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Entrepreneurial Alertness and Pre-Crisis Communication Preparedness in SMEs: Proactive Strategies for Crisis Resilience

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Abstract: *This study examines the relationship between Entrepreneurial Alertness and Pre-Crisis Communication Preparedness in the context of small and medium-sized enterprises (SMEs) in the manufacturing sector. Utilizing Structural Equation Modeling (SEM), this research aims to analyze the structural relationship between these constructs and assess their impact on organizational crisis readiness. Data were collected from 200 SMEs in Chumphon Province using a structured questionnaire employing a five-point Likert scale, with reliability and validity confirmed through Confirmatory Factor Analysis (CFA) and Cronbach's Alpha (> 0.70). The results indicate that Entrepreneurial Alertness positively and significantly influences Pre-Crisis Communication Preparedness ($\beta = 0.992$, $p < 0.001$), demonstrating that SMEs with higher EA levels are more likely to develop strategic crisis communication frameworks. Specifically, EA enhances preparedness in four key dimensions: Strategic Preparedness, Personnel Readiness, Technological & System Readiness, and Reputation & Trust Readiness. The structural model exhibits a strong fit with empirical data, supporting the hypothesis that entrepreneurial alertness fosters proactive crisis communication planning. Managerial implications suggest that SMEs should enhance their entrepreneurial alertness capabilities by improving scanning and search mechanisms, information association and connection, and systematic opportunity-risk evaluation to strengthen crisis communication preparedness. Additionally, investments in digital communication technologies, stakeholder engagement strategies, and crisis simulation training are recommended to enhance organizational resilience. This study contributes to the literature on entrepreneurial cognition and crisis management, providing empirical insights into the role of entrepreneurial alertness in fostering pre-crisis communication preparedness among SMEs.*

Keywords: *Entrepreneurial Alertness, Pre-Crisis Communication Preparedness, Crisis Management.*

1. INTRODUCTION

Small and medium-sized enterprises (SMEs) are central to national economic development but remain structurally exposed to market competition, environmental uncertainty, and operational disruptions. Such vulnerabilities stem from limited financial slack, resource constraints, and comparatively informal planning routines that hamper systematic preparedness in turbulent conditions (Storey, 1994; Herbane, 2019).

Entrepreneurial alertness (EA), rooted in Kirzner's (1973) Austrian perspective, denotes a cognitively driven capacity to notice and interpret previously overlooked changes in the environment and to connect them to feasible action. Operationalized as three complementary dimensions—scanning and search, association and connection, and evaluation and judgment—EA has been shown to guide opportunity detection and forward-looking, proactive behavior (Tang, Kacmar, & Busenitz, 2012; Baron, 2006; Uy et al., 2015).

In parallel, pre-crisis communication preparedness (PCCP) is an organizational capability that structures how firms plan, coordinate, and learn before disruptive events. It typically comprises stakeholder mapping, roles and protocols, message templates, training/exercises, and supporting systems—aimed at mitigating harm and accelerating sensemaking once a crisis unfolds (Coombs, 2019; Ulmer, Sellnow, & Seeger, 2017; Frandsen & Johansen, 2020).

Yet research streams on entrepreneurial cognition and crisis communication have often evolved separately. Resilience syntheses emphasize anticipatory capabilities and proactive routines as antecedents of effective crisis response (Williams, Gruber, Sutcliffe, Shepherd, & Zhao, 2017), while crisis-era entrepreneurship studies highlight how alert, opportunity-seeking behavior shapes organizational

adaptation (Kuckertz et al., 2020; Doern, 2016). Importantly, recent longitudinal evidence shows that **pre-crisis preparedness**—financial, organizational, and cultural—**shapes SMEs' during-crisis strategic choices** (retrench, persevere, innovate), underscoring the need to connect cognitive antecedents with preparedness capabilities (Klyver & Nielsen, 2024).

