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## Alert During What? Beyond the "Big O" to a Culturally-Cognizant, Process View of Entrepreneurial Alertness

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# Alert during what? Beyond the “Big O” to a culturally-cognizant, process view of entrepreneurial alertness

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## Abstract

Entrepreneurial alertness is a psychological aptitude generally associated with aspects of nascent venturing, centered on individuals’ environmental observations, the association of resources, and idea evaluation. A decade following the Tang et al. (2012) consensus construct and scale, critiques remain questioning its utility and unique value to the major conversations in entrepreneurship. Proponents put great emphasis on entrepreneurial alertness’s proven association with opportunity recognition and entrepreneurial actions. Yet, critics suggest it might be an unnecessary step offering little more than a positive association with opportunity recognition in a highly generalized and static way. The purpose of this paper is to address this tension. We do so through a ‘steel man’ approach to these valid concerns. Further, we question the logic of limiting a cognitive construct to a singular event: ‘opportunity recognition’ for a new venture (which we term here, the “Big O”). Drawing on a comprehensive framework inclusive of the full entrepreneurship phenomenon, and integrating insights from cross-cultural psychology, we put forth the case for an ongoing culturally contextualized process perspective towards venturing where individuals are alert to and pursue opportunities (and cope with threats) continuously. This paper provides a new framework for delineating a theoretically grounded “what” and “when” of entrepreneurial alertness.

**Keywords** Entrepreneurial alertness · Opportunity recognition · Cross-cultural psychology · Analytic-holistic cognition · Venture Development process

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Entrepreneurial alertness is a dud construct, why not just study opportunity recognition directly? (Anonymous Reviewer Comment).

Alertness is a foundational concept in entrepreneurship research, included in some of the most influential and important papers in the field (e.g., Kirzner, 2009; Venkataraman, 1997; Shane & Venkataraman, 2000). Recent work has helped clarify *entrepreneurial alertness* as a psychological aptitude that individuals possess to varying degrees, separate from the ‘market alertness’ of Kirzner’s original conception (see Lanivich et al., 2022 for a recent review). Entrepreneurial alertness continues to be put forth as an influential factor in opportunity recognition (Ardichvili et al., 2003; Levasseur et al., 2022). As Lanivich et al. (2022) state, entrepreneurial alertness is an “individual’s observation of environment, resource association, and evaluation of ideas” (p. 1166). As such, this ostensibly universally applies to entrepreneurship: be it pre-launch aspects of venturing, nascent formation, or established firms managing their businesses with entrepreneurs leveraging their alertness to make forward-thinking decisions for their firm. Entrepreneurs being alert to aspects of opportunities and being better or worse at it than their peers, is indeed a global phenomenon.

However, while entrepreneurial alertness is conceptually intuitive as a precursor to formalized opportunity recognition, questions remain surrounding the extent to which it adds value on conceptual and empirical grounds (Foss & Klein, 2010; McCaffrey et al., 2021). Indeed, some question its uniqueness against similar cognitive constructs and the value-add of its common empirical findings (Ramoglou & Zyglidopoulos, 2014). These same critics, consequently, disregard the necessary psychological development inherent in each facet of alertness, and the unique contributions of culture (i.e., the social context in which both an entrepreneur is inculcated and recognizes opportunities), which has thus far been assumed-away and overlooked in extant research (Pidduck et al., 2022a). The purpose of this paper is to consider some of the criticisms of entrepreneurial alertness head-on and put forth an evolved framework that recognizes the dynamics of entrepreneurial alertness and that its effects (including with opportunity recognition) likely differ across cultural contexts. In our estimation, many of the criticisms, such as overly intuitive empirical insights with oftentimes marginal value, and a lack of culturally relevant factors that infuse the dimensions of alertness, represent valid concerns. However, there are also strong, longstanding arguments that entrepreneurial alertness has critical utility to the opportunity-centric perspective of entrepreneurship and broader relevance within the field (Busenitz, 1996).

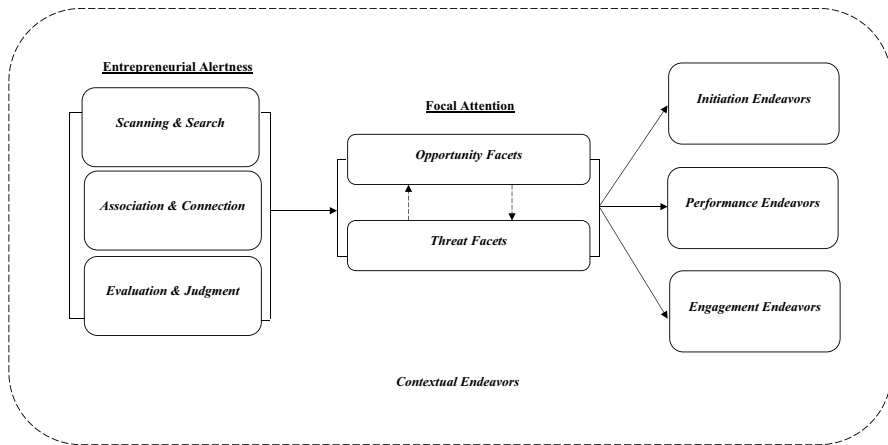
To advance the alertness conversation to a more global audience, we first address four of what we deem to be the most prevalent concerns surrounding entrepreneurial alertness, articulating them with the goal of ‘steel manning’<sup>1</sup> the critics: (a) cultural blindness (b) economics versus psychology conflation;

<sup>1</sup> A steel man argument (or steel manning) is the opposite of a straw man argument. Steel manning is the practice of addressing the strongest form of the other person’s argument, even if it is not the form/point they may have presented.

(c) the opportunity recognition tautology; and (d) construct conceptualization. Each of these concerns has merit based in the extant literature. We contend that these criticisms are rooted in the origination obsession, perpetuated, with a single event: venture foundation through recognition of a single critical opportunity (which we term herein, “The Big O”). Ultimately, we challenge this event-based approach to entrepreneurial alertness: we question the logic that a cognitive process would lie dormant until it was time to find the next “Big O”. We tackle this limitation by maintaining fidelity to the Tang et al. (2012) construct while broadening the perspective of entrepreneurial alertness to an ongoing, process-oriented view with relevance throughout the venturing process, continuously recognizing opportunities *and threats* for the ongoing development and success of the venture. In doing so, we incorporate critical aspects of cultural cognition variation that cross-cultural psychology research suggests are highly salient to all facets of an entrepreneur’s alertness, and how entrepreneurs cultivate and leverage it. Ultimately, we put forth a novel adjustment to entrepreneurial alertness that is longitudinal throughout the venturing process, open to all externalities *including threats and not just opportunity*, and incorporates goal-fulfillment theory.

We make three contributions. First, we introduce a global perspective on entrepreneurial alertness’ critical place within the opportunity-centric venturing process (Shane & Venkataraman, 2000; Baron, 2006; Tang et al., 2012). We do so by advancing an evolved model for entrepreneurial alertness that takes account, and largely reconciles, the existing criticisms of the construct; and enhances its utility beyond the entrepreneurial emergence literature. Second, we expand the utility and resilience of the construct by embedding it within culture-specific cognition (e.g., Busenitz & Lau, 1996), recognizing that the role and application of the entrepreneurial alertness aptitude is culturally sensitive. In doing so, we include entrepreneurial alertness within the broadening spectrum of entrepreneurial cognition research requiring cross-cultural awareness (e.g., Pidduck, 2022; Smith et al., 2009; Mitchell et al., 2000). Third, by clarifying entrepreneurial alertness we provide secondary clarity to opportunity recognition too. Entrepreneurial alertness both precedes *and* succeeds opportunity recognition, contributing to opportunity recognition processes and the discovery of specific means-ends relationships (Shane & Venkataraman, 2000), while being separate from opportunity recognition. Our critique of “The Big O” bias combined with our explicit inclusion of alertness to potential threats to opportunity fulfillment—as the valuable counter and compliment to merely recognizing the positive facets—brings renewed light to and advances the opportunity recognition conversations in entrepreneurship.

