International Journal of Entrepreneurship and Management Practices
IJEMP
EISSN : 2600-8750
Volume 9 Issue 35 (September 2026) PP. 730-744



INTERNATIONAL JOURNAL OF ENTREPRENEURSHIP AND MANAGEMENT PRACTICES (IJEMP)
www.gaexcellence.com/ijemp

THE IMPACT OF EMOTIONAL INTELLIGENCE ON LEADERSHIP EFFECTIVENESS: A MEDIATING ROLE OF LEADERSHIP SELF-EFFICACY

Maniarasu Muniandy[1*], Rosli Mahmood[2], Devika Nadarajah[3]

[1]Putra Business School, UPM, 43400 Seri Kembangan, Selangor, Malaysia
maniarasu.phd_mgt18@grad.putrabs.edu.my https://orcid.org/0009-0009-9932-7807
[2]Putra Business School, UPM, 43400 Seri Kembangan, Selangor, Malaysia
rosli@putrabs.edu.my https://orcid.org/0000-0003-4869-1851
[3]Putra Business School, UPM, 43400 Seri Kembangan, Selangor, Malaysia
devika@putrabs.edu.my https://orcid.org/0000-0003-0496-7561
*Corresponding Author

Article Info:

Article history:
Received date: 23.07.2026
Revised date: 06.08.2026
Accepted date: 26.08.2026
Published date: 21.09.2026

To cite this document:

Muniandy, M., Mahmood, R., & Nadarajah, D. (2026). The Impact of Emotional Intelligence on Leadership Effectiveness: A Mediating Role of Leadership Self-Efficacy. *International Journal of Entrepreneurship and Management Practices, 9*(35), 730-744.

Abstract:

Effective leadership is a pivotal determinant of organizational success, particularly in high-performance industries such as electronics manufacturing. This study examines the impact of emotional intelligence on leadership effectiveness, with leadership self-efficacy serving as a mediator. Grounded in Bandura's Social Cognitive Theory (1986) and in Leader-Member Exchange (LMX) Theory, the study used a quantitative, cross-sectional survey design. Data were collected from 395 professionals in Malaysia's top five electronics manufacturing firms and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings reveal that emotional intelligence has a significant positive direct effect on leadership effectiveness ($\beta = 0.339$, $t = 6.053$, $p < 0.001$) and on leadership self-efficacy ($\beta = 0.377$, $t = 6.555$, $p < 0.001$). Leadership self-efficacy, in turn, significantly mediates the relationship between emotional intelligence and leadership effectiveness ($\beta = 0.050$, 95% CI [0.008, 0.099], $p = 0.027$), accounting for approximately 12.9% of the total effect. These results confirm a mediation, indicating that emotional intelligence enhances leadership effectiveness both directly and indirectly through increased leadership self-efficacy. The study contributes to leadership theory and offers practical implications for leadership development programs in technology-intensive manufacturing sectors.

International Journal of Entrepreneurship and Management Practices
IJEMP
EISSN : 2600-8750
Volume 9 Issue 35 (September 2026) PP. 730-744

DOI: 10.35631/IJEMP.935041 **Keyword:**

Emotional Intelligence, Leadership Effectiveness, Leadership Self-Efficacy

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Introduction

The rapid evolution of Industry 4.0 technologies has fundamentally reshaped organizational structures and leadership requirements across global manufacturing sectors. In Malaysia, the electronics manufacturing industry contributes approximately 40% of total gross exports and supports over 614,000 jobs, making it a strategically vital sector (BankNegaraMalaysia, 2025). As organizations navigate increasing technological complexity and competitive pressures, leadership effectiveness has emerged as a critical determinant of organizational success, influencing employee engagement, innovation, and overall performance (Hamdan et al., 2024; Nazarian et al., 2025).