Addressing this gap, the present study analyzes the relationship between EA and PCCP among manufacturing SMEs. We theorize that higher EA—via systematic environmental scanning, associative sensemaking, and disciplined evaluation—will be positively associated with preparedness across four PCCP dimensions (strategic, personnel, technological/system, reputation/trust). By integrating entrepreneurial cognition with crisis communication planning, this study contributes: (1) empirical evidence positioning EA as an antecedent to PCCP in SMEs and (2) a multidimensional operationalization of PCCP suited to resource-constrained manufacturing settings.

2. LITERATURE REVIEW

2.1Entrepreneurial Alertness

Entrepreneurial alertness (EA) originates in the Austrian tradition as the entrepreneur's capacity to notice overlooked changes and potential opportunities in competitive environments (Kirzner, 1973). Rather than being a mere function of information access, EA reflects a distinct cognitive orientation that sensitizes individuals to cues others may ignore (Gaglio & Katz, 2001). Building on these foundations, Tang, Kacmar, and Busenitz (2012) advanced EA into a multidimensional, measurable construct widely adopted in entrepreneurship research.

EA is consistently linked to opportunity recognition and forward-looking, proactive behavior (Baron, 2006), especially under uncertainty, where action depends on both perceiving uncertainty and being willing to bear it (McMullen & Shepherd, 2006). Contemporary work also clarifies how entrepreneurs connect the dots through structural alignment between technologies and markets, offering a cognitive mechanism that undergirds alertness (Grégoire, Barr, & Shepherd, 2010). Recent reviews synthesize this literature and position EA as a core antecedent to entrepreneurial decision quality and adaptive response (Chavoushi et al., 2021; Sassetti et al., 2022).

Following Tang et al. (2012), EA comprises three interrelated dimensions:

Scanning and Search — continuous monitoring of markets, technologies, and stakeholder signals to surface weak cues and emerging patterns. This persistent environmental scanning supports early detection of shifts and nascent opportunities (Tang et al., 2012; Sassetti et al., 2022).

Association and Connection — linking seemingly disparate information into meaningful configurations. Pattern recognition and structural alignment explain how alert entrepreneurs form coherent opportunity beliefs from fragmented cues (Baron, 2006; Grégoire et al., 2010).

Evaluation and Judgment — assessing feasibility, fit, and value, integrating intuition with analysis as entrepreneurs adjudicate among alternative opportunity paths. Theories of discovery versus creation further illuminate how evaluation differs depending on whether opportunities are perceived as found or enacted (Alvarez & Barney, 2007; McMullen & Shepherd, 2006).

Empirically, the EA scale exhibits strong psychometric properties and predicts downstream outcomes such as opportunity recognition, proactive strategic posture, and adaptability (Tang et al., 2012; Baron, 2006). Moreover, individual regulatory focus and confidence can amplify early-stage recognition processes—helping explain variance in proactive sensing behaviors that are conceptually adjacent to alertness (Tumasjan & Braun, 2012). Together, this body of work supports positioning EA as a cognitive antecedent to preparedness capabilities in dynamic, resource-constrained SME contexts.

2.2Pre-Crisis Communication Preparedness (PCCP)

Pre-crisis communication preparedness (PCCP) refers to an organization's forward-looking capability to anticipate risks, plan strategically, and communicate effectively before a crisis unfolds. It emphasizes pre-event planning, capacity building, and the readiness of communication systems to minimize adverse impacts once disruption occurs (Coombs, 2019; Ulmer, Sellnow, & Seeger, 2017). In practice, robust PCCP helps firms preserve business continuity, protect stakeholder interests, and safeguard organizational reputation during turbulence (Ulmer et al., 2017). Consistent with these foundations, the present study adapts measurement items from Coombs (2019) and Ulmer et al. (2017) to assess an organization's internal communication capability prior to a crisis event. (We retain APA in-text style, while the reference list is numbered for production.).