The paper proceeds as follows: we first consider and evaluate four ongoing concerns regarding entrepreneurial alertness. Second, we propose a way forward for entrepreneurial alertness that respects legacy research but also firmly establishes a unique cognitive role for entrepreneurial alertness (see Fig. 1). Third, we discuss how that cognitive role is likely to manifest throughout the entrepreneurship process, contributing to the entrepreneur and venture throughout its lifecycle (see Table 1), and propose a future research agenda.



**Fig. 1** Alert to what? Reconceptualizing entrepreneurial alertness to account for venture and sociocultural context

## ‘Steel manning’ the entrepreneurial alertness critics’ concerns

Constructs do not exist. They are artificial manifestations of a communal agreement of representation (Spector, 1992). As such, while constructs are named by researchers and open to debate (Edwards, 2003), the underlying phenomenon they represent is real. Not surprisingly, entrepreneurial alertness has not exactly had the smoothest road from its inception in Austrian economics, as alertness (Kirzner, 2009), to being a widely used cognitive construct (Lanivich et al., 2022). Along this road, entrepreneurial alertness has attracted its share of criticisms and critiques, both overt and covert<sup>2</sup>. We draw from a rich debating tradition of “steel manning” to offer, as authors who are broadly “pro-alertness”, *the strongest arguments against* the validity and usefulness of the entrepreneurial alertness construct. We now discuss below, the four issues commonly encountered in this domain and that we put forth and posit are the most powerful criticisms from the “anti-alertness” position.

### Cognitive constructs take culture seriously: Historically, alertness has not

Kirzner’s assumption that market gaps were market gaps, and disequilibrium was disequilibrium—whether in England, China, or Mars—was a solid one; that is,

<sup>2</sup> While some critiques have been made explicit and are contained within published research articles and books (e.g., Foss & Klein, 2010; McCaffrey, 2014), many are not. Oftentimes the most compelling critiques of a construct, by nature, are the ones that take such manuscripts out of the race; they exist within conferences, professional development workshops, and the peer-review process, in rejection letters (as epitomized in the opening quote). There is nothing to “cite”, but such scholarly debate and conversation nonetheless exists and shapes the direction of literature. To maximize relevance, the authors draw on experiences direct, observed, and reported with both published and unpublished criticisms to entrepreneurial alertness.

**Table 1** Alert during what? Alert to different aspects of the entrepreneurial process: illustrative examples

Core groups of dependent variables in entrepreneurship (cf. Shepherd et al., 2019)				
Focal attention	Initiation endeavors	Engagement endeavors	Performance endeavors	Contextual endeavors
Opportunities facets	<ul style="list-style-type: none"> <li>●Alert to social cues from (potential) customers that signal their interest.</li> <li>●Alert to linkages between new customer wants/needs with existing technologies.</li> <li>●Alert to different forms of arbitrage potential; economic, geographic, administrative, or cultural.</li> </ul>	<ul style="list-style-type: none"> <li>●Alert to new ways of raising seed funding.</li> <li>●Alert to novel ways of pitching for or acquiring new resources.</li> <li>●Alert to geographic connectedness and optimal business locations.</li> <li>●Alert to the feasibility of venture ideas amidst many options.</li> </ul>	<ul style="list-style-type: none"> <li>●Alert to indirectly salient commercial news/trends unlikely spotted by competitors.</li> <li>●Alert to potential differences between fads and meaningful commercial trends.</li> <li>●Alert to the scalability of venture ideas amidst many options.</li> <li>●Alert to the profitability of venture ideas amidst many options.</li> </ul>	<ul style="list-style-type: none"> <li>●Alert to cultural novelties and tensions in Zoom calls with stakeholders.</li> <li>●Alert to group thinking and heterodoxies when pitching to clients/investors.</li> <li>●Alert to the potential for originality when juxtaposing ostensibly foreign resource/idea combinations.</li> <li>●Alert to cultural appropriateness of techniques and problematizing in developing MVPs.</li> </ul>
Threat facets	<ul style="list-style-type: none"> <li>●Alert to early signs of poor product-market fit in the idea-ation phase.</li> <li>●Alert to large rival firms' capacity and consideration to emulate and outperform one's venture in the nascent stages of operations.</li> </ul>	<ul style="list-style-type: none"> <li>●Alert to the downside risks when raising funding from angel or VC investors.</li> <li>●Alert to problematic combinations of key partners/stakeholders when forming teams.</li> </ul>	<ul style="list-style-type: none"> <li>●Alert to the temporal nature of recent performance and awareness of upcoming commercial risks.</li> <li>●Alert to the downside risk of overly innovative new product introductions.</li> </ul>	<ul style="list-style-type: none"> <li>●Alert to potential cultural tensions within a new venture team formation.</li> <li>●Alert to elements of cultural incompatibility when entering a new market.</li> <li>●Alert to when cultural diversity may begin to inhibit team cohesion.</li> </ul>

economic realities have a tangible component to them that tends to make inferences generalizable across borders. While some root psychology mechanisms and heuristics do have universal, perhaps evolutionarily derived, properties—such as attribution errors, homophily, and risk-aversion, among others (Saad, 2006)—others, such as *cognitive attentiveness* and *perceptual awareness* differ systemically across distinct cultural milieus (Nisbett et al., 2001; Nisbett & Miyamoto, 2005). Entrepreneurial cognition scholars may have made a translation error when importing entrepreneurial alertness from economics to psychology (Pidduck et al., 2022a). Specifically, that entrepreneurs might scan and search, associate and connect, and evaluate and judge in universal ways. However, we know from cross-cultural psychology that *cognitive attentiveness* and *perceptual awareness* differ systemically across distinct cultural milieus (Nisbett et al., 2001; Nisbett & Miyamoto, 2005). This is an important and valid critique of entrepreneurial alertness that needs to be addressed and accounted for. Entrepreneurial alertness is *entirely about* understanding the attentiveness and perceptual habits of individuals, focused on entrepreneurially salient stimuli and outcomes. Therefore, the lack of cultural awareness or customization (e.g., boundary conditions, formation mechanisms, applications) in the extant entrepreneurial awareness literature would seem to be a significant, potentially problematic, lacuna.

For example, one major cultural condition that likely permeates the way entrepreneurial alertness manifests among entrepreneurs around the world is how their home culture (i.e., the context they were socialized into which shapes thinking and habits) aligns on the spectrum of analytic to holistic cognition (Varnum et al., 2010). Holistic cognition refers to an integrative and global approach to processing information—where local context and relationships are key, while analytic cognition is characterized by a more focused and systematic approach—sometimes referred to as more solipsistic in nature (Miyamoto, 2013). Cross-cultural research has consistently demonstrated that there are robust differences in the extent to which individuals from different cultural backgrounds tend to use these two modes of cognition (Nisbett et al., 2001). Studies also suggest that individuals from East Asian cultures, such as Japan and China, tend to have a stronger holistic cognitive style, as compared to individuals from Western cultures, such as the United States and Europe (Nisbett & Miyamoto, 2005). This is believed to be due to cultural differences in values, such as the emphasis on interdependence and holistic thinking in East Asian cultures, compared to the emphasis on independence and analytic thinking in Western cultures. These cultural differences have been shown to have a significant impact on the way in which individuals from different cultural backgrounds process information and solve problems. Research has also shown that the use of holistic and analytic cognition can vary depending on the type of task being performed suggesting that both modes of cognition are important and used in different situations, depending on the specific task demands. As such, while some very recent studies have begun probing how language structure may influence entrepreneurial alertness (e.g., Mandarin versus Germanic languages; Tang et al., 2022), many other cognition factors have been overlooked.