Despite substantial research on leadership, significant gaps remain in understanding the psychological mechanisms that underpin leadership effectiveness in technology-intensive manufacturing contexts. Emotional intelligence (EI) — the ability to perceive, understand, and regulate emotions — has consistently been associated with enhanced leadership performance across diverse organizational settings (Goleman, 1995; Miao et al., 2018; Wong & Law, 2002). More recent studies have continued to affirm this relationship, demonstrating that emotionally intelligent leaders are commonly better equipped to manage relationships, resolve conflicts, and inspire team commitment (Irawan et al., 2024; Shatila & Nigam, 2025).

However, the mechanisms by which emotional intelligence translates into leadership effectiveness remain underexplored. Leadership self-efficacy — defined as an individual's belief in their ability to perform leadership roles and tasks successfully (Chen et al., 2001)— has been theorized as a critical intervening psychological resource. Leaders who possess high self-efficacy tend to set ambitious goals, persevere through challenges, and make decisions with confidence, ultimately boosting their overall leadership effectiveness (Bandura, 1986; Hoang & Le, 2025). Yet, empirical evidence on leadership self-efficacy as a mediator between emotional intelligence and leadership effectiveness, particularly in the Malaysian manufacturing context, remains limited (Halliwell et al., 2021; Shafique et al., 2023).

This study, therefore, addresses this gap by investigating: (1) the direct effect of emotional intelligence on leadership effectiveness; (2) the direct effect of emotional intelligence on leadership self-efficacy; and (3) the mediating role of leadership self-efficacy in the relationship between emotional intelligence and leadership effectiveness among professionals in Malaysia's electronics manufacturing sector. The findings contribute both theoretically to

International Journal of Entrepreneurship and Management Practices
IJEMP
EISSN : 2600-8750
Volume 9 Issue 35 (September 2026) PP. 730-744

Social Cognitive Theory and LMX Theory, and practically to leadership development in high-performance industrial settings.

Literature Review

Leadership Effectiveness

Leadership effectiveness involves influencing others to understand and agree on what needs to be done and how to do it successfully, as well as facilitating both individual and group efforts to achieve common goals (Yukl, 2002). Scholars have examined leadership effectiveness through multiple lenses — from trait and behavioral approaches to contemporary transformational and social cognitive frameworks (Northouse, 2018; Turner & Baker, 2018). In today's fast-changing organizational settings, the effectiveness of leadership is more and more connected to leaders' emotional, relational, and self-regulation skills (Alkharj et al., 2024; Roy, 2023).

Within Malaysia's electronics manufacturing sector, leadership effectiveness is particularly crucial given the sector's transition toward Industry 4.0, which demands adaptive, human-centered leadership capable of managing technological complexity and workforce diversity (Balahurovska, 2023; Tan et al., 2024). Recent studies confirm that leadership deficiencies — including inadequate communication and low employee engagement — significantly impede organizational performance in this sector (Fok-Yew & Hamid, 2021; Hossain et al., 2023).

Emotional Intelligence and Leadership Effectiveness

Emotional intelligence (EI) was officially introduced by Salovey and Mayer (1990) and gained widespread recognition through (Goleman, 1995). Goleman described EI as the capacity to motivate oneself, control emotions, empathize with others, and handle relationships effectively. (Wong and Law (2002) expanded on this concept by defining four key dimensions: self-emotion appraisal, others' emotion appraisal, use of emotion, and regulation of emotion. Their Wong and Law Emotional Intelligence Scale (WLEIS) is frequently used in organizational research because of its simplicity and proven psychometric reliability.

The relationship between emotional intelligence and leadership effectiveness is well-established in the literature. Emotionally intelligent leaders demonstrate superior communication, relationship management, and decision-making capabilities, all of which are core components of effective leadership (Côté, 2014; Goleman, 1995). Recent empirical evidence reinforces this connection across diverse organizational contexts. Shatila and Nigam, (2025) found that emotional traits such as assertiveness, adaptability, and relationship management significantly predict leadership effectiveness in Middle Eastern organizations. Similarly, Ouahiba and Omar (2025) demonstrated that emotional intelligence positively impacts leadership effectiveness and team performance in manufacturing environments. Irawan et al. (2024) confirmed a cross-industry positive relationship between EI and leadership effectiveness.