Drawing on Fearn-Banks (2016), we conceptualize PCCP as four interrelated dimensions:
1. Strategic Preparedness (PCC1) — the presence of a formal crisis communication plan specifying risk identification, scenario planning, and clear protocols for response and escalation (Fink, 1986; Coombs, 2019).
2. Personnel Readiness (PCC2) — the degree to which roles are defined and personnel are trained/drilled to execute communication tasks under pressure; expert syntheses treat training and exercises as "best practice" (Seeger, 2006; Ulmer et al., 2017).
3. Technological & System Readiness (PCC3) — preparedness of the digital communication stack: monitoring/early-warning tools, real-time platforms, and protocols for rapid information dissemination and coordination (Jin & Austin, 2017, 2022; Lin, Spence, Sellnow, & Lachlan, 2016; UNDRR, 2023).
4. Reputation & Trust Readiness (PCC4) — pre-crisis transparency, stakeholder engagement, and trust-building mechanisms that reduce reputational risk once a crisis strikes, aligned with SCCT and relationship-oriented "bridging" strategies (Coombs & Holladay, 2002; Kim & Krishna, 2017a, 2017b).
For SMEs, integrating entrepreneurial alertness (EA) with PCCP is particularly salient: resource constraints heighten reliance on leaders' foresight and agility to detect weak signals and establish proactive communication routines. Recent longitudinal evidence further shows that pre-crisis preparedness (financial, organizational, cultural) shapes SMEs' during-crisis strategic choices (retrench, persevere, innovate), underscoring the value of linking cognitive antecedents (e.g., EA) with preparedness capabilities (e.g., PCCP) (Klyver & Nielsen, 2024).

2.3Research hypothesis development

Entrepreneurial alertness—rooted in the Austrian view of the entrepreneur—captures the ability to notice overlooked changes and potential opportunities and to act under uncertainty (Kirzner, 1973). Operationalized as scanning and search, association and connection, and evaluation and judgment (Tang, Kacmar, & Busenitz, 2012), EA supports pattern recognition and proactive behavior essential for navigating volatile environments (Baron, 2006; Tumasjan & Braun, 2012). In SMEs, where volatility and resource constraints are acute, EA can catalyze anticipatory, risk-oriented routines that underpin pre-crisis action.
In parallel, PCCP denotes readiness to design and execute communication strategies before a crisis—including risk identification, stakeholder planning, and governance of information flows (Coombs, 2019; Ulmer et al., 2017). The CERC model also highlights pre-event guidance for credible, timely messaging and coordination (Reynolds & Seeger, 2005). Taken together with evidence that pre-crisis preparedness shapes SMEs' crisis-time strategies (Klyver & Nielsen, 2024), it is theoretically consistent to position EA as an upstream cognitive antecedent of PCCP.
H1: Entrepreneurial alertness is positively associated with pre-crisis communication preparedness in SMEs.

3. RESEARCH METHODOLOGY

3.1Sample and Population

The target population for this study comprises SME manufacturing businesses in Chumphon Province, as identified in the Small and Medium Enterprise Promotion Office report. The total population consists of 327 SMEs operating within the manufacturing sector. To determine an appropriate sample size, Yamane's (1973) formula was applied, yielding a minimum required sample size of 180 respondents at a 95% confidence level and a margin of error of 0.05. However, in alignment with best practices for Structural Equation Modeling (SEM), which suggests a larger sample size to enhance statistical power and model reliability (Hair et al., 2019), this study collected data from 200 SME respondents to ensure robustness in analysis.

3.2Data Collection and Measurement Instrument

This study employed a structured questionnaire as the primary data collection tool. The questionnaire utilized a five-point Likert scale, which is widely recognized for measuring attitudes and perceptions in organizational and behavioral research (Likert, 1932). The Likert scale provided response options ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), ensuring consistency in data interpretation and statistical validity.
However, Before administering the survey, instrument validation and reliability analysis were conducted. The questionnaire underwent content validity assessment by three subject matter experts to confirm its

alignment with the study's conceptual framework. To assess the instrument's internal consistency, Cronbach's Alpha coefficient was calculated. A Cronbach's Alpha value of 0.70 or higher was considered acceptable.

Structural Equation Modeling (SEM) was employed to assess the model fit and test the hypothesized relationships. The following fit indices were used to evaluate the goodness-of-fit of the structural model, based on widely accepted standards in the literature.

First, the Chi-square divided by degrees of freedom (χ^2/df) was examined. A ratio of less than 3.0 is generally considered to indicate an acceptable model fit (Byrne, 2016). Although the Chi-square statistic itself is sensitive to sample size, the χ^2/df ratio provides a more stable and interpretable indicator of fit.

