niittykangas, 2010; Sapienza & Grimm, 1997) are among the aspects that evolve across different stages of the entrepreneurial process. As a result, entrepreneurs in more advanced stages tend to demonstrate comparatively more efficient scanning of the environment and/or a better configuration about the mobilization of resources, along with other strategic and operational capabilities to respond to changes in situational factors.

Prior studies have identified absorptive capacity and overconfidence as two key factors in explaining how perceived knowledge gaps are narrowed during the internationalization process (Petersen et al., 2008). While absorptive capacity is linked with the experience gained through the entrepreneurial process (Zahra & George, 2002); overconfidence is theoretically considered a precursor to hubris (Hayward et al., 2006; Picone et al., 2014) and over-optimism, both of which tend to be adjusted as entrepreneurs advance through the entrepreneurial process (Poblete et al., 2019). In line with this, previous research has shown that mental models of more internationally experienced decision-makers are richer and more interconnected than those of less experienced counterparts (Maitland & Sammartino, 2015). Thus, the tendency of hubristic entrepreneurs to pursue overly ambitious internationalization may be tempered if they are at a more advanced stage of the entrepreneurial process. These considerations lead to the following hypothesis:

Hypothesis 4: The relationship between hubris and the degree of internationalization is more negative for entrepreneurs in earlier stages of the entrepreneurial process than for those in more advanced stages.

Method

Sample

The study analyzed data from 104,564 entrepreneurs collected between 2015 and 2017 as part of the GEM Adult Population Surveys (Reynolds et al., 2005). As the world's most extensive cross-national research program on entrepreneurship, GEM systematically examines the prevalence, drivers and outcomes of entrepreneurial activity across diverse economic contexts (Álvarez et al., 2014). The project's primary methodology involves the annual collection of standardized entrepreneurial data through nationally representative samples, with each participating country surveying a minimum of 2,000 working-age adults. This rigorous approach ensures the production of high-quality, internationally comparable indicators of entrepreneurial behavior.

The dataset encompasses entrepreneurs from 77 countries, with 40.11% reporting some level of international business activity through foreign customer revenues. Demographic characteristics reveal an average participant age of 41 years [standard deviation (SD = 12.8)], with male respondents comprising 59% of the sample. Educational attainment levels were relatively high: 6.5% held graduate degrees, 32.8% had post-secondary qualifications and 32.8% completed secondary education. The remaining participants included 14% with some secondary schooling and 12.8% with less than secondary education or no formal qualifications.

Measures

Dependent variable—degree of internationalization

Consistent with established research approaches, this study acknowledges the absence of a universally standardized metric for assessing a firm's internationalization level (Sherman et al., 1998; Sullivan, 1994). Following conventional measurement practices that examine structural aspects of internationalization (Sullivan, 1994), we operationalize this construct using foreign assets as a percentage of total assets (FATA) (Daniels & Bracker, 1989). The measurement employs a seven-point Likert scale for quantification (see Table 1).

Independent variable—hubris

This construct captures individuals' overconfidence in their predictive abilities, personal competencies and knowledge base (Hayward et al., 2006; Poblete, 2022). Measurement involves a binary variable derived from three specific survey questions (see Table 1), where affirmative responses to all three items yield a value of 1, with all other response patterns coded as 0.

Moderator variable—lack of perceived innovation (LPI)

This indicator assesses entrepreneurs' subjective evaluation of their venture's innovative characteristics. Following established methodologies (Koellinger, 2008; Poblete & Mandakovic, 2021), we classify ventures as 'imitative' when they face substantial competition while offering no technological or procedural novelty to customers. All other configurations are considered to demonstrate some degree of innovation.

Moderator variable—prior entrepreneurial experience (PEE)

The variable aims to distinguish individuals who recently obtained entrepreneurial experience or knowledge through their involvement in a startup. To identify individuals with prior entrepreneurial experience,

Table 1. Description of dependent, independent and moderator variables.