Within Malaysian organizational contexts, Ibrahim et al. (2024) and Roy (2023) have similarly documented that emotionally intelligent leaders are better positioned to manage interpersonal dynamics, reduce conflict, and foster team cohesion — outcomes that are especially

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consequential in the high-pressure electronics manufacturing environment. Based on this evidence, the following hypothesis is proposed:

H1: Emotional intelligence has a significant positive relationship with leadership effectiveness.

Leadership Self-Efficacy

Leadership self-efficacy (LSE) is the belief in an individual's capability to perform leadership roles and tasks successfully (G. Chen et al., 2001), rooted in Bandura's (1986) Social Cognitive Theory. Leaders with high self-efficacy are more likely to set challenging goals, persist in the face of setbacks, and demonstrate proactive leadership behaviors (Bandura, 1989). Empirical studies have consistently found positive relationships between leadership self-efficacy and leadership effectiveness (Baroudi & Hojeij, 2018; Hayes, 2016; Hoang & Le, 2025).

Recent research by Takeed et al. (2025)and Paik and Lee (2022) further confirms that self-efficacy acts as an essential psychological resource, turning personal skills into effective leadership behaviors. In the context of electronics manufacturing, where leaders must navigate high performance demands and rapid technological change, self-efficacy beliefs are particularly consequential for sustaining leadership effectiveness (Nazarian et al., 2025).

Emotional Intelligence, Leadership Self-Efficacy, and Leadership Effectiveness

The theoretical pathway linking emotional intelligence to leadership effectiveness through leadership self-efficacy is grounded in Social Cognitive Theory (Bandura, 1986) , which posits that self-efficacy beliefs serve as critical mediating mechanisms linking personal attributes to behavioral outcomes. Emotionally intelligent leaders, due to their enhanced self-awareness and emotional regulation capabilities, are better equipped to build confidence in their leadership abilities, which in turn facilitates more effective leadership performance (Halliwell et al., 2021; Sharma & Kumra, 2025).

Halliwell et al. (2021) found that improvements in emotional intelligence were linked to notable gains in leadership self-efficacy, which subsequently predicted better task-oriented leadership behaviors. Shafique et al. (2023) similarly documented that self-efficacy mediated the relationship between knowledge-oriented leadership and knowledge-sharing behaviors, with emotional intelligence moderating the pathway to self-efficacy. Walsh (2025) further confirmed that both emotional intelligence and self-efficacy significantly predict transformational leadership effectiveness. Sharma and Kumra (2025) demonstrated a sequential mediation model in which emotional intelligence enhanced transformational leadership behaviors, which strengthened self-efficacy beliefs, ultimately improving leadership effectiveness. Based on these available body of evidence, the following hypotheses are proposed:

H2: Emotional intelligence has a significant positive relationship with leadership self-efficacy.

H3: Leadership self-efficacy mediates the relationship between emotional intelligence and leadership effectiveness.

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Theoretical Framework

This study is grounded in two complementary theoretical frameworks. First, Bandura's (1986) Social Cognitive Theory (SCT) provides the primary theoretical lens for understanding how emotional intelligence influences leadership effectiveness through leadership self-efficacy. SCT suggests that self-efficacy beliefs — formed through mastery experiences, vicarious learning, social persuasion, and physiological states — act as key mediators connecting personal traits to behavioral results. In the leadership context, emotional intelligence enhances leaders' self-regulatory capabilities, which in turn strengthens their confidence in performing leadership tasks effectively (Bandura, 1997; Paik & Lee, 2022).

Second, Leader-Member Exchange (LMX) Theory (Graen & Uhl-Bien, 1995) explains a relational perspective, emphasizing that the quality of leader-follower relationships — built on trust, respect, and mutual obligation — is a proximal determinant of leadership effectiveness. Emotionally intelligent leaders are better positioned to develop high-quality LMX relationships, as their capacity for empathy, social awareness, and emotion regulation enables more effective responses to followers' needs (Chen et al., 2025; Ibrahim et al., 2024). Together, SCT and LMX Theory provide a robust theoretical foundation for the proposed mediation model.

