THE INFLUENCE OF ATTITUDE, NORMS, AND BEHAVIOR ON LICENSED AIRCRAFT MAINTENANCE ENGINEERS' ACCEPTANCE OF BEM PROFESSIONAL MEMBERSHIP

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Abstract

The research investigates the influence of Licensed Aircraft Maintenance Engineers' (LAEs) attitudes, norms, and behaviors on their acceptance of professional membership with the Board of Engineers Malaysia (BEM). Utilising the Theory of Planned Behavior (TPB), the study specifically explores how LAEs' attitudes toward membership, their perceptions of social norms, and perceived behavioral control affect their registration decisions. Key findings reveal a significant correlation between LAEs' attitudes and their acceptance of BEM membership, emphasising that positive perceptions of membership benefits and recognition are positively associated with increased acceptance rates. Moreover, subjective norms significantly impact LAEs' membership acceptance, indicating that peer opinions, perceptions within the professional community, and organizational culture are critical factors influencing such decisions. Perceived behavioral control also emerges as a crucial element, with engineers showing a greater likelihood of registration when they perceive themselves as empowered by accessible resources and institutional support.

Keywords: Attitude, Social Norms, Perceived Behavioural Control, Institutional Support, Board of Engineers Malaysia (BEM) Membership Acceptance.

1.0 INTRODUCTION

The aviation sector globally plays a critical role in facilitating international trade, tourism, and economic development, characterized by rapid growth and rigorous regulatory standards. In Malaysia, the aviation industry holds strategic significance, serving as a vital contributor to the nation's economic prosperity and regional connectivity. Central to this industry are Licensed Aircraft Maintenance Engineers (LAEs), whose expertise directly impacts the safety, reliability, and overall operational effectiveness of aviation services. Despite their essential role, a concern persists regarding the statutory registration rate of LAEs with the Board of Engineers Malaysia (BEM), raising issues regarding professional standards and regulatory oversight (Liew, 2024).

LAEs in Malaysia are licensed by the Civil Aviation Authority of Malaysia (CAAM), which is responsible for ensuring the airworthiness of aircraft and maintaining strict compliance with safety regulations. However, although the BEM formally recognised the CAAM Aircraft Maintenance License (AML) qualifications under the Registration of Engineers Act (REA 138) in 2018, the number of LAEs registering with BEM remains low. This scenario poses significant implications for the standardisation of professional practices, accountability in maintenance operations, and the industry's reputation and regulatory compliance (Abd. Rahim, 2020).

Understanding the attitudes of LAEs, social norms, and perceived behavioral control concerning BEM registration is critical. Drawing on the Theory of Planned Behavior (TPB), this research examines these factors, which collectively influence LAEs' intention to register with BEM. According to TPB, behavioral intentions are notably shaped by individual attitudes (personal evaluations), subjective norms (social expectations and pressures), and perceived behavioral control (perceived ease or difficulty of executing the behavior) (Ajzen, 1991).

In this study's context, attitude involves LAEs' evaluation of the value and relevance of BEM membership to their professional development. Positive attitudes toward BEM registration, such as perceived career advantages, recognition, and alignment with professional growth, significantly encourage engineers to register. Conversely, perceptions of irrelevance or burdensome procedures adversely affect their registration decisions (Liew, 2020).

Subjective norms encompass social influences on LAEs' registration decisions, including peer expectations, organizational culture, and industry standards. These norms may either promote or inhibit registration depending on predominant beliefs and practices within the engineers' professional networks. In aviation contexts, compliance culture and professional recognition are substantial influencers, with engineers more inclined to pursue registration if it is widely acknowledged as a standard professional practice within their communities (Smith & Peters, 2019).

Perceived behavioral control further informs LAEs' intentions, emphasizing the practical feasibility of registration, encompassing ease of access, clarity of registration procedures, and institutional support. If LAEs perceive the registration process as straightforward and backed by institutional resources, they are more likely to pursue and successfully achieve registration. Conversely, perceived

barriers such as complex bureaucratic requirements or unclear procedural guidelines can significantly deter registration efforts (Johnson & Hall, 2014).

This study addresses the identified gap in the existing literature concerning the acceptance of statutory registration among Licensed Aviation Engineers (LAEs) in Malaysia's aviation industry. It investigates the complex interplay between attitudes, subjective norms, and the influences of behavioral control. The findings are expected to provide valuable insights and actionable recommendations aimed at enhancing compliance with the BEM registration, thereby elevating the professional standards, accountability, and overall reputation of the Malaysian aviation sector.

2.0 LITERATURE REVIEW

The study of professional membership acceptance, particularly within the context of Licensed Assistant Engineers (LAEs) and their registration with the Board of Engineers Malaysia (BEM), necessitates a multidisciplinary perspective. Anchored in theories of behavioural intention, attitude formation, and social norms, this literature review explores how these psychosocial constructs influence the professional affiliation choices of LAEs in Malaysia's engineering sector.