Variable	Description/survey questions	Answer categories
Degree of internationalization	What percentage of your annual sales revenues will usually come from customers living outside your country?	1: None 2: Under 10% 3: 10–25% 4: 25–50% 5: 50–75% 6: 75–90% 7: More than 90%
Hubris	1. 'In the next six months, will there be good opportunities for starting a business in the area where you live?'	1: Yes 0: No
	2. 'Do you have the knowledge, skill and experience required to start a new business?'	1: Yes 0: No
	3. 'Do you expect to create more than 19 jobs in 5 years from now?'	1: Yes 0: No
Lack of perceived innovation	1. 'How long have the technologies or procedures required for this product or service been available?'	1: Less than a year 2: Between 1 and 5 years 3: Longer than 5 years
	2. 'Will all, some or none of your potential customers consider this product or service new and unfamiliar?'	1: All 2: Some 3: None
	3. 'Right now, are there many, few or no other businesses offering the same products or services to your potential customers?'	1: Many 2: Few 3: None
Prior entrepreneurial knowledge	Have you, in the past 12 months, sold, shut down, discontinued or quit a business you owned and managed, any form of self-employment or selling goods or services to anyone?	1: Yes 0: No
Stage of the entrepreneurial process	Business startup process	1: Nascent entrepreneurs 2: Young-firm owners 3: Established-firm owners

this study used the survey question asking respondents whether they took part as entrepreneurs in the past 12 months in a business that has been sold, shut down, discontinued or quit.

Moderator variable—stage of entrepreneurial process (SEP)

The entrepreneurial process is defined by GEM methodology in three distinct stages, namely nascent entrepreneurs, new entrepreneurs and established entrepreneurs (Poblete et al., 2019; Reynolds et al., 2005). Nascent entrepreneurs are individuals who own and manage a business for a maximum of 3 month. New entrepreneurs are defined as those individuals who own and manage a firm up to 3.5 years. Finally, established entrepreneurs are the owners-managers who have paid salaries and wages for more than 3.5 years. This classification responds to conceptual and operational issues (Reynolds et al., 2005). Following previous studies, this study combine several questions to detect stage of the entrepreneurship process the entrepreneur was standing at when she was interviewed for the survey (Koellinger, 2008; Poblete et al., 2019).

Control variables

UET literature has used demographic variables as a proxy for the cognitive attributes of managers and predictors of top management team (TMTs') strategic preferences (Carpenter et al., 2004; Jensen & Zajac, 2004; Patzelt et al., 2009). For example, while age is commonly referred to as a good determinant of a person's experience (Dorcas et al., 2021), empirical evidence suggests that older entrepreneurs are much more concerned with financial stability than their younger counterparts (Dezsö & Ross, 2012; Krishnan & Park, 2005). Further, prior studies have suggested that entrepreneurs with more education have greater cognitive complexity, meaning they are better able to acquire and interpret complex knowledge and make faster decisions than their counterparts with a lower level of education (Burke et al., 2018; Dorcas et al., 2021; Kevill et al., 2017). Therefore, these controls allow the eradication of potential explanations complementing the theoretical constructs of interest. A detailed description of control variables used in the analysis can be found in Appendix.

Results

Table 2 presents the means, SDs and bivariate correlations for the variables used in the regression analyses. Table 3 summarizes the results of the Hierarchical regression analysis.

The first step in the regression analysis consisted of the study's control variables (Model 1). The control variables explained a significant amount of the variance in the degree of internationalization, with only the entrepreneur's 'fear to fail' and the sophistication of the local economy (measured with the Global Competitiveness Index, 'GCI') registering as non-significant, suggesting that internationalizing entrepreneurs naturally filter out those deterred by failure, while firm-level advantages and entrepreneurial initiative matter more than home-country competitiveness in shaping expansion decisions. In the second step, the main effect variables were added to the analysis (Model 2). The addition of all the core variables showed a significant relationship with the degree of internationalization. Hypothesis 1 posited a positive relationship between hubris and the degree of internationalization. The estimated coefficient for 'hubris' was significant and positive ($\beta = 0.112$, $p > 0.001$), and therefore, Hypothesis 1 was supported.