Based on the theoretical framework and literature review, the conceptual framework of this study proposes that emotional intelligence (independent variable) influences leadership effectiveness (dependent variable) both directly and indirectly through leadership self-efficacy (mediating variable), as illustrated in Figure 1.

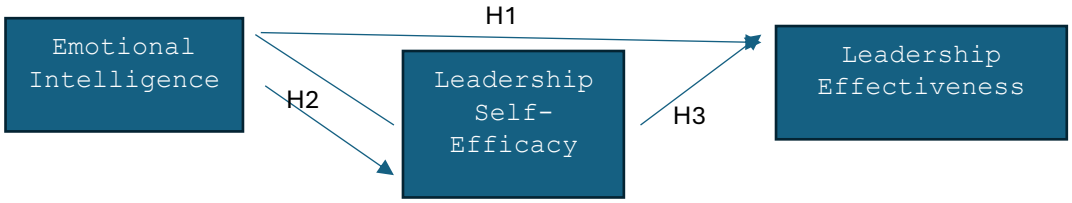


Figure 1: Conceptual Framework

Methodology

This study adopted a positivist research philosophy and a quantitative, cross-sectional survey design to examine the relationships among emotional intelligence, leadership self-efficacy, and leadership effectiveness. A structured self-administered online questionnaire was distributed to professionals employed in five leading electronics manufacturing firms in Malaysia, identified from the American Malaysian Chamber of Commerce (AMCHAM, 2025) industry listing.

The sampling procedure was clarified as a stratified random sampling approach. The five firms formed the sampling strata, and the intended sample was allocated proportionately according to the number of skilled professionals in each firm. The five strata comprised 13,659 skilled professionals in total, with an intended sample allocation of 158, 77, 74, 34, and 40 respondents, respectively (total target sample = 383). The minimum sample requirement was guided by (Krejcie & Morgan, 1970). To accommodate the lower response rates commonly

associated with online surveys, the study distributed 1,128 questionnaires across the five firms. A total of 429 completed questionnaires were returned (approximately 38%). Following eligibility screening and outlier assessment, 395 usable responses were retained for the PLS-SEM analysis.

The final sample comprised 51.6% male and 48.4% female respondents, with the majority (41.3%) aged between 31 and 40 years. Most respondents held Bachelor's degrees (69.4%) and were in management roles (48.4%), while 63.5% had 1–5 years of tenure with their current organization. Geographically, 78.2% were based in Penang, reflecting the concentration of electronics manufacturing activity in northern Malaysia.

Measures

All constructs were measured using validated scales on a six-point Likert scale (1 = Strongly Disagree to 6 = Strongly Agree). Emotional intelligence was measured using the 11-item, and adaptation of Wong and Law Emotional Intelligence Scale (WLEIS) (Wong & Law, 2002). Leadership self-efficacy was measured using the 8-item scale adapted from (Chen et al., 2001), assessing employees' perceptions of their immediate supervisors' confidence in handling various leadership situations. Leadership effectiveness was measured using the 7-item scale adapted from (Yukl, 2002), focusing on the leader's ability to influence, coordinate, and achieve shared organizational objectives.

Common Method Bias

Because the predictor, mediator, and outcome measures were obtained from the same respondents at the same point in time, we explicitly assessed common method variance (CMV). Procedural remedies were incorporated during questionnaire administration, including assurances of anonymity and confidentiality, clear instructions, and prior face-validity and pilot-testing procedures intended to reduce ambiguity and socially desirable responding.

Statistically, Harman's one-factor test was first examined. The first unrotated factor accounted for 72.5% of the total variance, exceeding the conventional 50% reference point and therefore indicating that CMV could not be dismissed on the basis of this diagnostic alone. Given the limitations of relying solely on Harman's test, a common latent factor (CLF) assessment was also undertaken. An additional latent method factor was linked to the measurement indicators, and the original loadings were compared with the CLF-adjusted loadings. The loadings remained broadly stable, and no material changes above the 0.20 criterion were observed. Accordingly, the additional diagnostic did not indicate that common method variance drove the substantive relationships. Nevertheless, because the study relies on single-source, cross-sectional perceptual data, CMV remains a methodological limitation, and the results should be interpreted with appropriate caution (Podsakoff et al., 2003; Tehseen et al., 2017).