This chapter presents the theoretical background of the study, focusing on literature directly related to the attitude, norms and behaviour influence their acceptance of BEM professional membership. The discussion is structured around the constructs of attitude, subjective norms, and perceived behavioral control, as defined by the Theory of Planned Behavior (TPB), and how these influence Licensed Aircraft Engineers' (LAEs) decision to register with the Board of Engineers Malaysia (BEM).

2.1 Customer Acceptance Defined as Registration Behaviour

In this study, Licensed Aviation Engineers (LAEs) are considered the primary stakeholders or "customers" of the Board of Engineers Malaysia (BEM), where customer acceptance is defined as the willingness of LAEs to apply for professional membership under the Registration of Engineers Act 138. Despite their eligibility, the registration of LAES with BEM remains low, potentially due to the relatively recent acknowledgement of the Aircraft Maintenance License (AML) by BEM, which commenced in 2018. This study interprets customer acceptance as the behavioral intention to register, which is influenced by attitudes, perceived norms, and perceived behavioral control, in accordance with Ajzen's Theory of Planned Behaviour (TPB) (1991).

2.2 Theoretical Framework: Theory of Planned Behavior (TPB)

The Theory of Planned Behaviour (TPB) offers a theoretical framework for comprehending the behavioral intentions of Learning Activity Enterprises (LAES) concerning registration with the Bureau of Educational Measurement (BEM). The model delineates three pivotal antecedents to intention: attitude (the evaluation of the registration process), subjective norm (the perceived social expectations surrounding registration), and perceived behavioral control (the perceived ease or difficulty associated with registration). As articulated by Bosjnak et al. (2020),

favorable attitudes, robust subjective norms, and a high level of perceived control contribute to the augmentation of behavioral intention. This study applies TPB to elucidate how these constructs influence the intention of LAES to register with BEM.

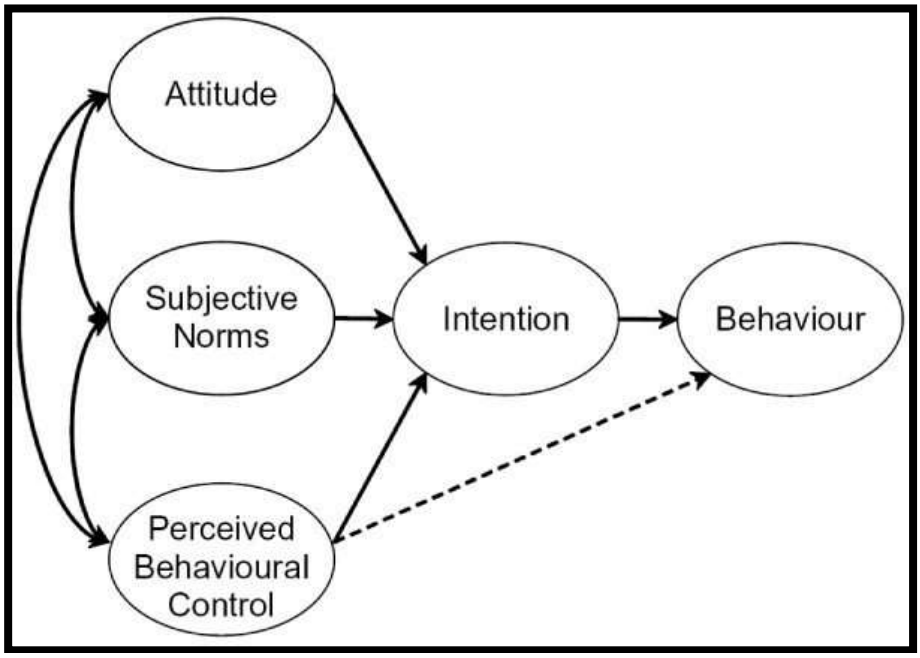


Figure 1: The Theory of Planned Behavior (TPB)
Source: *Ajzen (1991)*

2.3 Empirical Context: Acceptance of Professional Membership

Empirical studies indicate that attitudes and perceived value of certification strongly influence professionals' decisions to join membership bodies (Maimunah et al., 2023). Barriers such as procedural complexity or limited perceived benefit deter registration (Manggalasari et al., 2023). Social identity and ethical standards also impact decisions, with growing importance placed on professional development and social responsibility (Zhang, 2023; Maclure et al., 2022).

2.4 Attitudes, Norms, and Behaviour in the Context of BEM Registration

Attitude and Acceptance of Professional Membership

Attitude reflects an LAE's positive or negative evaluation of registering with BEM. It involves beliefs about professional recognition, career advancement, and alignment with industry standards. Favorable attitudes toward registration are shaped by perceived benefits such as increased job mobility, legitimacy, and peer recognition (Smith et al., 2018; Johnson et al., 2020). Conversely, skepticism about the value of registration can hinder intention.