The two-way interaction terms were entered into the third step of the analysis (Model 3). Model 3 indicated that the interaction between lack of perceived innovation and hubris ($\beta = -0.184$, $p < 0.01$), as well as the interaction between hubris and prior entrepreneurial experience ($\beta = 0.019$, $p > 0.05$), were positively and significantly associated with the degree of internalization. These findings provide support for Hypotheses 2 and 4, respectively. On the other hand, the coefficient estimate for the effect of the interaction between hubris and prior entrepreneurial experience on the degree of internalization is positive but statistically insignificant ($\beta = 0.019$, $p > 0.05$), therefore it does not provide support for Hypothesis 3.

Robustness analysis

The robustness check in Table 4 replaces the binary hubris measure with a four-point scaled index (0–3), capturing varying degrees of overconfidence. This distinction is not merely empirical, but ties into a

Table 2. Correlation matrix.

		Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11
GCR–3 categories		2.216	0.666											
1	Age	41.170	12.804	0.198**										
2	Gender	1.410	0.492	−0.061**	−0.020**									
3	Education level	3.231	1.490	0.335**	−0.044**	−0.048**								
4	Social capital	0.488	0.488	−0.054**	−0.126**	−0.030**	0.087**							
5	Fear of failure	0.299	0.458	0.002	0.002	0.052**	−0.015**	−0.043**						
6	Entrep. intentions	0.398	0.489	−0.222**	−0.217**	−0.023**	0	0.117**	−0.039**					
7	Firm size	1.103	1.147	0.119**	0.018**	−0.110**	0.183**	0.044**	−0.024**	0.077**				
8	Hubris	0.040	0.197	0.030**	−0.027**	−0.071**	0.096**	0.069**	−0.047**	0.086**	0.390**			
9	Lack of perceived Innovation	0.371	0.483	−0.012**	0.068**	−0.008**	−0.073**	−0.067**	0.009**	−0.118**	−0.028**	−0.047**		
10	Prior entrepreneurial experience	0.078	0.269	−0.067**	−0.038**	−0.009**	0.003	0.051**	0.016**	0.147**	0.066**	0.033**	0.044**	
11	Stage of entrepreneurial process	2.116	0.851	0.038**	0.287**	−0.038**	−0.081**	−0.084**	0.009**	−0.273**	0.060**	−0.018**	−0.160**	−0.062**

Significant at: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

Table 3. Results of hierarchical regression.

	Model 1		Model 2		Model 3	
Control variables						
Country	Yes		Yes		Yes	
Year	Yes		Yes		Yes	
Industry	Yes		Yes		Yes	
GCI	0.079		0.083		0.084	
Age	0.003	***	0.002	***	0.002	***
Gender	−0.050	***	−0.054	***	−0.053	***
Educational level	0.026	***	0.025	***	0.025	***
Social capital	0.076	***	0.059	***	0.059	***
Fear of failure	0.024		0.022		0.022	
Entrep. intentions	0.135	***	0.095	***	0.095	***
Firm size	0.181	***	0.168	***	0.170	***
Predictor variables						
Hubris			0.112	***	0.555	***
Lack of perceived innovation (LPI)			−0.253	***	−0.243	***
Prior entrep. experience (PEE)			0.223	***	0.222	***
Stage of entrep. process (SEP)			−0.030	***	−0.021	***
Interaction variables						
Hubris × LPI					−0.184	**
Hubris × PEE					0.019	
Hubris × SEP					−0.156	**
R^2	0.185		0.193		0.194	
Adj. R^2	0.183		0.191		0.192	
Change R^2			0.008		0.001	

Notes: The degree of internalization is the dependent variable. All regressions are estimated using hierarchical regression, and each column represents different model specification. Estimated coefficients are significant at *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

fundamental theoretical debate over whether hubris should be considered as a discrete psychological trait (Emami et al., 2024) or as a continuous dimension of overconfidence (Douglas et al., 2025). The original binary proxy for measuring hubris was developed under the logic that restricting classification to only the most pronounced cases isolates those cases where confidence crosses into pathological overconfidence, thereby ensuring construct validity. While the original measure captures threshold effects, where hubris overrides risk-taking behavior that is optimistically calibrated but still grounded in positive expectations, the scaled measure treats (over)confidence as a spectrum (Kraft et al., 2022), with milder forms influencing decisions in less predictable ways. This gradational view also acknowledges that entrepreneurs may exhibit 'partial hubris'.