Another domain of cultural psychology speaking directly to entrepreneurial alertness is prototype theory (Rosch, 1978)—a theory of categorization in which there

is a graded degree of belonging to a conceptual category, where some members are more central than others (Lakoff, 2007). In particular, the category width offers considerable insight into how we might explain and predict entrepreneurs from say, the Far East, versus those from the West to be alert to things in ways that drastically alter the extent to which they perceive opportunities. For example, object and event categorization can vary across cultures (Detweiler, 1978). In some cultures, objects are grouped on their functional similarities, while in others on their physical similarities. These cultural differences can impact the way in which people perceive and understand not only which “things” or abstract ideas fit into specific groupings per se, but how they make connections between groups and categories, a critical component of entrepreneurial alertness. Already linked to creativity (Detweiler, 1978), these dynamics are likely relevant to entrepreneurial alertness differences around the globe.

The range of potential implications of cross-cultural psychology on entrepreneurial alertness is broad, but can generally be described in terms of formation, alignment, and application (Ward et al., 2005). Namely that entrepreneurial alertness likely develops in individuals’ apropos cultural dynamics, such that the cultural mechanisms influence the individual’s tendencies, attitudes, and willingness to scan and search, associate and connect, and evaluate and judge (Pidduck et al., 2020). Relatedly, as the cultural dynamics influence the formation, an individual’s aptitude for each of these three skills is likely to collectively differ from those originating in other cultural dynamics such that certain cultures have stronger orientations for scan and search alignments, while others have more pronounced evaluate and judge alignments. Ultimately entrepreneurial alertness requires the individual to question the status quo. The cultural tendency and willingness to do so, irrespective of one’s abilities, will strongly affect how, when, and where an individual engages their entrepreneurial alertness, such that there are likely to be culturally defined entrepreneurial alertness applications.

### **Historical hang-ups & misinterpretations: Gatekeepers guarding which gate?**

Thanks to the Lanivich et al. (2022) article, some of the confusion regarding entrepreneurial alertness seems to be subsiding. However, as with any longstanding conceptual confusion the effects are both profound and resilient and thus worth discussing in light of the goals of this article. The historical emergence of the alertness concept artificially generated two research camps that frequently talked past each other: (a) Austrian economics-based entrepreneurship scholars, focusing on what is now termed market alertness, and (b) entrepreneurial cognition scholars with entrepreneurial alertness<sup>3</sup>. What resulted was cloudiness of what scholars meant and were invoking—or more importantly, were perceived by others to mean—when using the term “alertness”. As many editors were and are unschooled in the minutiae of these distinctions manuscripts frequently end up in the hands of reviewers not

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<sup>3</sup> A full discussion of the distinctions and critical implications of these two terms is outside the scope of this article, however they are vitally important and are ably discussed in the Lanivich et al. (2022) paper.



well suited to a given perspective. Consequently, new manuscripts encounter resistance from one or the other camps, with gatekeepers guarding the wrong gates: i.e., Austrian economics scholars tend to resist psychological conversations on alertness, and entrepreneurial cognition scholars tend to view market equilibrium research with only passing references to “alertness” as amorphous. Not surprisingly, over the past decade entrepreneurial alertness has suffered limited traction, uptake in premier journals, and vigor of insights (Lanivich et al., 2022).

Many now recognize the Tang et al. (2012) conceptualization of an entrepreneurial alertness aptitude within individuals—inspired by, *but completely distinct from*, the term used by Kirzner—consisting of three dimensions: scanning and search, association and connection, and evaluation and judgment. With this scale now receiving broad acceptance, and the ‘wrong’ gatekeepers seemingly removed, one would expect entrepreneurial alertness research to be a thriving conversation in leading journals. Yet, recent reviews show that this is not the case, with most work on entrepreneurial alertness increasingly outside of the premier entrepreneurship and management journals (Lanivich et al., 2022). It is likely that the persistence of this conflict is due in part to the two scholarly groups being focused on the same outcome: both market alertness and entrepreneurial alertness, despite unique perspectives, frequently focus on the same event, the potential disruption of opportunity recognition. Neither camp is likely to cede this ground, and thus the entrepreneurial alertness scholarship would do well to demonstrate the value of the generalized cognitive skill outside of this narrow realm. Doing so does not require abandoning opportunity recognition as a critical outcome but allows entrepreneurial alertness scholars to subsume opportunity recognition as part of a continuum of individual and firm level outcomes.

## The tautological critique

Can or should entrepreneurial alertness be disaggregated from opportunity recognition, or are they inherently the same thing? The conceptual association and consequent confusion between entrepreneurial alertness and opportunity recognition originates in Venkataraman (1997: 124), who wrote:

“While [creativity, alertness, and imagination] variables are usually treated as working independently, I suspect that they will have greater explanatory power if they are treated as interacting variables. *Cognitive conditions, incentives, and creative processing vary among individuals and these differences matter. These variables strongly influence the search for and exploitation of an opportunity, and they also influence the success of the exploitation process*” (italics in original).

Shane and Venkataraman (2000) follow, and posit that individuals are primarily alert to the existence of market inefficiencies, recognizing that the opportunity exists and has value. This is where the confusion abounds as there is no direct distinction between what is alertness, recognition, or discovery. Both Venkataraman (1997) and Shane and Venkataraman (2000) present these concepts as distinct components

of a singular opportunity discovery process, but without conceptual delineation or distinction, which has resulted in the ideas being confounded. For example, by definition, opportunity recognition implies a conscious attentiveness to perceiving an opportunity for oneself or firm, resulting in the tautology: *one is alert because one recognizes opportunities, and one recognizes opportunities because they are alert.*

While there have been several empirical studies providing some evidence that entrepreneurial alertness both is distinct and antecedent to opportunity recognition and the intentions to pursue a venture (e.g., Pidduck et al., 2022b). Theoretically, there remains skepticism surrounding the marginal value these insights provide to the broader understanding of how and when entrepreneurial alertness is *specifically* integral to entrepreneurship. *Put simply, does scholarship need entrepreneurial alertness, or do opportunity recognition constructs alone provide us with what we need to understand individual entrepreneurs?* Research conceptualizes opportunity recognition as a cognitive aptitude that people fluctuate on (e.g., Kuckertz et al., 2017; McCline et al., 2000; Shane & Nicolaou, 2015). Further, that opportunity recognition explains how certain individuals are stronger (weaker) than others, generally, at recognizing potential business opportunities to pursue. Consequently, as entrepreneurial alertness and opportunity recognition research have evolved, we concur with the critics that there appears to be very little additional explanatory or predictive utility of entrepreneurial alertness when considered in conjunction with opportunity recognition.

However, the clarity regarding opportunity recognition has evolved in the past few years, with the proliferation of constructs that would seem to either be directly integral to or associated with opportunity recognition. These include e.g., opportunity confidence (Dimov, 2010), entrepreneurial imagination (Kier & McMullen, 2018), new venture idea assessment (Davidsson et al., 2021), new venture idea quality and quantity (Frederiks et al., 2019), opportunity evaluation (Scheaf et al., 2020), among others. Interestingly, this proliferation of new constructs with associated scales appears to resurrect the core wisdom in Shane and Venkataraman (2000) that there is enormous complexity between the alertness to the existence of a subjective opportunity and the following set of processes that follows where means-ends relationships are imagined, considered and evaluated, and ultimately a pursuable venture idea is locked-in. It is far beyond the scope of the present paper to attempt to clarify this landscape; however, it is useful to note that everything that follows does seem to originate from the individual, alert to the existence of something.

It is the combination of *contextless alertness to highly generalized recognition of opportunities* (“The Big O”) that we contend is at the heart of the valid criticisms and skepticism entrepreneurial alertness continues to attract. Indeed, as McCaffrey et al. (2021) contend, entrepreneurial alertness is defined too broadly to offer much precision for individual-level researchers. We contend that while Tang et al.’s (2012) conceptualization was intentionally broad in seeking to capture three important schematic dynamics driving one’s entrepreneurial alertness—scanning and search, association and connection, evaluation, and judgment—much of the subsequent research utilizing their construct has tended to draw on it to predict equally vague and generalized forms of opportunity recognition as a cognitive aptitude too, which even the opportunity recognition literature has moved away from. Oftentimes the

research designs themselves exacerbate the skeptic's concerns: with cross-sectional survey designs common, with little to no efforts to remedy the array of associated empirical limitations (Pidduck et al., 2020).