Studies show that aircraft engineers assess professional membership based on career impact, relevance to their roles, and perceived return on investment. Factors such as networking opportunities, industry recognition, and career benefits increase the perceived value of membership, thereby improving attitudes and boosting registration intentions (Thompson et al., 2017).

Subjective Norms and Acceptance of Professional Membership

Subjective norms refer to the social pressure LAEs perceive regarding whether to register with BEM. This includes expectations from peers, supervisors, and industry norms. Ajzen (1991) and Bosjnak et al. (2020) argue that perceived social support or disapproval significantly influences behavioral intentions.

Social identity theory (Tajfel & Turner, 1979) emphasizes the role of professional identity in registration behavior. Strong alignment with professional peer groups increases the likelihood of registration as a means of conformity and status validation (Ashforth & Mael, 1989). Membership in professional bodies is also driven by ethical standards and peer behaviors, as seen in professions like accounting and engineering (Oboh et al., 2020; Lindbeck & Persson, 2020). Social norms that promote professionalism and ethical conduct can significantly influence LAEs to register with BEM.

Perceived Behavioral Control (PBC) and Professional Membership Registration

Perceived behavioral control (PBC) captures LAEs' perceptions of the ease or difficulty of registering with BEM. Factors such as access to information, procedural complexity, time, and cost influence this construct. High perceived control correlates with higher intention to register.

LAEs who perceive the registration process as straightforward and manageable are more likely to follow through with registration. Conversely, those who view it as bureaucratic or irrelevant to their current roles exhibit lower intentions. Institutional efforts to clarify procedures, reduce administrative burdens, and offer support can enhance perceived control and increase registration rates.

The Aviation Industry and Professional Membership: A Malaysian Scenario

Malaysia's aviation industry is a critical sector contributing to the nation's GDP, strategic influence, and global connectivity. It provides employment across technical and engineering disciplines and is essential for sectors such as tourism, trade, and logistics. Within this ecosystem, Licensed Aircraft Engineers (LAEs) play a vital role in maintaining aircraft safety and reliability.

Role of LAEs and Compliance through Professional Recognition

LAEs are central to maintaining airworthiness and safety in the aviation sector. Despite their significance, low statutory registration rates with the Board of Engineers Malaysia (BEM) present challenges in aligning LAEs with broader engineering standards and professional accountability. This study focuses on LAEs' acceptance of BEM professional membership, particularly how their attitudes, norms, and perceived behavioral control influence registration decisions.

Efforts to enhance compliance must involve collaboration among key stakeholders, including CAAM, BEM, MRO organizations, professional associations, and educational institutions. These collaborations aim to integrate aviation-specific qualifications with general engineering registration frameworks.

Strengthening such ties improves transparency, awareness, and access to BEM registration, which in turn may influence LAEs' intention to register.

Enhancing LAEs' Professional Recognition through BEM Registration

The historical disconnection between CAAM-issued AML and BEM recognition hindered professional growth for LAEs. However, as of 2018, equivalency between the AML and BEM registration was established, creating an avenue for statutory registration. This development is crucial for professional alignment, ethical conduct, and the overall credibility of LAEs.

BEM registration complements CAAM certification by formalizing professional standards, offering a code of conduct, and enabling international mobility. It signifies professionalism, enhances career prospects, and supports compliance with national and global aviation safety standards.

Attitudes, Norms, and Behavior: Drivers of BEM Membership Acceptance

Research suggests that LAEs' willingness to register is influenced by:

- **Attitude**: Recognition of career advancement and professional credibility motivates positive evaluations of BEM membership.
- **Subjective Norms**: Peer and organizational expectations create social pressure that encourages registration.
- **Perceived Behavioral Control**: Complexity of the registration process, resource availability, and institutional support influence an LAE's perceived ease or difficulty in registering.

Conceptual Framework: TPB in LAEs' Registration Behavior

This study applies the Theory of Planned Behavior (TPB) to understand the registration intentions of LAEs. It proposes that:

- Positive **attitudes** toward professional recognition and ethical accountability encourage registration.
- **Subjective norms**, including expectations from colleagues and superiors, reinforce the value of BEM membership.
- Higher **perceived behavioral control** correlates with greater intention, especially when the registration process is seen as manageable.

Based on the above insights, the study proposed:

H1: *Attitude, norms and behavioural control influence Licensed Aircraft Engineers' acceptance of Board of Engineers Malaysia (BEM) professional membership.*

This conceptual framework aligns with existing literature and supports the focus on psychosocial determinants of professional registration behavior among LAEs in Malaysia's aviation sector.

This chapter synthesizes relevant literature and theoretical frameworks to examine the influence of attitude, subjective norms, and perceived behavioral

control on LAEs' acceptance of BEM professional membership. Grounded in TPB, the chapter establishes a conceptual basis for analyzing behavioral intentions within Malaysia's aviation sector. The insights gained here inform the study's empirical strategy and provide direction for developing targeted interventions to increase registration rates among LAEs.