Second, incremental fit indices such as the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI) were assessed. Both indices compare the hypothesized model with a baseline model and adjust for model complexity. Values equal to or greater than 0.90 are typically interpreted as indicative of a good fit (Hu & Bentler, 1999; Hair et al., 2010).

Third, error-based indices including the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR) were evaluated. An RMSEA value of 0.08 or lower is considered acceptable, representing a reasonable error of approximation in the population (Browne & Cudeck, 1993). Similarly, an SRMR value less than 0.08 indicates that the residuals between the observed and predicted correlations are within an acceptable range (Hu & Bentler, 1999).

These fit indices collectively provide a comprehensive evaluation of the model's adequacy, taking into account absolute fit, comparative fit, and error approximation, thereby strengthening the validity of the structural model and its interpretation.

If model fit indices did not meet acceptable thresholds, model respecification techniques were applied, including modification indices (MIs) and error covariances adjustments to improve fit while maintaining theoretical integrity (Byrne, 2016).

3.3Ethical Considerations

This study all participants provided informed consent electronically before responding, participation was voluntary, and respondents could discontinue at any time without penalty. No personally identifying information was collected; data were de-identified at source.

4. FINDINGS AND DISCUSSION

To examine the perceptions of respondents regarding the core constructs under investigation, descriptive statistics—specifically the mean and standard deviation—were computed. These statistics provide an overview of the respondents' overall level of agreement concerning each dimension of entrepreneurial alertness and pre-crisis communication preparedness.

The results in table 1 reveal that all variables demonstrate a very high level of opinion, suggesting that respondents perceive both entrepreneurial alertness and pre-crisis communication preparedness as highly developed capabilities within the context of the study.

Table 1: Presents the Mean Scores and Standard Deviations for Each Variable and its Respective Dimensions.

Variable	Level of opinion		
	$\overline{X}$	S.D.	Interpretation
Entrepreneurial alertness	**4.56**	**0.42**	**Very High**
1. Scanning and Search	4.55	0.44	Very High
2. Association and Connection	4.56	0.40	Very High
3. Evaluation and Judgment	4.59	0.39	Very High
pre-crisis communication preparedness	**4.60**	**0.36**	**Very High**
1. Strategic Preparedness	4.59	0.39	Very High
2. Personnel Readiness	4.59	0.37	Very High
3. Technological & System Readiness	4.62	0.36	Very High
4. Reputation & Trust Readiness	4.58	0.38	Very High

4.1Reliability Analysis

To assess the internal consistency reliability of the measurement scales, Cronbach's Alpha was calculated for each latent construct. This statistic measures how well a set of items measures a single unidimensional latent construct. A commonly accepted threshold for acceptable reliability is 0.70 or higher (Nunnally & Bernstein, 1994).

The construct Entrepreneurial Alertness yielded a Cronbach's Alpha of 0.807, indicating good internal consistency. This suggests that the three items measuring entrepreneurial alertness (i.e., scanning and search, association and connection, evaluation and judgment) are highly correlated and reliably measure the same underlying construct.

The construct Pre-crisis Communication Preparedness demonstrated a Cronbach's Alpha of 0.885, which represents excellent internal consistency. This indicates that the four items under this construct (strategic preparedness, personnel readiness, technological/system readiness, and reputation/trust readiness) consistently measure the preparedness of organizations in communicating before crises occur.

These reliability coefficients confirm that the instrument used in this study is both statistically sound and reliable, providing a solid foundation for further structural analysis.