As such, while the opportunity recognition literature has become more fixated on the ability to recognize a specific subjective opportunity, and entrepreneurial alertness on “The Big O” generalized objective opportunity ability; the two research camps are tending to talk past each other resulting in the critique that ‘alertness to everything is alertness to nothing!’. Except, as we discuss entrepreneurial alertness is a cognitive ability, not a one-time step in a process. While the unique added value of an initial-stage alertness cognitive step, which is theoretically pivotal (e.g., McMullen & Shepherd, 2006), likely establishes the unique domain of entrepreneurial alertness, it is not the end of entrepreneurial alertness any more than sunrise is the end of the sun's influence on a day. With some pivots to contextualize *what* entrepreneurs are alert to, and *when* alertness happens; it is likely that entrepreneurial alertness can generate new and valuable insights for entrepreneurship research. Indeed, if successful venturing—as opposed to new venturing—is the most critical outcome in entrepreneurship, then a broader longitudinal lens for entrepreneurial alertness could assert its relevance to successful venturing far beyond “The Big O”.

### **Genericness of application and lack of phenomenological imagination**

One complication of the confounding of entrepreneurial alertness and opportunity recognition is the outcome of entrepreneurial alertness is unclear. Other scholars suggest that opportunity recognition is an independent outcome; indeed, variations on the assertion that “...*alertness has been increasingly associated with opportunity recognition and entrepreneurial actions*” (the present special issue's call for papers) are frequently made in many recent entrepreneurial alertness studies. If entrepreneurial alertness and opportunity recognition are unique processes, but opportunity recognition is the outcome of entrepreneurial alertness, what is the added theoretical utility beyond studying opportunity recognition or “entrepreneurial actions” directly? To state the above differently: *the more alert a person is, the more they recognize opportunities and act entrepreneurially*. Fine, but *so what* (Davis, 1971)? Can people meaningfully recognize opportunities and act entrepreneurially if they are not entrepreneurially alert to some degree? Or is there an outcome from entrepreneurial alertness, separate from opportunity recognition? The consequences of the overly broad and universalist nature in which entrepreneurial alertness is typically applied—and discussed in theory sections of empirical papers—renders many insights drawn as rather obvious, repetitive, and thus uninteresting; in somewhat similar vein to the highly saturated entrepreneurial intention research offering marginal variations of the same relationships. In a similar vein to debates in the entrepreneurial passion literature questioning which aspects of entrepreneurship people become passionate *for*, Cardon et al. (2017a, b) critically asked; passionate *for what*? We believe entrepreneurial alertness stands to benefit from similarly critical questioning. That is, *what exactly are people alert to, or during*, in the universe of potential entrepreneurial phenomena? The three schemas laid out by Tang et al.

(2012) certainly help to understand the distinctive cognitive processes involved in being “alert”, but the subject of entrepreneurial alertness remains vague.

Narrowing down and contextualizing the focus of entrepreneurial alertness would help considerably. For instance, are some entrepreneurs characteristically alert to people related (i.e., “soft”) issues in the venture development process? Such as connecting key partners and their ideas together in ways that generate new opportunities. Are others “blind” to these dynamics yet highly alert to more sales and market-related potentialities (i.e., “hard” issues)? Perhaps, commercial awareness is distinct from a people-centric or abstract-ideation hunch. Simply claiming we can predict or explain ‘alertness to opportunities’ blunts such practically important distinctions such as these.

Further, there are temporal issues, to date, the focus of entrepreneurial alertness research has been singularly about noticing things that typically come at the very nascent stages of the new venture development process (e.g., seeing ‘gaps in the market’ and ways to address them with something new). But if entrepreneurial alertness is a cognitive function, a singular outcome is unlikely: if entrepreneurial alertness continues to operate after an opportunity is recognized, then *what* are the entrepreneurs alert to? Indeed, that which constitutes a critical externality to a growing firm is both broad and infinite, and the entrepreneur’s ability to search and scan, associate and connect, evaluate and judge those externalities—be they obvious opportunity or threat, or simply previously unknown strategic option—could determine the success of the venture. Again, no research has probed these potentially key aspects of entrepreneurial alertness, conceptually or empirically.

### **Moving forward with alertness**

We would categorize and consolidate the central concerns with entrepreneurial alertness around one central theme: the research to date has been overly concerned with “The Big O” opportunity, that one central causal, globalized, form of opportunity that drives the search for means-ends relationships, such that entrepreneurial alertness has been rendered singularly indistinguishable from entrepreneurial emergence or opportunity recognition processes. However, despite the preponderant focus in the extant research on “The Big O”, there is nothing that contains or requires entrepreneurial alertness to a pre- or post- “Big O” cognitive skill.

Lanivich et al. (2022) identified three critical components around the theorization and manifestation of the construct: (1) alertness begins with intent; (2) involves the observation of the environment, resource allocation, and evaluation of ideas; and (3) is *associated with* entrepreneurial opportunities. The first component, intent, means that entrepreneurial alertness is deliberate and related to the specific, potentially latent, goal of the individual to become a (presumably) successful entrepreneur. To this end, entrepreneurial alertness is likely to benefit from a goal-driven perspective. The primary goal-directed theory in entrepreneurship is regulatory theory, which posits that individual goal-fulfillment is driven by two competing directives (Higgins, 1997) a promotion focus, where an individual is focused on advancement and growth (opportunities), and a prevention focus where individuals are concerned with safety and security (threat), which influences their idiosyncratic strategizing

and decision-making (Crowe & Higgins, 1997). The importance of applying a goal-fulfillment theory to entrepreneurial alertness is two-fold: first, that goal-fulfillment does not end until the goal is achieved, meaning that individuals maintain their prevention and/or promotion focus long after the detection of their “Big O”, and it continues to influence their decision-making throughout the entrepreneurial process (Pidduck & Zhang, 2022); second, that entrepreneurially alert people are alert to *both* aspects of opportunities and threats.

Second, the observation of the environment, resource allocation, and evaluation of ideas is open-ended. Environmental scanning is a core function of any strategic enterprise (Hambrick, 1982), including entrepreneurial ones (Miles & Snow, 1978). As such, entrepreneurs are constantly engaged in an ongoing process of domain selection and adjustment (Hambrick, 1982; Miles & Snow, 1978), identifying market opportunities and threats (Mohan-Neill, 1995), and learning for improved problem-solving and strategic planning (McEwen, 2008). Similarly, the decisions entrepreneurs make to acquire new resources, enter new markets, innovate, and achieve success are ongoing and evolving as the firm moves through its life-cycle (Miller & Friesen, 1984; Lester et al., 2008). Consequently, as opportunity is the first step, and reaching the ultimate end (in the means-end relationship) of a successful venture is the final step, there is an ongoing need for the skills of entrepreneurial alertness; suggesting value for a longitudinal perspective of entrepreneurial alertness from idea origination to venture success.