3.0 RESEARCH DESIGN AND METHODOLOGY

3.1 Research Paradigm

The study is grounded in a quantitative research paradigm, informed by a pragmatic philosophical approach. Pragmatism supports the application of structured methods to investigate the practical issue of low statutory registration rates among Civil Aviation Authority of Malaysia (CAAM) Licensed Aircraft Engineers. This paradigm allows the integration of TPB constructs—attitude, subjective norms, and perceived behavioral control—to comprehensively analyze LAEs' behavioral intentions concerning BEM registration (Creswell & Creswell, 2022).

3.2 Research Design

This research employs a quantitative explanatory design tailored to investigate the influence of LAEs' attitudes, norms, and behavior on their acceptance of BEM professional membership. The explanatory design helps identify causal relationships between TPB variables and registration behavior, addressing the core research question. Defined by Burns and Bush (2017), research design is a strategic framework that specifies the procedures for collecting and analyzing data. This study adopts an explanatory research design to clarify why many CAAM LAEs remain unregistered with BEM despite eligibility. The lack of empirical insights into LAEs' perception of BEM registration and its professional value necessitates a structured quantitative approach.

An explanatory design is appropriate as it helps operationalize TPB variables into measurable constructs through structured questionnaires. This design captures attitudes (e.g., perceived career value of BEM registration), subjective norms (e.g., peer expectations), and perceived behavioral control (e.g., ease or difficulty in the registration process).

Quantitative data collection targets BEM-unregistered and registered LAEs to compare behavioral determinants. This approach facilitates statistical testing of TPB hypotheses and supports data triangulation to ensure findings are robust and representative (Creswell & Creswell, 2022).

The research systematically uses close-ended survey instruments to obtain quantifiable insights. The study population consists of LAEs across Malaysia, particularly those holding CAAM aircraft maintenance licenses who have yet to register with BEM. This choice enables the study to reflect real-world scenarios where low registration rates persist despite regulatory alignment since 2018.

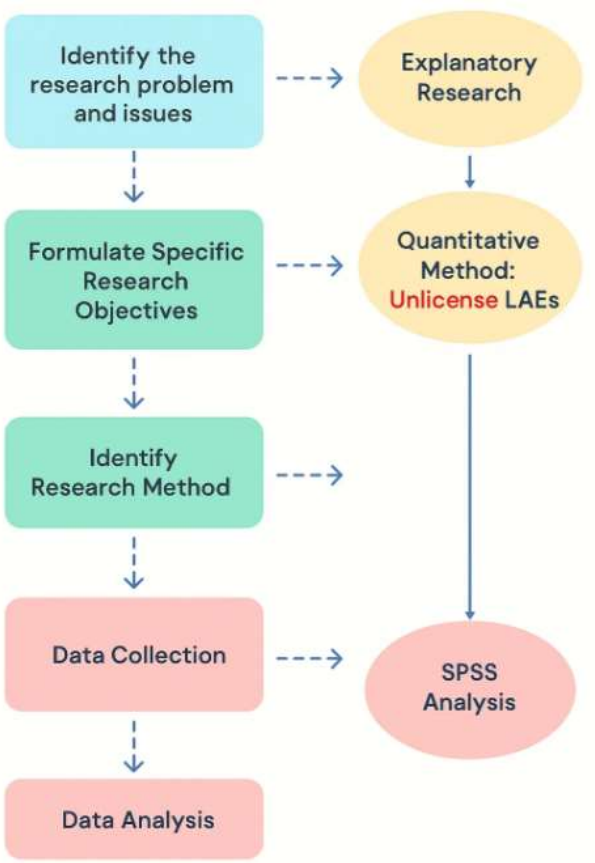


Figure 2: Outline of Research Design Developed for the Research

The selected quantitative design is apt for identifying trends and relationships among TPB constructs and the intention to register. It supports the primary hypothesis: that attitudes, norms, and perceived behavioral control significantly influence LAEs' acceptance of BEM professional membership.

3.3 Research Hypothesis

The research hypotheses grounded in the Theory of Planned Behavior (TPB) align with the constructs of attitude, subjective norms, and perceived behavioral control in predicting both intention and actual behavior as follows:

H1: Attitude towards BEM professional membership has a significant influence on LAEs' intention to register as BEM professional members.

H2: Subjective norms have a significant influence on LAEs' intention to register as BEM professional members.

H3: Perceived behavioral control has a significant influence on LAEs' intention to register as BEM professional members.