As shown in Table 4, the direct effect of hubris on internationalization remains positive and significant across both specifications. However, the interaction effects reveal critical differences. Under the original model using the binary hubris measure (Table 3), lack of perceived innovation significantly moderates the effect of hubris ($\beta = -0.184$, $p < 0.01$), suggesting that extreme hubris is more likely to be constrained when entrepreneurs do not perceive their ventures as sufficiently innovative. In contrast, this interaction disappears when hubris is modelled as a scale ($\beta = -0.014$, n.s.), indicating that milder overconfidence is less influenced by this specific cognitive anchor. Conversely, prior entrepreneurial experience, which was insignificant in the binary specification, emerges as a significant positive moderator ($\beta = 0.059$, $p < 0.05$) in the model where hubris is modelled as a continuous spectrum. This finding supports the notion that experience amplifies—rather than mitigates—moderate levels of overconfidence, as entrepreneurs may misattribute past successes to their abilities (Ucbasaran et al., 2010). Meanwhile, the interaction between hubris and stage of entrepreneurial process remains negative and significant ($\beta = -0.027$, $p < 0.05$), indicating that earlier-stage entrepreneurs are more strongly affected by overconfidence in their internationalization decisions. Overall, while the direct effects of hubris remain robust, the shift in interaction effects highlights that its boundary conditions depend on whether overconfidence is conceptualized as a threshold trait (binary) or a continuous spectrum (scaled).

Table 5 aggregates the three moderators—stage of entrepreneurial process (simplified to a binary: early-stage vs. established), prior entrepreneurial experience and lack of perceived innovation—into a single seven-point conscious awareness index (0–7). Hierarchical regression results remain consistent: the index negatively predicts internationalization ($\beta = -0.108$, $p < 0.01$), reinforcing its role as a metacognitive regulator (Endsley, 2000). The interaction between hubris and conscious awareness is also negative and

Table 4. Robustness analysis—hubris as scale.

	Model 1		Model 2		Model 3	
Control variables						
Country	Yes		Yes		Yes	
Year	Yes		Yes		Yes	
Industry	Yes		Yes		Yes	
GCI	0.079		0.086		0.086	
Age	0.003	***	0.002		0.002	
Gender	−0.050	***	−0.054	***	−0.054	***
Educational level	0.026	***	0.025	***	0.025	***
Social capital	0.076	***	0.061	***	0.061	***
Fear of failure	0.024		0.021		0.021	
Entrep. intentions	0.135	***	0.098	***	0.098	***
Firm size	0.181	***	0.174	***	0.175	***
Predictor variables						
Hubris (scale)			0.023	**	0.103	**
Lack of perceived innovation (LPI)			−255	***	−0.235	***
Prior entrep. experience (PEE)			0.224	***	0.307	***
Stage of entrep. process (SEP)			−0.030	**	0.008	
Interaction variables						
Hubris × LPI					−0.014	
Hubris × PEE					0.059	*
Hubris × SEP					−0.027	*
R^2	0.185		0.193		0.193	
Adj. R^2	0.183		0.191		0.191	
Change R^2			0.008		0.000	

Notes: The degree of internalization is the dependent variable. All regressions are estimated using Hierarchical regression, and each column represents different model specification. Estimated coefficients are significant at *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

Table 5. Robustness analysis—hubris and conscious awareness as scale.

	Model 1		Model 2		Model 3		Model 4	
Control variables								
Country	Yes		Yes		Yes		Yes	
Year	Yes		Yes		Yes		Yes	
Industry	Yes		Yes		Yes		Yes	
GCI	0.079		0.079		0.090		0.090	
Age	0.003	***	0.003	***	0.002	***	0.002	***
Gender	−0.050	***	−0.050	***	−0.055	***	−0.055	***
Educational level	0.026	***	0.026	***	0.025	***	0.025	***
Social capital	0.076	***	0.076	***	0.066	***	0.066	***
Fear of failure	0.024		0.025		0.027	**	0.027	**
Entrep. intentions	0.135	***	0.134	***	0.129	***	0.128	***
Firm size	0.181	***	0.179	***	0.183	***	0.183	***
Predictor variables								
Hubris (4 points-scale)			0.22	***	0.023	***	0.046	***
Conscious awareness (7 points-scale)					−0.108	**	−0.077	***
Interaction variables								
Hubris × conscious awareness							−0.022	**
R^2	0.185		0.185		0.188		0.188	
Adj. R^2	0.183		0.183		0.186		0.186	
Change R^2					0.008		0.000	