4.2Model fit

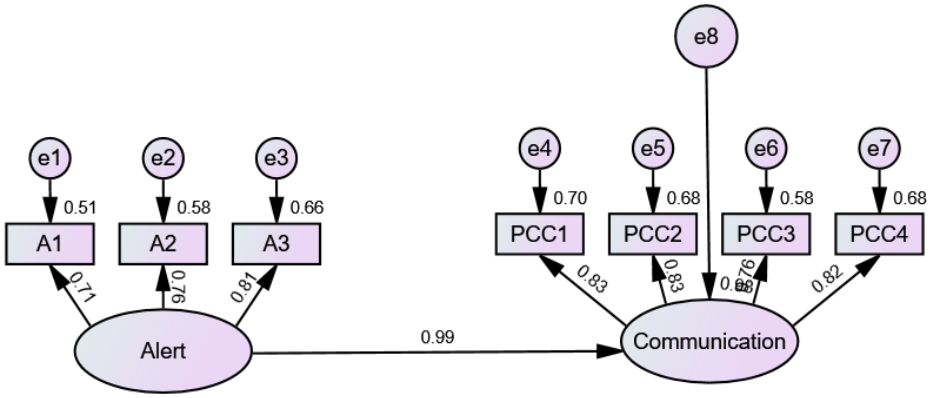

Fig. 1. Model Fit

Table 2: Measurement of Model Fit

Fit Index	Value	Acceptable Threshold	Assessment
Chi-square/df	1.370	< 3.00	Good fit
p-value	0.165	>.05 (non-significant preferred)	Good fit
CFI	0.994	> .90	Excellent fit
TLI	0.991	> .90	Excellent fit
RMSEA	0.043	< .08	Good fit
SRMR	0.056	< .08	Good fit

Table 2 and figure 1 presents the model fit indices used to evaluate the overall goodness-of-fit of the proposed structural equation model. The Chi-square/df ratio is 1.370, which is below the commonly accepted threshold of 3.00, indicating a good model fit. The p-value of .165 exceeds the 0.05 benchmark, suggesting that the model's discrepancy from the observed data is not statistically significant, which supports model adequacy.

The Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) are reported as .994 and .991, respectively. Both values exceed the recommended cutoff of .95, reflecting an excellent fit between the hypothesized model and the data.

The Root Mean Square Error of Approximation (RMSEA) is .043, and the Standardized Root Mean Square Residual (SRMR) is .056, both of which fall within acceptable ranges (< .06 and < .08, respectively). These values indicate that the model has a low approximation error and residual variance.

Taken together, the results from all fit indices suggest that the structural model demonstrates a good to excellent fit with the observed data and can be considered appropriate for hypothesis testing.

Table 3 presents the regression weights from the structural equation modeling analysis, illustrating the strength and significance of the relationships between latent constructs and their respective indicators, as well as the structural path between latent variables.

The structural path from Entrepreneurial Alertness (Alert) to Pre-crisis Communication Preparedness (Communication) shows a non-standardized estimate of 0.972 with a critical ratio (C.R.) of 10.758 and a **p-value of < .001 (indicated by *), suggesting a highly significant and strong positive effect. The

standardized estimate is 0.992, indicating a nearly perfect standardized relationship, which reflects a very strong influence of entrepreneurial alertness on communication preparedness.

4.3Regarding the measurement model:

The indicators A1, A2, and A3 significantly load onto the latent variable Alert. Standardized factor loadings range from 0.714 to 0.813, which are above the acceptable threshold of 0.70, indicating good indicator reliability and strong construct validity.

Similarly, the indicators PCC1 through PCC4 significantly load onto Communication with standardized loadings between 0.761 and 0.834. These values also exceed the 0.70 benchmark, suggesting that the indicators are reliable measures of the latent construct.

All paths reported as statistically significant (*** $p < .001$), and critical ratios (C.R.) exceed the commonly accepted threshold of 1.96, confirming that the observed relationships are meaningful in the population.

Table 3: Interpretation of Regression Weights

Relationship			Estimate	S.D. Estimate	S.E.	C.R.	P
C	<-	A	.972	.992	.090	10.758	***
A1	<-	A	1.000	.714			
A2	<-	A	.986	.762	.096	10.306	***
A3	<-	A	1.019	.813	.093	10.996	***
PCC1	<-	C	1.000	.834			
PCC2	<-	C	1.030	.826	.074	13.945	***
PCC3	<-	C	.890	.761	.072	12.351	***
PCC4	<-	C	1.023	.823	.074	13.848	***