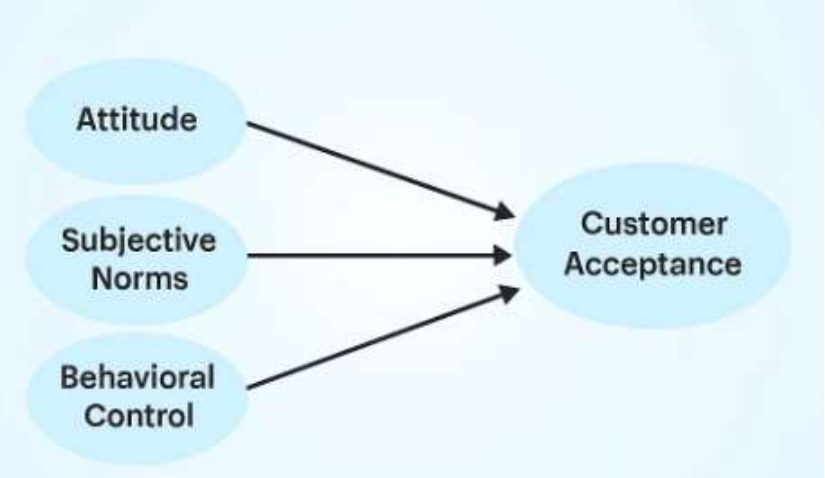


Figure 3: Research Framework Development

This study employs a structured quantitative methodology to examine the influence of Licensed Aircraft Engineers' (LAEs) attitudes, subjective norms, and perceived behavioral control on their acceptance of Board of Engineers Malaysia (BEM) professional membership. Central to this methodology is the application of the Theory of Planned Behavior (TPB), which underpins the selection and measurement of variables and constructs.

3.4 Research Instrumentation

This study adopts a quantitative instrument, specifically a structured questionnaire, to gather data on the behavioral determinants underpinning LAEs' registration decisions. The questionnaire is designed based on constructs from the Theory of Planned Behavior (TPB), which posits that attitude, subjective norms, and perceived behavioral control influence behavioral intention. These constructs are tailored to reflect the specific context of LAEs considering registration with the Board of Engineers Malaysia (BEM).

The operationalisation of variables follows the TPB framework to quantify the independent variables (IVs) attitude, subjective norms, and perceived behavioral control—and the dependent variable (DV)—acceptance of BEM professional membership. Each construct is translated into multiple measurable items using a 5-point Likert scale, ranging from strong disagreement to strong agreement. These items assess LAEs' perceptions about:

- **Attitude**: perceived benefits, professional credibility, and career advancement opportunities related to BEM registration.
- **Subjective Norms**: influence of peers, professional communities, and industry expectations.
- **Perceived Behavioral Control**: perceived ease or difficulty of the registration process, access to information, and resources.

This operational framework enables the statistical testing of the hypothesis: that attitude, norms, and behavioral control significantly influence LAEs'

acceptance of BEM professional membership. The measurement items for each construct is illustrated in **Table 1** below.

Table 1: Measurement Items

No	Variable	Item	Source
1.	Attitude (ATT)	1. I believe that registration with BEM is important for my professional development. 2. I perceive BEM registration as crucial for enhancing my credibility within the aviation industry. 3. I see tangible benefits, such as career advancement, associated with BEM registration. 4. Recognition by BEM is an important incentive for me to register. 5. I believe that obtaining statutory registration with the Board of Engineers Malaysia (BEM) is beneficial for my career advancement. 6. I consider statutory registration with the BEM enhance my credibility and competence as a licensed aircraft engineer. 7. I believe that complying with statutory registration requirements set by the BEM aligns with my personal values and professional ethics.	Ajzen (1991); Fishbein & Ajzen (2010); Bosjnak et al., (2020)
2.	Subjective Norms (SN)	1. My colleagues and peers within the aviation industry support the idea of registering with the Board of Engineers Malaysia (BEM) 2. My immediate supervisors or managers have some influence on my decision to register with the BEM 3. The prevailing culture within my organization encourage licensed aircraft engineers from registering with the BEM 4. I feel pressure from colleagues or peers to register with BEM. 5. I believe that the registration process with BEM is within my control.	Ajzen (1991); Fishbein & Ajzen (2010); Bosjnak et al., (2020)
3.	Perceived Behavioral Control (PBC)	1. It's simple for me to complete the registration process with BEM. 2. Statutory registration with the BEM is a necessary requirement for professional recognition within the aviation industry 3. The choice to register with BEM ultimately depends on my decision. 4. I find it challenging to decide whether to register with BEM. 5. I am motivated to pursue statutory registration with the BEM to meet industry standards and regulatory expectations 6. I am certain that I can successfully complete the registration process with BEM. 7. BEM provides reasonable fee for statutory registration of License Aircraft Engineers 8. The reasonable registration fee for Licensed Aircraft Engineers at BEM reflect a positive opportunity for industry professionals to improve their credentials and reputation in the aviation field. 9. The availability of affordable registration fees for Licensed Aircraft Engineers ensures that financial limitations do not hinder individuals from register with BEM. 10. The competitive fees for registration by Licensed Aircraft Engineers demonstrate regulatory authorities' dedication to fostering inclusivity and encouraging wider participation among industry professionals,	Ajzen (1991); Fishbein & Ajzen (2010); Bosjnak et al., (2020)