Finally, while entrepreneurship theory is heavily, potentially overly focused on entrepreneurial opportunity (e.g., Davidsson, 2015; Kimjeon, & Davidsson, 2022), it is important to note that we are not attempting to negate the extant literature on opportunity-focused entrepreneurial alertness. Indeed, we are recontextualizing “The Big O” as just one, the first major, outcome of entrepreneurial alertness. Indeed, the fact that entrepreneurial alertness is *associated with* opportunities (Lanivich et al., 2022) has two necessary interpretive caveats: it is neither synonymous with nor dependent on, only opportunities (let alone “The Big O”); also, that it is not dependent on a singular event—not one “Big O” nor any of the subsequent smaller but still necessary opportunities that entrepreneurs identify that allow them to advance, growth and/or (re)position their ventures. To this end, we both expand and focus the conceptualization of entrepreneurial alertness as follows to incorporate expansions of outcome groupings: *the cognitive tendency of entrepreneurs to scan, search, associate, connect, evaluate, and judge forward-looking pathways facilitating or inhibiting their (potentially latent) goal of a successful venture.*

Given our extending of entrepreneurial alertness as a cognitive tendency that both predates and *continues to operate throughout the venturing process* it is worthwhile to consider a longitudinal framework and future research agenda for entrepreneurial alertness within entrepreneurship (see Fig. 1). Shepherd and colleagues (2019), in a bid to organize and delineate the emerging umbrella of credible outcome variables studied in entrepreneurship, review four key pillars that represent the venture development process in its totality. These consists of (a) initiating entrepreneurial endeavors, (b) engaging entrepreneurial endeavors, (c) performing entrepreneurial endeavors, and (d) contextualizing entrepreneurial endeavors. This was a substantial insight as it formally laid out and conceptually structured the reality that entrepreneurship is

a broad church. Indeed, each of these endeavors is a collection of cognitive, organizational, and decision-making paradigms related to numerous venture critical activities (Shepherd et al., 2019) to which entrepreneurial alertness is likely to contribute. Entrepreneurial performance outcomes sit amidst many other (preceding and contextualized) parts of the broader new venture development journey. A failure to consider this eclectic reality for which entrepreneurs can “be alert” has unnecessarily limited the utility and broader relevance of entrepreneurial alertness (Roundy & Im, 2024). As such, it has resulted in a, somewhat, myopic focus on correlations with “opportunity recognition”. Put differently, generalized recognition of opportunities is for entrepreneurial alertness research what entrepreneurial intention is for entrepreneurial self-efficacy (e.g., Zhao et al., 2005); not especially fruitful for research to continue pointing out or ‘confirming’ unless we substantively extend or challenge aspects of this intuitive and well-established relationship.

We reconceptualize entrepreneurial alertness in three ways. First, we contend that what people are alert to, is not necessarily the neat, singular, globalized form of one “Big O” opportunity popularized in entrepreneurial alertness research to date, but rather a cascading stream of opportunities and threats, big and small, embedded within all aspects of the wider entrepreneurial journey: manifest as initiating, engaging, performing, and contextualizing endeavors. Second, we contend that some individuals are more habitually (than others, to varying degrees) alert to specific elements of the potential for entrepreneurial advancement (see Table 1). So, rather than seeing a completely formed and comprehensive opportunity to launch one specific business idea, an entrepreneur may be alert to certain parts of the entrepreneurial process or content, than others. Third, the nature of entrepreneurial alertness aptitudes is likely to vary on two spectrums, as do all cognitive tendencies; idiosyncratically, such that each individual has their own entrepreneurial alertness tendencies and abilities, and cultural, such that individuals’ entrepreneurial alertness dialogues are informed by the cultural dialogues into which there are embedded. In the following sections we will discuss how entrepreneurial alertness is likely relevant to each of Shepherd et al. (2019)’s endeavors, how those individual differences might manifest (including culturally embedded differences), and a future research agenda for entrepreneurial alertness research that looks beyond “The Big O” at the entire spectrum of entrepreneurial endeavors.

## **Alert during *initiation* endeavors in entrepreneurship**

Initiation endeavors is the area with which entrepreneurial alertness has been associated because this is where opportunity recognition and all of the entrepreneurial alertness activities so related occurs; see the recent systematic review on entrepreneurial alertness to better understand this dyadic (e.g., Lanivich et al., 2022). However, there are initiation constructs other than opportunity recognition, and the role that entrepreneurial alertness can play in those endeavors is less well understood (see Tang et al., 2021a, b, for a rare example, exploring the role of time perspective on the entrepreneurial alertness dimensions). As the reconceptualization above specifically links entrepreneurial alertness to goal-directed

theories, two initiation endeavors are goal-related: entrepreneurial intention and motivation (Shepherd et al., 2019).

Entrepreneurial intention and motivation are expressions of interest in goal-fulfilment through entrepreneurship. In the case of intention, it is positive attitudes towards entrepreneurship, the belief that entrepreneurship is socially normative, and that one has the ability to be an entrepreneur (Krueger & Carsrud, 1993). Each of these is potentially informed by both entrepreneurial alertness and cultural norms—e.g., being aware and drawing conclusions from other individual entrepreneurs achieving their goals through entrepreneurship—and the judgement process of the potential entrepreneur positively comparing themselves to other current entrepreneurs (Guiso et al., 2021) and their surrounding context (Geldhof et al., 2014a, b). Similarly, motivations refer to the collective inner-drivers that the individual seeks to employ entrepreneurship to satisfy: whether it be locus of control or self-efficacy (Shane et al., 2003), or monetary or intrinsic or social motivations (Brief & Aldag, 1977; Pittman & Heller, 1987), individuals focus on entrepreneurship as a means to satisfy their motivations because they are alert to the potential of entrepreneurship to do so; likely because they are alert to others achieving their goals through entrepreneurship, and how they did so within the culturally normative attitudes towards entrepreneurship—e.g., did they follow the rules or say ‘to hell with them’.

While we are consciously not revisiting the same ground as other entrepreneurial alertness/opportunity recognition articles, it is worth mentioning something that is under-discussed in the existing literature. Where some authors have discussed the role entrepreneurial alertness plays in orienting potential entrepreneurs to market dysfunction or unmet needs that are the sources of “Big O” opportunities (Levasseur et al., 2022), entrepreneurial alertness can also play an important role in protecting entrepreneurs from pursuing the wrong “Big O”. Perceived opportunities can be disrupted by shifting demographics, new technologies, or new entry from large players with an established competitive advantage. Entrepreneurial alertness can play an important preventative role protecting entrepreneurs from entering markets that look attractive today but are likely to be disrupted in the near future (McMullen et al., 2009). This is not to say all such situations should be avoided, but entrepreneurs will be in a better position to evaluate the perceived “Big O” if they are also alert to future developments that could also *negatively* impact its viability. To date, an entrepreneurs’ alertness to these threat elements within broader opportunity scenarios has been overlooked almost entirely.

Taken together, while entrepreneurial alertness certainly plays a role in “Big O” opportunity, its role in helping entrepreneurs to identify which “Big O” to pursue and which to ignore because of impending threats, is not fully appreciated. Also, entrepreneurial alertness, likely influences who is and is not an entrepreneur by assisting potential entrepreneurs to solidify their goals and recognize entrepreneurship’s role in potentiating them. Taken together, entrepreneurial alertness has a significant underrealized role to play in who is and is not an entrepreneur, and which opportunities they do and do not pursue.



## Alert during *engagement* endeavors in entrepreneurship

Shepherd et al. (2019) suggest that the engagement of entrepreneurial endeavors is grounded within the cognitive, affective, behavioral, and/or organizational activities of involvement in the process of exploiting a potential opportunity. As such, these include outcomes related to engaged decision-making, acquiring, and allocating resources, entrepreneurial organizing, forms of commitment, well-being and emotion, engaged learning, and finally; innovative orientation, inputs, and outcomes (Shepherd et al., 2019). To date, while some aspects of these engagement endeavors are implicated within entrepreneurial alertness studies, for example, incremental firm innovation is assessed as an outcome of entrepreneurial alertness (Tang et al., 2021a, b), the broader engagement dynamics are rarely investigated as focal variables.