5. Conclusion and Contributions

Using SEM, we find strong support for the hypothesis that entrepreneurial alertness (EA) positively predicts pre-crisis communication preparedness (PCCP) in manufacturing SMEs ($\beta = 0.992$, C.R. = 10.758, $p < .001$). The result aligns with theory that alertness—via scanning/search, association/connection, and evaluation/judgment—enables proactive action under uncertainty (Tang, Kacmar, & Busenitz, 2012; Baron, 2006). Conceptually, the study integrates entrepreneurial cognition with crisis communication by showing that EA functions as an upstream antecedent of PCCP, operationalized across four dimensions (strategic, personnel, technological/system, reputation/trust) consistent with crisis communication scholarship (Coombs, 2019; Ulmer, Sellnow, & Seeger, 2017). Empirically, we contribute evidence from resource-constrained SMEs, advancing a cognition-to-preparedness perspective that complements work on how preparedness shapes crisis-time strategies (Klyver & Nielsen, 2024).

5.1DISCUSSION

Our findings suggest that leaders high in EA are more likely to institutionalize pre-event routines—risk identification, stakeholder planning, and information-flow governance—core tenets of PCCP (Coombs, 2019; Ulmer et al., 2017; Reynolds & Seeger, 2005). This connects the cognitive micro-foundations of entrepreneurs to organizational capabilities that matter when disruption hits. Placed alongside evidence that preparedness conditions SMEs' during-crisis strategic choices (retrench/persevere/innovate), the result supports a pipeline view: Cognition (EA) → Preparedness (PCCP) → Crisis-time strategy and outcomes (Klyver & Nielsen, 2024; Williams, Gruber, Sutcliffe, Shepherd, & Zhao, 2017). At the same time, the near-unity coefficient ($\beta \approx .99$) warrants caution: future work should probe potential measurement overlap, omitted variables (e.g., organizational learning or digital maturity), and method variance; triangulating with objective indicators and alternative estimators would strengthen causal claims (Tang et al., 2012; Tumasjan & Braun, 2012).

5.2Managerial implications

- Systematize alertness: Build scanning calendars, issue logs, and "weak-signal" reviews tied to decision gates (Tang et al., 2012; Baron, 2006).
- Codify PCCP: Maintain living crisis-communication plans, stakeholder maps, and message playbooks; rehearse via drills (Coombs, 2019; Ulmer et al., 2017).
- Invest in tech readiness: Monitoring/early-warning and real-time platforms to shorten detection-to-message cycles (Reynolds & Seeger, 2005).

- Pre-build trust: Use relationship-oriented "bridging" strategies to strengthen credibility before crises (Kim & Krishna, 2017a; Coombs & Holladay, 2002).
- Align preparedness with strategy: Treat PCCP as a lever that improves the range and quality of crisis-time options (Klyver & Nielsen, 2024).

5.3Limitations

The cross-sectional design, single-province sampling, and self-report measures limit causal inference and generalizability. The very large effect size may reflect context-specific dynamics or shared-method bias. PCCP was assessed as preparedness rather than during-crisis performance, so downstream impacts are inferred, not observed (Reynolds & Seeger, 2005; Williams et al., 2017).

5.4Future research

1. Longitudinal/multi-wave designs to trace EA → PCCP → crisis-time strategies/outcomes across pre/during/post phases (Klyver & Nielsen, 2024; Williams et al., 2017).
2. Multi-source and objective data (e.g., drill records, message-timeliness logs, stakeholder sentiment) to mitigate method bias (Reynolds & Seeger, 2005).
3. Mechanisms and contingencies: Test mediation by organizational learning and moderation by digital literacy or leadership adaptability (Tumasjan & Braun, 2012; Baron, 2006).
4. Cross-industry/cross-country comparisons to examine cultural, regulatory, and sectoral moderators of the EA→PCCP link (Klyver & Nielsen, 2024).
5. Field experiments or interventions (alertness training; PCCP simulations) to estimate causal effects on preparedness quality and response speed (Coombs, 2019; Ulmer et al., 2017).

Model robustness: Compare CB-SEM vs. PLS-SEM, test discriminant validity against adjacent constructs, and assess invariance by firm size/age (Tang et al., 2012).

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