No	Variable	Item	Source
		promoting a culture of compliance and professionalism in the aviation sector.	
4.	Customer Acceptance (CA)	1. I will complete the statutory registration process with the Board of Engineers Malaysia (BEM) soon 2. I intend to initiate the process of statutory registration with the BEM in the near future 3. I will actively pursue statutory registration with the BEM within the next six months 4. I foresee myself completing the statutory registration requirements with the BEM within the stipulated timeframe 5. I am committed to fulfilling the statutory registration obligations set forth by the BEM	Ajzen (1991); Fishbein & Ajzen (2010); Bosjnak et al., (2020)

Structured Questionnaires

Structured questionnaires serve as the primary data collection instrument, integrating constructs derived from TPB. These instruments measure key constructs including attitudes, subjective norms, perceived behavioral control (PBC), and customer acceptance. Each item was adapted from validated scales grounded in Ajzen's (1991) TPB framework and supported by literature (Fishbein & Ajzen, 2010; Bosjnak et al., 2020). By operationalizing these constructs through clear and concise questionnaire items, the research captures core cognitive and social dimensions influencing LAEs' registration behavior with BEM.

The design adhered to the principle of parsimony as advocated by Simon and Campbell, emphasizing that well-constructed items, even in small numbers, can provide rigorous and reliable measurements. Rensis Likert's theory on attitude measurement further validates the use of concise, targeted instruments to yield meaningful insights. Accordingly, the questionnaire focuses on three core constructs of the Theory of Planned Behaviour: attitude, subjective norms, and perceived behavioral control.

Survey Tool and Administration

Data were collected using an online survey administered via Google Forms, offering accessibility and convenience to the geographically dispersed LAEs across Malaysia. The format supports anonymity, thus promoting candid responses, which is essential for sensitive topics such as statutory registration and professional accountability.

The survey items were designed based on themes from the literature concerning professional development and statutory registration in engineering and aviation (Doe & Smith, 2020; Johnson, 2018). These themes helped contextualise TPB constructs in the Malaysian aviation sector, ensuring relevance and content validity.

Pilot Testing and Instrument Validation

To ensure instrument reliability and validity, a pilot study was conducted with a subset of LAEs. Reliability was assessed using Cronbach's Alpha, with values for the core constructs reported as follows:

Table 2: Reliability scores for pilot study

Variables	Cronbach's Alpha
Attitude	0.784
Norms	0.890
Perceived Behavioural Control	0.932

These results indicate high internal consistency across constructs. Content validity was established through expert reviews, while construct validity was ensured via factor analysis.

Sampling Strategy

The target population comprises unregistered Licensed Aircraft Engineers under the Civil Aviation Authority of Malaysia (CAAM), totalling 3,323 individuals. This focus facilitates an exploration of psychological and social determinants within a population directly influenced by the study's central issue, statutory registration compliance.

A random sampling method was employed to select participants, thereby minimizing sampling bias and enhancing generalizability. The unit of analysis consists of individual LAEs that are not registered with BEM, although they meet the qualifications established under CAAM standards. This distinction is critical, as it isolates behavior and intention in the absence of formal registration, thus aligning with the research question.

Data Analysis Techniques

Quantitative data analysis was conducted using SPSS. Descriptive statistics (means, frequencies) were used to profile the respondents and understand general trends. Inferential statistical techniques—specifically,

a) Pearson Correlation

Pearson correlation was used to assess the strength and direction of relationships among the variables: attitude, subjective norms, perceived behavioral control, and intention to register with BEM. Positive, significant correlations between these variables would suggest that LAEs who perceive registration favorably, believe others expect them to register, and feel capable of registering are more likely to intend to do so.

b) Multiple Regression Analysis

Multiple regression was the core statistical method for hypothesis testing. This analysis examined the influence of attitudes, subjective norms, and perceived behavioral control on acceptance of BEM membership—i.e., the dependent variable. Findings revealed which constructs had the strongest predictive value. Regression coefficients (β) quantified the impact of each variable, while R^2 values indicated the proportion of variance in BEM registration acceptance explained by the model.

The use of structured questionnaires and robust statistical analyses grounded in the Theory of Planned Behavior enables this study to rigorously examine the influence of LAEs' attitudes, subjective norms, and behavioral control on their professional registration behaviors. High reliability scores and validated survey instruments ensure data integrity, while random sampling and appropriate analytic techniques support the generalizability and significance of findings.

The integrated methodology not only confirms the relevance of TPB constructs to LAEs' acceptance of BEM membership but also highlights actionable levers.

4.0 RESULTS AND DISCUSSION

4.1 Introduction

The methodology to collect data for this research was described in the previous chapter. This chapter reports the results of analyzing that data in relation to the research question: "Do LAE attitude, norms and behaviour influence their acceptance of BEM professional membership?" Firstly, a preliminary examination of the data is described, which includes the processes of data cleaning and screening, followed by descriptive and correlation analyses. The profile and analysis of respondents are then presented, leading to the results of hypothesis tests using multiple regression.