For acquiring resources, crowdfunding is an increasingly dominant form of entrepreneurial fundraising and is oftentimes enveloped as a part of the nascent entrepreneurial opportunity development process because it involves getting initial public responses to prototype products or services (Anglin & Pidduck, 2022). Initial work has found support for the positive linkages between entrepreneurial alertness and the motivation to pursue equity-based crowdfunding as a form of resource acquisition (Troise & Tani, 2020). Yet, much fruitful inquiry is needed to understand the role entrepreneurial alertness plays within the fundraising context. For instance, Srivastava et al. (2021) developed and validated a linguistic measure of entrepreneurial alertness which they applied to CEO narratives within annual reports. Intriguingly, while CATA (computer-aided content analysis) methodology has been applied heavily in crowdfunding research in recent years to capture the role of various types of entrepreneurs’ rhetoric on funding effectiveness (e.g., Anglin et al., 2018), this validated entrepreneurial alertness measure has yet to be used in this context. Alertness rhetoric, indicative of an entrepreneurs’ actual cognitive alertness, would likely be helpful as it not only remedies some of the empirical weaknesses (e.g., cross-section survey studies on small samples) of a large proportion of the extant literature, but it also enables better understanding of how the dimensions of entrepreneurial alertness influence engagement endeavors differentially.

The formation and development of new venture teams is another critical engagement endeavor in entrepreneurship (Klotz et al., 2014; Santos & Cardon, 2019). While the entrepreneurship teams literature is well developed (e.g., Lim et al., 2013), there has been little effort to date probing how and when entrepreneurial alertness manifests in effective (inhibitive) ways within the team. Thus, there are opportunities to build from cutting-edge methodologies in organizational behavior research on teams (e.g., Chan, 2019), and reposition entrepreneurial alertness at the team level, following entrepreneurial passion and entrepreneurial orientation both conceptualized and operationalized at the team-level (e.g., Cardon et al., 2017a, b; Covin et al., 2020). It is also an opportunity to include and empirically distinguish other constructs thought to be similar to entrepreneurial alertness in such social settings too, such as situational awareness (Adams et al., 1995) or social awareness (Sheldon, 1996).



## Alert during *performance* endeavors in entrepreneurship

If the first critical outcome of entrepreneurship centers on the ventures entrepreneurs create, the second is certainly centered on which ventures do well and to what extent. To this end we consider how entrepreneurial alertness can play important roles in influencing the success of ventures in the scale-up phase and beyond. Performance can be measured in a variety of ways and is subject to endless factors; as such, any attempt to systemically identify potential linkages between entrepreneurial alertness and performance is likely to be problematic and incomplete. Instead, we look at three areas where previous research has already provided at least some indication of the potential of entrepreneurial alertness to influence aspects of these important performance-related results.

Business model change for entrepreneurial ventures is an area where entrepreneurial alertness can play an important role in driving success. Entrepreneurs and their firms exist in dynamic environments; the shifting nature of these environments can open up opportunities for new business models (Manolova et al., 2020), or make the existing business model obsolete (Flechas Chaparro & de Vasconcelos Gomes, 2021). Recent research has particularly focused on new developments in technology driving firms to digitize parts or all of their business models (Cavallo et al., 2019). Often the drive to digitize can be influenced by the entrepreneur's network: examining what other firms are doing, new initiatives by the competition, and the available of new services from existing suppliers (Srinivasan & Venkatraman, 2018); the firm's ability to both recognize, make sense of, and capitalize on these opportunities is dependent on the entrepreneurial alertness and sensitivity of key individuals to emerging opportunities and threats. Failure to do so, could influence the firm's ability to successfully scale and compete with market demands on pricing, and product or service delivery (Piaskowska et al., 2021). As such, entrepreneurial alertness is likely highly salient in understanding business model adaption and pivots.

International entrepreneurship is defined as “the discovery, enactment, evaluation, and exploitation of opportunities—across national borders—to create future goods and services” (Oviatt & McDougall, 2005). These opportunities can assume many forms, ranging from innovation opportunities to arbitrage, and in the same way as domestic opportunities, can be created or discovered (Mainela et al., 2014). While much has been made of the inclination of certain people to see these opportunities at inception (e.g., Pidduck et al., 2022b), the reality is many of these opportunities are not observed, presumably by an alert entrepreneur, until later in the life cycle (Clark & Pidduck, 2023). As with the business model pivots discussed above, frequently the impetus to move into international markets comes from the entrepreneur's network (Oviatt & McDougall, 2005), as they observe market trends, or get pulled internationally by customers, suppliers, distributors, or competition (Johanson & Vahlne, 2009). Little is known about international entrepreneurial alertness (Zahra et al., 2005), except that it is likely related to a combination of entrepreneurial and cross-cultural experiences (Coviello, 2015; Pidduck et al., 2020) and the international cognitions of the entrepreneur (Pidduck et al., 2022a).

Researchers tend to like to focus on financial indicators of performance, but employee growth is also an important indication of new venture performance (Reid & Smith, 2000). In some cases, employee growth is an optimism initiative, with the entrepreneur hiring based on an assumed acceleration of existing operations (Hmieleski & Baron, 2009). However, employee growth is ideally about strategically identifying existing knowledge gaps (Tzabbar et al., 2015) and the pursuit of future opportunities (Stewart & Hoell, 2016), and as such, would likely be a response to entrepreneurial alertness. Of course, employees that have been hired also have to be retained; market dynamics, new competition, and systematic factors (like Covid-19) can all threaten an entrepreneur’s employee pool if they do not take the right action at the right time to retain their talent (Kemelgor & Meek, 2008); which is synonymous with being alert to employment threats. Taken together, any study seeking to understand employee growth as an indicator of performance should consider the ongoing alertness of the entrepreneur.

Venture *survival*—and to paraphrase Cannella; the most concrete DV in all of management research!—is surprisingly limited in investigations of entrepreneurial alertness to date. Linking the role of cognitive or individual behavioral variables (such as entrepreneurial alertness) to new venture survival could offer considerable insight into why some ventures outlive ostensibly similar others. Yet only recently are studies beginning to probe these relationships (e.g., Pidduck et al., 2022c). However, the inverse of survival is failure, and the majority of entrepreneurial firms fail<sup>4</sup>, generally in the first five years (US Bureau of Labor Statistics, Gustafson, 2022). Those failures can be the result of a myriad of possibilities including inadequate responses to a financial crisis (Devece et al., 2016), or the Covid-19 pandemic (Belitski et al., 2022), or just being undercapitalized for the actual growth trajectory of the firm (Mantere et al., 2013), and many more. The entrepreneur’s role in the firm’s failure can include failing to plan for various exigencies (Perry, 2001), failure to adequately detect approaching threats (McMullen & Kier, 2016), and failure to adequately respond when threats became apparent (Marcazzan et al., 2022). Each of these failures can, to varying degrees, be categorized as failures in entrepreneurial alertness. We posit that unpacking how and when entrepreneurial alertness helps or hinders new venture performance, survival, and failure is a promising future endeavor.

The cross-cultural perspective is likely to play a critical role in the application of entrepreneurial alertness for each of these events. Attitudes towards entrepreneurial learning, and consequently pivots, is culturally dependent, with differing attitudes regarding changing direction (Politis, 2005). In some societies direction changes could indicate poor planning and drive a loss of stakeholder confidence in the entrepreneur, causing the entrepreneur to be less alert to pivot opportunities and more focused on opportunities to make their original business model work; as such cultural milieu matters for the psychology of entrepreneurial learning (Carayannis et al., 2003). Further, the formation, scope and execution of international businesses

<sup>4</sup> Failure in entrepreneurship is a complex topic, however for the purpose of this discussion we are focussing on objective firm-level failure (see Jenkins & McKelvie, 2016 for a more detailed taxonomy).

has cultural components. As such, international entrepreneurship manifests differentially throughout the world, some of these differences are environmentally driven, while others are culturally driven (Clark & Pidduck, 2023). Finally, while all entrepreneurial failure has some degree of stigma, the implication of that stigma is primarily culturally determined, ranging from the entrepreneur being a minor punchline to a major impediment to future career perspectives (Singh et al., 2015). Consequently, the willingness of the entrepreneur to fail has implications on what opportunities are pursued, the application of hustle and grit, and the ability of the entrepreneur to preserve asset value from the firm (i.e., orderly an early dissolution as opposed to “going down with the ship”). With the cultural components relevant to each of these activities, it is likely that the individual’s alertness to the preconditions and externalities driving the activities will be culturally influenced.