Data Analysis

Data were analyzed using SPSS for descriptive statistics and data screening, and SmartPLS 4.0 for Partial Least Squares Structural Equation Modeling (PLS-SEM). PLS-SEM was selected for its suitability for estimating latent-variable models and assessing direct and indirect relationships (Hair et al., 2022). The measurement model was assessed for internal consistency reliability, convergent validity, and discriminant validity. The structural model was assessed

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IJEMP
EISSN : 2600-8750
Volume 9 Issue 35 (September 2026) PP. 730-744

using path coefficients, bootstrapped significance tests, confidence intervals, and effect sizes (f^2).

Findings And Discussion

Measurement Model

The measurement model demonstrated satisfactory reliability and validity. All constructs achieved Cronbach's alpha values above 0.70, composite reliability values above 0.80, and Average Variance Extracted (AVE) values above 0.50, confirming convergent validity (Joseph F Hair et al., 2019). Discriminant validity was established using the Heterotrait-Monotrait (HTMT) ratio, with all values below the recommended threshold of 0.90. Factor loadings for all items exceeded 0.60, indicating adequate indicator reliability. Table 1 summarizes the key measurement model statistics.

Table 1: Measurement Model Results

Construct	Items	Cronbach's Alpha	Composite Reliability	AVE
Emotional Intelligence	11	0.931	0.943	0.672
Leadership Self-Efficacy	8	0.924	0.938	0.651
Leadership Effectiveness	7	0.911	0.931	0.694

Hypothesis Testing: Direct Effects (H1 and H2)

Table 2 presents the bootstrapping results for the direct effects. H1 proposed that emotional intelligence has a significant positive relationship with leadership effectiveness. The results confirm this hypothesis: emotional intelligence significantly and positively predicts leadership effectiveness ($\beta = 0.339$, STDEV = 0.056, $t = 6.053$, $p < 0.001$). This finding is consistent with recent empirical evidence demonstrating that emotionally intelligent leaders are better equipped to manage relationships, inspire trust, and create emotionally supportive work environments that enhance overall leadership performance (Irawan et al., 2024; Ouahiba & Omar, 2025; Shatila & Nigam, 2025). In the technology-intensive sectors like electronics manufacturing, emotional intelligence is particularly consequential as leaders must manage workplace stress, sustain team morale, and coordinate activities across diverse groups (Ibrahim et al., 2024; Roy, 2023).

H2 proposed that emotional intelligence has a significant positive relationship with leadership self-efficacy. The results confirm this hypothesis: emotional intelligence significantly predicts leadership self-efficacy ($\beta = 0.377$, STDEV = 0.058, $t = 6.555$, $p < 0.001$). Leaders with higher emotional intelligence — encompassing self-awareness, emotional regulation, and empathy — are more likely to exhibit stronger confidence in their leadership abilities. This finding aligns with prior research highlighting the central role of emotional intelligence in strengthening leaders' self-confidence and interpersonal competence (Newman et al., 2017; Walsh, 2025).

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EISSN : 2600-8750
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Table 2: Direct Effects – Bootstrapping Results

Hypothesis	Path	β	STDEV	t-value	p-value
H1	EI → Leadership Effectiveness	0.339	0.056	6.053	$p < 0.001$
H2	EI → Leadership Self-Efficacy	0.377	0.058	6.555	$p < 0.001$

Note: EI = Emotional Intelligence

Hypothesis Testing: Mediation Effect (H3)

H3 proposed that leadership self-efficacy mediates the relationship between emotional intelligence and leadership effectiveness. Table 3 presents the indirect effect analysis results. The estimated indirect effect is statistically significant ($\beta = 0.050$, STDEV = 0.023, $t = 2.215$, $p = 0.027$), with a 95% bootstrap confidence interval of [0.008, 0.099] that does not include zero, confirming the presence of a significant indirect effect. The mediated component represents approximately 12.9% of the total effect of emotional intelligence on leadership effectiveness (total effect = 0.389). Since both the direct effect ($\beta = 0.339$, $p < 0.001$) and the indirect effect ($\beta = 0.050$, $p = 0.027$) are significant, a mediation is confirmed (Preacher & Hayes, 2008). H3 is therefore supported.