Notes: The degree of internalization is the dependent variable. All regressions are estimated using Hierarchical regression, and each column represents different model specification. Estimated coefficients are significant at *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

significant ($\beta = -0.022$, $p < 0.05$), mirroring the main model's findings. This confirms that conscious awareness functions as a cohesive cognitive filter, whether analyzed as separate moderators or a unified construct. The stability of these effects suggests that the index captures the additive nature of awareness-building mechanisms—each component (experience, innovation perception, venture maturity) contributes cumulatively to tempering hubris. Notably, the binary simplification of venture stage (aligning with GEM's total early-stage entrepreneurial activity (TEA) framework) did not reduce predictive validity, supporting its practical utility.

Finally, Table 6 applies ordinal logistic regression to account for the Likert-scale nature of the dependent variable, using the binary hubris measure and the seven-point conscious awareness index. Results

robustly corroborate earlier findings: hubris increases internationalization (Coef. = 0.255, $p < 0.001$), while conscious awareness reduces it (Coef. = −0.157, $p < 0.001$). The significant negative interaction (Coef. = −0.125, $p = 0.014$) confirms that conscious awareness attenuates the effect of hubris, regardless of the analytical technique used.

Discussion

The literature has predominantly conceptualized hubris as a psychological driver that stimulates entrepreneurial action (Hayward et al., 2006; Poblete, 2022), yet few studies have examined how it interacts with the cognitive mechanisms of conscious awareness in strategic decision-making (Bastian & Zucchella, 2022). Our findings extend this stream of research by demonstrating that while hubris maintains its established positive relationship with internationalization intensity (Hayward & Hambrick, 1997; Tang et al., 2015), this effect is significantly moderated by conscious awareness (Endsley, 2000).

Specifically, prior research suggest that innovation perception enables entrepreneurs to develop the conscious awareness needed to realistically assess their venture's competitive position in foreign markets (Koellinger, 2008). This study evidenced that the absence of perceived innovation creates strategic vulnerabilities, echoing Douglas's (2009) observations about perceptual biases in entrepreneurial cognition. Notably, the interaction between hubris and lack of perceived innovation is only significant in the binary model. This implies that when hubris is extreme, the absence of perceived innovation (i.e. pure imitation) strongly constrains internationalization—possibly due to the absence of 'narratives of superiority' (e.g. 'my product is innovative') that entrepreneurs may use to justify cross-border expansion. Underlying this result is the idea that self-deception requires symbolic coherence: the hubristic entrepreneur needs a credible narrative—even if internally constructed—to trigger behavioral commitment.

Further, venture stage maturity provides the experiential learning fostering the conscious awareness that tempers hubris effects (Poblete et al., 2019; Reynolds et al., 2005). While prior entrepreneurial experience independently influences outcomes (Ucbasaran et al., 2010), it fails to significantly moderate hubris effects. This suggests that conscious awareness may require current, context-specific experience rather than generalized past exposure. Interestingly, when hubris is measured on a scale, prior experience significantly reinforces the relationship between hubris and internationalization. Aligned with Hayward et al. (2010), this finding suggests that prior entrepreneurial experience may, in some cases, reflect an external attribution for past failures (e.g. market conditions or bad luck), reinforcing an illusion of control. Although this study does not evaluate the specific causes of previous venture closures, high failure rates in entrepreneurship support the notion that many respondents likely experienced failure. Yet rather than adopting a precautionary mindset, some may have returned to entrepreneurship with more aggressive—particularly international—strategies (Perks & Hughes, 2008).