### **Alert during contextual endeavors in entrepreneurship**

The performance of entrepreneurial endeavors refers to research focused on critical operational outcomes in new ventures and beyond. Yet, it is important to note that these performance endeavors do not exist in a contextless or universalist vacuum. Rather, as Shepherd and colleagues (2019) suggest, these outcomes are related to the context in which the entrepreneurial actor is embedded. The salient variables capturing these contextual attributes in the entrepreneurial journey are those related to sociocultural, institutional, resource-based, and geographic contexts. As we discussed above in addressing some of the cultural critiques of entrepreneurial alertness research and its highly Anglo-centric assumptions, there are many helpful and important contribution opportunities for entrepreneurial alertness scholars by making cultural context dynamics a theoretical and/or empirical focus.

First, as mentioned already, cross-cultural divergence on cognitive schemata and processing habits or customs known to affect the components of the entrepreneurial alertness construct are low-hanging fruit opportunities—such as Analytic-Holistic Cognition (Varnum et al., 2010) and prototype theories of human perceptual categorization such as category width differences between entrepreneurs across the world’s major cultural regions (Detweiler, 1978). These forms of cultural influence are valuable to probe because, critically, they are theoretical salient to Tang et al.’s (2012) entrepreneurial alertness construct. That is, we can credibly expect divergence on analytic cognition socialization to meaningfully relate to an entrepreneur’s strengths (weaknesses) across entrepreneurial alertness dimensions, as we can with cultural variation in category width perceptions (i.e., how we subconsciously assign stimuli to various groups of similar things). We believe there are considerable opportunities to advance entrepreneurial alertness research by investigating cross-cultural divergences, we caution scholars to think deeply about the theoretical salience of such cultural framing—indeed, much cross-cultural research in entrepreneurship lacks depth because of superficially formed theoretical foundations; oftentimes adopting ad-hoc descriptive comparisons alone as the alleged contribution (Pidduck et al., 2022a).

Another contextual endeavor ripe for investigation lies in connecting entrepreneurial alertness with the burgeoning domain of enquiry in organizational research on the role of social class (e.g., Kish-Gephart et al., 2023; Loignon & Woehr, 2018; Martin & Côté, 2019). Social class gets at important socialization, upbringing, and current socio-economic status frames of reference and cognitive habits (Côté, 2011). As such, scholars are starting to take this seriously in entrepreneurship, arguing that social class backgrounds can inculcate powerful cognitive orientations that are ostensibly incredibly relevant to the daily decision-making that entrepreneurs must engage in to be successful (e.g., Brändle & Kuckertz, 2023; Pidduck & Clark, 2021; Pidduck & Tucker, 2022). These can be “bright side” effects of social class-based cognition such as the greater empathic accuracy, and thus capacity for sensing the problems that customers need solving, associated with working-class backgrounds (Côté, 2022), to “dark side” affects such as how risk-taking, goal setting, and impulsivity are all known to fluctuate along social class socialization (Kish-Gephart & Campbell, 2015). Many of the opportunities in this emerging domain within entrepreneurship research do not require us to reinvent the wheel, simply extending many of these cognition-based differences from social class psychology (e.g., Kraus & Stephens, 2012) and contextually embedding them into entrepreneurial settings would offer fruitful empirical contributions; many of the theoretical foundations for such research—arguably the heavy lifting—has already been developed.

## Discussion

The entrepreneurial alertness literature has been a prominent area of research in entrepreneurship studies for several decades (Lanivich et al., 2022). It investigates how entrepreneurs are able to identify and exploit opportunities that others may not see or overlook, and the cognitive processes that underlie this ability (Shane & Venkataraman, 2000). One of the main findings from the entrepreneurial alertness stream is that entrepreneurs possess a heightened awareness of their environment and are able to recognize patterns and connections that others may not see (Gaglio & Katz, 2001). This heightened awareness is often described as a “sixth sense” or a “nose for opportunity” (Baron, 2006). Researchers have identified several factors that contribute to this heightened awareness, including prior experience, cognitive flexibility, and the ability to make connections between seemingly unrelated pieces of information (Baron, 2006).

Another consistent finding from entrepreneurial alertness research is that the process of opportunity recognition involves both cognitive and affective components (Baron, 2006). The cognitive component involves the identification of patterns and connections, while the affective component involves the emotional response to the opportunity. Studies have shown that positive affect plays an important role in opportunity recognition (Levasseur et al., 2022), as it can motivate entrepreneurs to pursue opportunities that they might otherwise overlook (Baron, 2008). Despite the significant progress made in the entrepreneurial alertness literature, several gaps persist in our understanding of this phenomenon and how it interlocks with related aspects of the broader entrepreneurial process. For example, while researchers have

identified several factors that contribute to entrepreneurial alertness (Tang et al., 2021a, b), there is still much we do not know about how these factors interact and influence each other (Aldrich & Martinez, 2001). Additionally, more research is needed to explore how individual differences, such as personality traits and cognitive styles, influence entrepreneurial alertness (Baron & Tang, 2011). By outlining the criticisms of extant entrepreneurial alertness research, we hope to encourage a broadening and sharpening in future studies of entrepreneurial alertness's influence on the wider new venture development process.

Overall, the entrepreneurial alertness literature has provided important insights over the years into how entrepreneurs identify and exploit opportunities. By shedding light on the related processes—i.e., what entrepreneurs are precisely alert to—that interact or influence the development and application of entrepreneurial alertness and its role underlying opportunity recognition—both “Big O” and “Little O” facets, this literature can continue to inform the development of training programs and interventions aimed at fostering entrepreneurial thinking and behavior. Our core purpose and contribution of this paper was to articulate and assess the credible merits of the historical and recent objections and criticism to the entrepreneurial alertness construct. In laying these out, offering an expanded conceptual definition, and outlining how and when entrepreneurs might be alert to broader initiation, engagement, performance, and contextualization endeavors (e.g., Shepherd et al., 2019), we hope to promulgate the (re)usefulness of this construct in global entrepreneurship research conversations. Moreover, Table 1 further illustrates and sets the rudder for promising future research in the entrepreneurial alertness domain as more precise application is needed to fully understand the complex nature of entrepreneurial alertness and its implications for entrepreneurship research and practice.

### **Future research opportunities for the culturally-contingent process view**

The full potential research stream on the culturally-contingent process view is too broad to cover in its entirety herein and thus out of the scope of this paper. But using the framework discussed above—*formation, alignment, and application*—it is worthwhile to discuss three future research themes for entrepreneurial alertness grounded in how cultural context is highly salient to each.

#### **Formation**

Formation refers to the psychological processes underpinning the way in which entrepreneurs in a given context form their alertness schemata. Some guiding questions in this aspect are: how exactly does culture permeate the way or extent to which entrepreneurial alertness forms? How do cultural drivers differentially promote or inhibit each of the scanning and search, association and connection, and evaluation and judgment dimensional schemas? There are likely important boundary conditions related to place (i.e., environmental conditions, institutions, and social structures) which need to be identified and disaggregated from culture. Studies suggest that travelling to a breadth of foreign countries and immersing oneself in

the distinctive cultural differences from one’s home culture, helps to cultivate the alertness schemas and subsequently intentions to pursue entrepreneurial opportunities (Pidduck et al., 2020). While this demonstrates there is clearly something about moving between and mentally juxtaposing cultural elements that stimulates entrepreneurial thinking and behavior (Pidduck et al., 2024b), we are still left with many unanswered questions surrounding which specific cultural elements are salient to the specific components of entrepreneurial alertness.