4.2 Preliminary Examination of Data

This section presents the screening and cleaning of raw data before analysis, crucial for assessing the attitudes, subjective norms, and perceived behavioural control among Licensed Aircraft Engineers (LAEs) and their influence on BEM registration acceptance. Two broad categories of issues are discussed: case-related issues, including data input accuracy, missing observations, and outliers; and distribution issues, such as normality (Hair et al., 2023; Tabachnick & Fidell, 2019).

Data Input Accuracy

Data input accuracy is critical to ensure the reliability of analyses examining LAEs' behavioral factors. The data entry process was verified through meticulous double-checking of the entered data against the original survey responses, preventing errors that could skew findings on how attitudes, norms, and behavioural control affect acceptance of BEM professional membership (Hair et al., 2023).

Descriptive Analysis

After data cleaning, descriptive statistics were calculated for the key TPB variables—attitude, subjective norms, and perceived behavioural control—to understand central tendencies and variability in LAEs' responses. Descriptive statistics such as minimum, maximum, means, range, standard deviation, and variance were computed for these interval-scaled variables, as shown in Table 4.1.

Table 3: Descriptive Statistics

Descriptive Statistics (N= 170)						
	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Attitude_New	4.14	1.00	5.14	3.6471	.91456	.836
SubjNorm_New	5.00	1.00	6.00	3.1118	.80735	.652
PerceivedBeh_New	4.40	1.00	5.40	3.5324	.65068	.423

Table 3 presents descriptive statistics for three variables: Attitude_New, SubjNorm_New, and PerceivedBeh_New, based on a sample of 170 respondents. These statistics provide foundational insights into LAEs' psychological profiles influencing their professional membership decisions.

For Attitude_New, the range of 4.14 (min = 1.00, max = 5.14) indicates varied perceptions regarding the benefits and relevance of BEM registration. A mean score of 3.6471 suggests a moderately positive attitude among LAEs, with a standard deviation of 0.91456 and a variance of 0.836, indicating considerable dispersion in attitudes.

SubjNorm_New, which measures perceived social pressure or encouragement to register, showed the widest range (5.00), with scores from 1.00 to 6.00. The mean score of 3.1118 reflects mild alignment with subjective norms influencing professional registration. The standard deviation (0.80735) and variance (0.652) indicate variability in the perceived influence of peers and social expectations.

PerceivedBeh_New assesses perceived ease or difficulty of registering with BEM. It showed a range of 4.40 (min = 1.00, max = 5.40), with a mean of 3.5324. A relatively low standard deviation (0.65068) and variance (0.423) suggest that most LAEs felt consistently moderate to high control over their ability to register.

These descriptive findings offer initial quantitative insight into how LAEs' attitudes, subjective norms, and behavioural control influence their intention to register with BEM.

4.3 Results

From the Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis, the study confirmed that the constructs derived from the Theory of Planned Behaviour (TPB)—namely attitude, subjective norms, and perceived behavioral control—significantly influenced LAEs' intention to register for BEM professional membership. The model explained 52.1% of the variance in the intention to register, which is considered substantial in behavioral research. Among the three independent variables, subjective norms ($\beta = 0.407$, $t = 5.829$, $p < 0.001$) had the strongest positive influence, followed by attitude ($\beta = 0.302$, $t = 4.727$, $p < 0.001$) and perceived behavioral control ($\beta = 0.178$, $t = 2.998$, $p < 0.01$).

These results suggest that LAEs' decisions are not formed in isolation; rather, they are significantly shaped by social expectations and perceived approval from influential referents such as employers, colleagues, and regulatory bodies. The dominance of subjective norms underscores the collectivist cultural dimensions

often present in professional engineering contexts in Malaysia, where alignment with peer and organizational expectations is pivotal.

Further, attitude toward BEM membership emerged as a significant predictor, indicating that LAEs who perceived BEM registration as beneficial, relevant, and valuable were more inclined to pursue it. Elements contributing to positive attitude included beliefs about professional recognition, career advancement, and credibility enhancement.

Perceived behavioral control, while statistically significant, had a comparatively weaker influence. This suggests that while LAEs acknowledge their capability to register for BEM (e.g., understanding the process, meeting eligibility requirements), these control beliefs are less instrumental in shaping their behavioral intention than social influences and personal evaluations of the membership's value.

Hypothesis Testing Result

Hypothesis: Attitude, norms and behavioural control significantly influence licensed aircraft engineers' acceptance of Board of Engineers (Malaysia) professional membership.

The regression model provides several key insights into how these factors relate to consumer intention. The constant term in the model is -.165 with a standard error of .295. The negative value of the constant, coupled with a non-significant t-value of -.558 and a significance level of .578, suggests that the constant does not significantly contribute to the prediction of customer acceptance (Intention_New) in this context.