The robustness checks yielded philosophically revealing insights. The significant interaction between hubris and prior entrepreneurial experience in the continuous model (but not in the binary one) suggests that previous entrepreneurial experience does not necessarily mitigate hubris when the latter is expressed as a graded form of overconfidence. On the contrary, it may even amplify it in the context of internationalization. In line with Hayward et al. (2010), this can be interpreted as confirmation bias reinforced by past experience, where entrepreneurs not only believe they are competent but also believe they have already demonstrated it—thereby reinforcing both their worldview and their self-concept. Prior experience, in this sense, may strengthen an illusion of control (Baron, 2000; Cossette, 2014; Simon et al., 2000).

Table 6. Robustness analysis–ordinal logistic regression.

					95% confidence interval	
	Coef.	Std. error	Wald X^2	*p*-Value	Lower bound	Upper bound
Hubris	0.255	0.064	15.736	0.000	0.129	0.381
Conscious awareness	−0.157	0.015	109.745	0.000	−0.186	−0.127
Hubris × C.A.	−0.125	0.051	6.064	0.014	−0.224	−0.025

Overall, these findings align with Mueller and Shepherd (2016) distinction between experiential knowledge types. Most notably, our results show that entrepreneurs in more advanced stage develop stronger conscious awareness capabilities, which reduce hubris-driven internationalization and support the metacognitive development framework proposed by Endsley (2000).

Beyond the nuances revealed by the use of different variable metrics, when the construct of conscious awareness is formed by integrating the three variables together, it displays consistency in both its direct and moderating effects. Conscious awareness tempers overly cautious internationalization tendencies while also constraining the impulses driven by hubris as a cognitive distortion. However, the divergent results associated with prior entrepreneurial experience raise important theoretical considerations. While lack of perceived innovation and venture stage maturity align with the construct's underlying logic—emphasizing reflection, adaptation and present-moment regulation—prior experience appears to amplify rather than temper hubristic internationalization under certain conditions. This inconsistency suggests that either the multidimensional model requires refinement to better differentiate how various experience types (e.g. success vs. failure) shape cognition, or that prior experience, as currently measured, may not be a valid indicator of conscious awareness.

Conclusions, implications and future research

Entrepreneurial cognitions offer a robust theoretical framework for understanding how entrepreneurs employ simplified mental models to identify and capitalize on opportunities through various organizational strategies (Baron, 2004; R. K. Mitchell et al., 2002). This perspective highlights the critical role of cognitive mechanisms, particularly heuristic-based reasoning, in shaping entrepreneurial decision-making. However, prior research on the cognitive underpinnings of firm internationalization has predominantly focused on managerial learning, intra-organizational perceptions and external actors (Maitland & Sammartino, 2015; Niittymies & Pajunen, 2020; Vlačić et al., 2022). While studies on upper echelons in internationalization have compared entrepreneurs' experiences to explain entry decisions, this approach remains limited in explaining why some entrepreneurs prioritize foreign markets as core to their business strategy rather than as supplementary income sources.

This study advances current understanding by examining how the degree of internationalization emerges as a hubris-driven strategic choice, uncovering key cognitive mechanisms in the decision-making process. Responding to recent calls for deeper insights into cognitive influences on internationalization (Neely et al., 2020; Niittymies & Pajunen, 2020), our findings demonstrate that conscious awareness significantly mitigates the impact of hubris. Specifically, we highlight the interplay between different types of experience and perceived business features in shaping hubristic entrepreneurs' internationalization strategies (Bastian & Zucchella, 2022). This supports recent developments in UET that emphasize how individual cognitive traits shape business model choices (Shirokova et al., 2024), adding a new cognitive layer to strategic decision-making in international entrepreneurship.

One key finding reveals that entrepreneurs who perceive their ventures as lacking innovation are less likely to pursue aggressive internationalization due to hubris. This aligns with social cognition research emphasizing the role of comparative assessment in decision-making (Fiske et al., 2010; Millon & Lerner, 2003). Conscious awareness extends beyond mere perception, encompassing how individuals integrate, interpret and retain information (Bastian & Zucchella, 2022; Endsley, 2000). Our study identifies a lack of perceived innovation as a critical factor in calibrating hubris-driven expansion, as it enables entrepreneurs to realistically evaluate their venture's competitive potential in foreign markets.