This holds considerable implication for the veracity of the policy or practitioner insights entrepreneurial alertness stands to offer. For example, despite knowing that intercultural immersion is helpful because it prompts cognitive tensions which help generate entrepreneurial alertness schema (or inputs to those), can we safely assume that any multinational or startup seeking to send their managers on deliberately culture-shock inducing overseas trips to stimulate opportunity recognition works universally? We proceed with caution because while this may be effective for individuals from (broadly) culturally loose home national cultures (i.e., that normalize and reward exploration and deviation from status quos), it is likely not the same for individuals from culturally tight home contexts (i.e., that normalize rule-following and shun or punish norm detractors) (Gelfand et al., 2006). Therefore, taking into explicit consideration the way in which a focal entrepreneurial actors’ home cultural norms undergirds and propels the formation of entrepreneurial alertness schema in the first place is important.

## Alignment

As with all cognitive constructs, entrepreneurial alertness research needs to answer a fundamentally necessary yet somewhat dry topic of *cross-cultural* validity and reliability. Is entrepreneurial alertness in Place A the same as in Place B? Does it use the same three dimensions (or are there more/less)? Do those dimensions relate to outcomes in the same way (e.g., are entrepreneurs in China more or less evaluation and judgment prevalent than those in the U.S.)? Further, the extent to which scanning and search (or association and connection) is the origin or predominate foundation of individual entrepreneurial ideas, versus (for example) social or more collectivistic information sharing is also likely influential (Clark et al., 2024).

One major example in this space is whether there are meaningful configurational orientations within and between distinct cultural contexts among entrepreneurs. For instance, assuming one uses the Tang et al. (2012) conceptualization; can one’s aggregate ‘high’ score on entrepreneurial alertness be largely due to ‘very high’ scores on two dimensions but ‘low’ on the third? This is not merely statistical foreplay to tease out a contribution but becomes substantively important when we consider that there is likely foundational cultural differences in how each dimension manifests in the typical entrepreneur in that country. China, for instance, while infamously associated with strong exploitation but weak exploration and innovative entrepreneurial prowess (though often misguidedly; Tan, 2011), may be expected to cultivate entrepreneurs lower on average (than say, North Americans) on the “association and connection” dimension which is closely correlated with creativity.

Alternatively, a stronger case could be made for Chinese cultural norms surrounding power distance which result in strong scanning and search and association and connection dimensions, but weak on the evaluation and judgment aspect due to less cultural autonomy for the typical middle-manager or aspiring entrepreneur to “have a knack for telling high-value opportunities apart from low-value opportunities” or being comfortable to “distinguish between profitable opportunities and not-so-profitable opportunities” (cf. Tang et al., 2012 scale items for this dimension). While many such examples can be derived, we endeavor here to simply draw attention to the fact that there are local contextual factors—an as-it-were ‘environment-individual selection’ effect—for which the entrepreneur is embedded in which drive the combination or configurations in which dimensions of alertness are most effective (or normatively desirable).

## Application

Many countries, societies, and cultures develop unique entrepreneurial ecosystems: the explanation for which is often institutional—for which culture is made manifest (Dheer, 2017). Entrepreneurial alertness, consequently, with unique cultural implications has potential to better explain the formation, development, and nature of these ecosystems. In this area, our process view has critical implications as the real value in ecosystems is in the way they support, develop, and grow ventures collectively, not just opportunity recognition and venture formation. Specifically, in this paper, we introduced two new aspects to the entrepreneurial alertness conversation: one being a caution against overly singular and one-dimensional assumptions surrounding “Big O” opportunity recognition, opting for a continual process-centric view. Second, we drew attention to the alertness entrepreneurs must also develop pertaining to potential threats to opportunities. Applying these to the application element of a more globally relevant version of alertness it becomes clear that a myriad of cultural differences helps or hinders the extent to which entrepreneurs apply alertness in tangible ways.

For example, while some entrepreneurial alertness scholars have begun exploring the effect of temporal perceptions (e.g., Tang et al., 2021a, b), we still know little surrounding how cultural variation in the expectations of entrepreneurial life cycles and opportunities themselves interact with how alertness is deployed. For instance, while high-growth, venture-backed startups are in the minority of overall new companies in the United States, the highly competitive (i.e., masculinized) and short-termism ethos of Silicon Valley permeates everyday expectations among Western entrepreneurs of both what and when a good opportunity looks like (e.g., 10x potential returns, timed at the nascent stage of a product lifecycle, winner-takes-all market potential). This Silicon-Valley epitome is simply a reflection of deeper American cultural mores. To that end, it is possible that alertness wanes towards certain aspects of certain opportunities because the competitive (i.e., the best) ship “Big O” has sailed. Conversely, when we look at cultures like China with much longer temporal orientations combined with less competitively combative business norms (i.e., more feminized cultures), can we expect the application of entrepreneurial alertness



to soften and broaden in scope such that entrepreneurs are better programmed to “...see links between seemingly unrelated pieces of information” (Tang et al., 2012 scale item) across more temporally punctuated commercial horizons? Probably, yes, there is much to fruitfully unpack in this domain moving forward.

Moreover, another good example is that of divergences on disagreement and evaluation norms (i.e., direct negative feedback-oriented cultures versus indirect negative feedback cultures: Meyer, 2014). While the U.S. sits broadly at the center of this cultural spectrum, the Netherlands sits at the extreme of the direct negative feedback cultures, with China at the extreme indirect end of the scale (Meyer, 2014). The application of entrepreneurial alertness in any real practical sense must involve the social psychological element of interpersonal persuasion—that is, convincing your team, or investors, or even family that your “...extraordinary ability to smell profitable opportunities” (Tang et al., 2012 scale item) is real. Thus, due to the inherently unusual—i.e., power law distributed; most people cannot and do not spot entrepreneurial opportunities to meaningfully enact, some do, yet a tiny few are prolifically and serially effective (Clark et al., 2023)—phenomenon of entrepreneurial success, it is likely that the culturally imbued capacity for filtering and providing feedback to each other on ideas (good or bad) effects the application of entrepreneurial alertness. Extending the intercultural experience stream of entrepreneurial psychology studies in recent years (Abd Hamid et al., 2023; Pidduck et al., 2020, 2024a), while we can expect culture specific variation in how interpersonal evaluation relates to alertness, we can expect even greater variation in how entrepreneurs from culture A apply their alertness when living or visiting culture B; which is arguably more influential, if we focus on international business activity. To illustrate, whose entrepreneurial alertness application is likely to be disrupted more; a Dutch (i.e., direct negative feedback culture) entrepreneur bullishly and unknowingly defying polite refusals or dismissals from locals on a business trip to China? Or a Chinese (i.e., indirect negative feedback culture) entrepreneur carefully tiptoeing around a valuable but perhaps daring business proposal to Dutch clients on a trip to Amsterdam? Emerging cross-cultural psychology research in entrepreneurship would probably suggest the latter—that is, those from indirect negative feedback cultures have a rougher time (comparatively) adapting to direct negative feedback cultures. In sum, cultural norms are profoundly important to entrepreneurial psychology and behavior (Pidduck et al., 2024c), and there are many promising paths for future research on entrepreneurial alertness to take specific dimensional effects seriously when predicting or explaining how alertness generates opportunities.

## Conclusion

Entrepreneurial alertness continues to have utility and importance to the future of entrepreneurship research. The legacy criticisms of the construct largely relate to that singular focus on “The Big O”, but there is no reason, either in how entrepreneurial alertness has been theorized or operationalized, for that focus. As a core cognitive entrepreneurial construct that helps entrepreneurs to identify, examine, and consider future pathways to develop a firm, entrepreneurial alertness is more than



just a sensitivity to “Big O” opportunities. Indeed, entrepreneurial cognition never has a singular outcome, just singular contexts, and situations; as such, we consider entrepreneurial alertness and its longitudinal value to the entrepreneur throughout the venturing process. Further, where entrepreneurial alertness has largely been treated as culturally invariant or, at least, insensitive cognition; instead, we argue that as with many cognitive constructs there are many reasons why entrepreneurial alertness is likely to be highly sensitive to culture; its robustness depends on considering culture and its generalizability requires accounting for culture. To this end, we have clearly articulated these issues, unpacked their merits, and charted a forward-looking path for entrepreneurial alertness research.

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