This finding indicates that emotional intelligence enhances leadership effectiveness through two pathways: (1) a direct pathway, where emotionally intelligent leaders directly improve their leadership performance through better communication, relationship management, and decision-making; and (2) an indirect pathway, where emotional intelligence first builds leaders' confidence in their leadership capabilities (self-efficacy), which then translates into more effective leadership behaviors. This mediation pattern aligns with (Halliwell et al., 2021), who found that enhancements in emotional intelligence were accompanied by significant increases in leadership self-efficacy, which in turn predicted improvements in leadership behaviors. Similarly, Sharma and Kumra (2025) demonstrated a sequential mediation pathway in which emotional intelligence enhanced self-efficacy beliefs, ultimately contributing to improved leadership effectiveness. The convergence of findings across intervention studies (Halliwell et al., 2021) and cross-sectional organizational research (Shafique et al., 2023; Walsh, 2025) reinforces the robustness of leadership self-efficacy as a mediating mechanism linking emotional intelligence to leadership outcomes.

Table 3: Mediation Effect – Indirect Effect Results (H3)

Hypothesis	**Indirect Path**	**β**	**STDEV**	**t-value**	**p-value**	**95% CI**
H3	EI → LSE → LE	0.050	0.023	2.215	$p = 0.027$	[0.008, 0.099]

Note: EI = Emotional Intelligence; LSE = Leadership Self-Efficacy; LE = Leadership Effectiveness

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Effect Size (f^2)

To complement statistical significance, f^2 effect sizes were examined to assess the substantive contribution of each predictor to the explained variance of the relevant endogenous construct. Using the conventional guidelines of approximately 0.02, 0.15, and 0.35 for small, medium, and large effects, respectively, emotional intelligence showed a small effect on leadership effectiveness ($f^2 = 0.087$) and a medium effect on leadership self-efficacy ($f^2 = 0.199$). Leadership self-efficacy had a small-to-negligible unique effect on leadership effectiveness ($f^2 = 0.011$). These results indicate that emotional intelligence explains leadership self-efficacy more strongly than it contributes uniquely to leadership effectiveness. The relatively small f^2 for leadership self-efficacy is also consistent with the mediation result: the indirect pathway is statistically significant, but its incremental contribution is modest relative to the direct effect of emotional intelligence.

Table 4: Effect Size (f^2) for the Relationships Examined in This Article

Predictor	Endogenous Construct	f^2	Interpretation
Emotional Intelligence	Leadership Effectiveness	0.087	Small
Emotional Intelligence	Leadership Self-Efficacy	0.199	Medium
Leadership Self-Efficacy	Leadership Effectiveness	0.011	Negligible / below small threshold

Implications Of Findings

Theoretical Implications

This study makes several important theoretical contributions. First, it provides empirical support for Social Cognitive Theory's central proposition that self-efficacy beliefs serve as critical mediating mechanisms linking personal attributes to behavioral outcomes (Bandura, 1986). By demonstrating that leadership self-efficacy mediates the relationship between emotional intelligence and leadership effectiveness, the study validates Bandura's framework in the specific context of leadership within technology-intensive manufacturing environments. The finding that emotional intelligence enhances leadership effectiveness through its influence on leaders' confidence in executing leadership responsibilities supports SCT's proposition that self-efficacy beliefs are shaped by emotional competencies and subsequently influence behavioral outcomes through enhanced motivation, persistence, and strategic thinking (Kim et al., 2023; Liu & Liu, 2024).