Contrary to expectations, prior entrepreneurial experience does not moderate the relationship between hubris and internationalization intensity. This suggests that superficial structural alignments alone are insufficient for fostering the analogical reasoning required for conscious awareness (Grégoire et al., 2010). While prior research acknowledges the heuristic value of entrepreneurial experience (Busenitz & Barney, 1997; Cossette, 2014; Jones & Casulli, 2014), our findings indicate that the cognitive mechanisms linking prior experience to internationalization intensity remain unclear. This contrasts with studies emphasizing the interactive effects of experience and cognitive processes (Perks & Hughes, 2008), underscoring the need for future research to explore how different experiential knowledge types complement one another. In line with recent insights by Yitshaki (2025), the distinction between

vicarious learning and experiential learning may be critical: some entrepreneurs appear to repeat patterns without updating their cognitive scripts, possibly due to a lack of openness to advice or reflective processing. This finding suggests that without context-specific learning mechanisms—such as feedback integration or mentor fit (Cope & Watts, 2000; Kuratko et al., 2021; St-Jean & Tremblay, 2020; Yitshaki, 2025)—prior entrepreneurial experience may reinforce rather than correct cognitive biases, especially in overconfident individuals.

Another significant contribution of this study is its demonstration that the entrepreneurial process plays a pivotal role in moderating hubris effects. Theoretical work suggests that sustained engagement enhances experiential depth, refining cognitive frameworks for strategic decisions (Jones & Casulli, 2014). Our findings support this, showing that advanced-stage entrepreneurs exhibit more calibrated hubris-driven internationalization. Conversely, novice entrepreneurs rely more heavily on heuristic-based, hubristic logic (Chatterjee & Hambrick, 2007; Zhang & Cueto, 2017), consistent with prior evidence (Forbes, 2005; Stambaugh & Mitchell, 2018). These findings also speak to recent discussions that highlight internal self-regulatory processes—such as goal setting and self-monitoring—as key mechanisms linking personality traits to strategic outcomes (Furtner et al., 2024; Sharma et al., 2021). Thus, the competencies developed during progressive entrepreneurial stages may enhance conscious awareness by strengthening entrepreneurs' capacity to regulate overconfidence during complex decisions like international expansion.

While some scholars have suggested that hubris is a crucial distinguishing characteristic of failed entrepreneurs (Kroll et al., 2000; Picone et al., 2014, 2021; Tang et al., 2015), others have highlighted its potential role in fostering resilience—even though overambitious international strategies are often hubris-driven. For instance, Hayward et al. (2010) identified emotional, cognitive, social and financial learning outcomes from prior failed ventures and argued that the most advantageous approach to information processing may evolve throughout the entrepreneurial journey. Recent studies have built on this view, suggesting that conscious awareness may serve as a mitigating factor of hubris by integrating conceptual frameworks to better specify the cognitive mechanisms behind strategic decision-making (Neely et al., 2020; Niittymies & Pajunen, 2020). In this regard, conscious awareness may help explain why hubris is often observed as a form of intrinsic motivation among nascent entrepreneurs, who—guided by heuristic logic—tend to attribute success to their own disposition. By contrast, entrepreneurs at more advanced stages are more likely to recognize and regulate hubristic tendencies, avoiding overreliance on simplistic formulas for success. Importantly, our findings challenge the deterministic assumptions often embedded in HTE. Rather than assuming that hubris uniformly leads to overexpansion or failure, we demonstrate that its effects are conditional on internal cognitive systems. As Emami et al. (2024) show, hubris can be moderated by demographic and contextual factors. Extending this logic into the cognitive domain, our study proposes that conscious awareness functions as a flexible boundary condition—capable of either amplifying or restraining hubristic behavior in internationalization decisions. These possibilities open valuable avenues for future research on the boundary conditions of entrepreneurial cognition.

Despite these contributions, this study is not without limitations. For example, a limitation of this study is the binary operationalization of hubris, which, while consistent with prior research (e.g. Poblete, 2022) and pragmatic for identifying the presence of hubris, simplifies its complex, multidimensional nature. This approach may reduce sensitivity to variations in hubristic overconfidence. To mitigate this, we conducted robustness analyses using a scaled measure of hubris (Tables 4 and 5), which yielded largely consistent results, supporting the study's findings. Further, despite the large sample size and cross-national scope of the GEM dataset, it is important to acknowledge the inherent limitations associated with self-reported data, which may introduce biases and potential issues regarding the representativeness of the sample to the broader entrepreneurial population. Another key limitation is the lack of granular data on the nature of prior entrepreneurial experience (Mueller & Shepherd, 2016), particularly in distinguishing direct (experiential) from indirect learning. This omission may obscure how different knowledge types influence internationalization strategies (Perks & Hughes, 2008). Future research should explore variations in experiential learning quality across entrepreneurial stages, including the role of cognitive scripts in sustaining or eroding knowledge. Moreover, as highlighted by Sharma et al. (2021), linking behavioral insights with neuroscientific evidence could deepen our understanding of how subconscious and conscious processes interact in entrepreneurial cognition—particularly under

conditions of risk and uncertainty. This opens new directions for interdisciplinary research at the intersection of neuroentrepreneurship and international business strategy.

In a similar line, to capture the impact of individuals' learning through entrepreneurial process, this study used a continuous variable that classifies some of the most recognized stages an individual had experienced. While the theoretical underpinning of this classification is undoubtly robust in explaining some key entrepreneurial milestones (Reynolds et al., 2005), the learning process associated with each entrepreneurial stage can vary significantly. Future research might meaningfully delve into other, related characteristics of the entrepreneurial process that could help tease out some additional nuances in understanding how entrepreneurs learn as they progress and what/how different cognitive structures explain variance in the relationship between hubris and degree of internationalization. Such characteristics might include the intensity or magnitude of arrangement, willingness or ability scripts. It would be particularly interesting to analyze how various characteristics of an individual's mental scripts might hasten or impede the deterioration of knowledge gained through direct experience. Future research may seek to identify more objective measures of learning in different stages to address how conscious awareness is developed.

Finally, the findings from this study carry practical implications for entrepreneurship education, incubation programs and policy interventions aiming to support international business development. The moderating role of conscious awareness suggests that cognitive interventions can help entrepreneurs calibrate the effects of hubris before it escalates into overextension. One avenue is the use of cognitive bias training, which can help entrepreneurs recognize patterns of overconfidence, particularly those rooted in prior experience that may lead to misattributions of past outcomes. Reflective workshops, where entrepreneurs engage in guided introspection about past decisions, strategic assumptions and growth motivations, may help develop metacognitive insight—especially important given that prior experience alone does not consistently promote conscious awareness. Likewise, peer learning programs that enable more advanced entrepreneurs to share failure narratives and strategic adjustments could foster cognitive openness among early-stage founders. These interventions should not be one-off events but part of an iterative learning system, aligned with the cumulative nature of conscious awareness suggested by the study's index structure. Over time, such programming could help entrepreneurs move from heuristic-driven action to more deliberate, context-sensitive strategy formation. Ultimately, fostering conscious awareness may not only temper hubristic behavior but also improve internationalization quality by aligning ambition with reflective decision-making.

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Author contributions

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Patient consent

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Data availability statement

The data that support the findings of this study are openly available in the Global Entrepreneurship Monitor project at www.gemconsortium.org. The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Appendix. Description of the control variables

Variable	Description/survey questions	Answer categories
Industry	Industry ISIC version	
GCI—3 categories	Global Competitiveness Index, Country Group report—3 categories	1: Factor-driven 2: Efficiency-driven 3: Innovation-driven
Age	What is your current age (in years)?	1–99
Gender	What is your gender?	1: Male 0: Female
Educational level	Educational attainment	1: Pre-primary education 2: Primary education or first stage of basic education 3: Lower secondary or second stage of basic education 4: (Upper) secondary education 5: Post-secondary non-tertiary education 6: First stage of tertiary education 7: Second stage of tertiary education
Social capital	Do you know someone personally who started a business in the past 2 years?	1: Yes 0: No
Fear to fail	Would fear of failure prevent you from starting a business?	1: Yes 0: No
Entrepreneurial intentions	Are you, alone or with others, expecting to start a new business, including any type of self-employment, within the next 3 years?	1: Yes 0: No
Firm size	Natural logarithm of the number of employees	