Second, the study extends LMX Theory by identifying emotional intelligence as a critical antecedent of high-quality leader-follower relationships. LMX Theory has traditionally focused on the characteristics and outcomes of leader-follower relationships, with less attention to the personal attributes that enable leaders to develop and maintain these exchanges (Coyle & Biermeier-Hanson, 2023). The present study addresses this gap by demonstrating that emotional intelligence, through its enhancement of empathy, social awareness, and emotion

regulation, enables leaders to build the relational quality that is central to LMX theory (Graen & Uhl-Bien, 1995; Jia et al., 2024).

Practical Implications

The findings have significant practical implications for leadership development in Malaysia's electronics manufacturing sector. First, organizations should invest in targeted emotional intelligence training programs as a core component of leadership development. Because emotional intelligence strongly predicts both leadership self-efficacy and leadership effectiveness, EI development programs, incorporating self-awareness, emotional regulation, empathy, and relationship management training — are likely to yield substantial returns in leadership performance (Ouahiba & Omar, 2025; Shatila & Nigam, 2025).

Second, leadership development programmes should explicitly target the enhancement of leadership self-efficacy alongside emotional intelligence training. Programmes that combine EI development with confidence-building activities — such as mastery experiences, mentoring, and positive performance feedback are likely to be particularly effective in improving leadership outcomes (Halliwell et al., 2021; Walsh, 2025). Human resource practitioners and training providers in the electronics manufacturing sector should incorporate self-efficacy enhancement strategies into existing leadership development curricula to maximize their impact on leadership effectiveness.

Third, at the national level, these findings support the Malaysian government's Industry 4.0 policy (Industry4WRD) by highlighting the importance of developing emotionally intelligent and self-efficacious leaders who can drive the technical and process evolution required for Industry 4.0 adoption (MITI, 2023). Leadership development initiatives aligned with these psychological competencies can serve as a competitive advantage for Malaysia's electronics sector relative to other ASEAN manufacturing nations.

Conclusion

This study examined the impact of emotional intelligence on leadership effectiveness, with leadership self-efficacy serving as a mediator, among professionals in Malaysia's electronics manufacturing sector. The results show that emotional intelligence positively predicts both leadership effectiveness and leadership self-efficacy, while leadership self-efficacy partially mediates the emotional intelligence–leadership effectiveness relationship. Effect-size analysis adds an important qualification to these significance tests: emotional intelligence has a medium contribution to leadership self-efficacy but a smaller unique contribution to leadership effectiveness, while the incremental f^2 contribution of leadership self-efficacy to leadership effectiveness is modest.

The findings should be interpreted in light of the cross-sectional and single-source design. Although procedural safeguards and an additional common latent factor assessment were used to examine common method variance, the possibility of shared method effects cannot be fully eliminated. Future research should employ longitudinal and multi-source designs, including supervisor, peer, and subordinate ratings, to strengthen causal inference and reduce reliance on a single data source.

Acknowledgements: The authors would like to express their sincere gratitude to Putra Business School for providing the necessary resources and support throughout the course of this research. Special appreciation is extended to colleagues and peers who contributed valuable insights and constructive feedback, which greatly enhanced the quality of this paper.

Funding Statement: No Funding

Conflict of Interest Statement: The authors declare that there is no conflict of interest regarding the publication of this paper. All authors have contributed to this work and approved the final version of the manuscript for submission to the International Journal of Entrepreneurship and Management Practices (IJEMP).

Ethics Statement: This study did not involve any human participants, animals, or sensitive data requiring ethical approval. The authors confirm that the research was conducted in accordance with accepted academic integrity and ethical publishing standards.

Author Contribution Statement: All authors contributed significantly to the development of this manuscript. The first author handled data collection, analysis, interpretation of results, contributed to the literature review, drafting, and critical revision of the manuscript. The second and third authors were responsible for the conceptualization, methodology, and overall supervision of the study. All authors read and approved the final version of the manuscript prior to submission.

International Journal of Entrepreneurship and Management Practices
IJEMP
EISSN : 2600-8750
Volume 9 Issue 35 (September 2026) PP. 730-744

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