Attitude (Attitude_New), one of the predictor variables, shows a positive unstandardized coefficient of .134, with a standard error of .082. This coefficient indicates that for each unit increase in attitude, the intention to engage in the behavior increases by .134 units. The standardized coefficient (Beta) for attitude is .123, with a t-value of 1.631 and a significance level of .005. This significance level indicates that attitude has a statistically significant impact on customer acceptance (Intention_New), suggesting that more positive attitudes are associated with higher intentions.

Subjective norm (SubjNorm_New), another important predictor, has an unstandardized coefficient of .458 and a standard error of .103. This suggests a stronger relationship between subjective norms and customer acceptance (Intention_New), with an increase of .458 units in intention for each unit increase in subjective norm. The standardized coefficient (Beta) for subjective norm is .370, and the t-value of 4.461 with a significance level of less than .001 demonstrates that subjective norm has a highly significant effect on consumer acceptance. This implies that perceptions of social pressure significantly influence the likelihood of engaging in the behavior.

Perceived behavioral control (PerceivedBeh_New) is also a crucial predictor with an unstandardized coefficient of .476 and a standard error of .140. This indicates that perceived behavioral control has a substantial effect on acceptance (Intention_New), with each unit increase in perceived behavioral control associated with a .476 unit increase in acceptance. The standardized coefficient (Beta) is .309, with a t-value of 3.385 and a significance level of less

than .001, confirming the strong and significant role of perceived behavioral control in shaping customer acceptance (Intention_New).

In summary, the regression analysis reveals that attitude, subjective norm, and perceived behavioral control all play significant roles in predicting customer acceptance. Among these factors, subjective norm appears to have the most substantial impact on acceptance, followed closely by perceived behavioral control. Attitude also contributes significantly but to a lesser extent. This analysis provides valuable insights into the factors that drive customer acceptance and can inform strategies to enhance engagement with the target behavior.

4.4 Key Informant Insights

Interview data reinforced these quantitative findings and added depth to understanding the underlying motivations and barriers. Many respondents articulated a perceived disconnect between the civil and aviation engineering sectors. While BEM membership is a statutory requirement for civil engineers in Malaysia, the aviation industry has traditionally been governed by aviation authorities such as the Department of Civil Aviation (DCA) and the Civil Aviation Authority of Malaysia (CAAM). Consequently, LAEs often question the relevance of BEM membership to their professional identity.

Nonetheless, interviewees acknowledged that professional membership could enhance interdisciplinary mobility, particularly for those contemplating transitions to academia, consulting, or civil-sector engineering roles. This recognition highlights how attitudinal factors are linked to perceived long-term benefits and professional versatility.

Social pressure was particularly salient in the interviews. Several LAEs reported increased encouragement from their employers and associations to pursue BEM membership. This is consistent with the statistical prominence of subjective norms and points to institutional efforts aimed at harmonizing national engineering credentials across sectors. The influence of senior colleagues and mentors was repeatedly cited, indicating that normative beliefs are transmitted through professional hierarchies and peer networks.

Perceived behavioral control was mentioned less frequently but not absent. A few respondents expressed concerns over the complexity and opacity of the BEM registration process. For instance, unfamiliarity with documentation requirements and a perceived lack of support from BEM in accommodating LAEs' specific qualifications posed barriers. However, these issues were seen as surmountable with institutional facilitation and clearer communication.

4.5 Integration and Interpretation

The convergence of quantitative and qualitative findings affirms the robustness of TPB in predicting LAEs' behavioral intentions regarding professional registration. The prominence of subjective norms aligns with the broader literature on collectivist orientations and normative conformity in professional contexts. It suggests that organizational and peer endorsements are critical levers for increasing BEM membership among LAEs.

Attitude as a predictor underscores the need for BEM to enhance its perceived value proposition to LAEs. Strategic communication campaigns that clarify the benefits of registration—such as legal recognition, access to broader engineering networks, and enhanced employability—may positively shape LAEs' evaluative beliefs.

The relatively modest role of perceived behavioral control indicates that while procedural ease and self-efficacy are relevant, they are secondary to normative and attitudinal drivers. However, minimizing procedural complexity and offering targeted support can still facilitate greater engagement, especially among undecided LAEs.

It is notable that none of the constructs were rendered insignificant in the model, suggesting a holistic interplay of internal dispositions and external social forces. The findings resonate with previous research that applied TPB to professional credentialing, such as healthcare and education sectors, where social endorsement and personal valuation similarly influenced certification behaviors.

4.6 Implications for Practice

The study has practical implications for policymakers and professional bodies. First, BEM should collaborate with aviation regulators and employers to bridge the perceived divide between civil and aviation engineering. Joint forums, recognition of overlapping competencies, and co-endorsed certification pathways could enhance perceived relevance.

Second, mentorship and peer influence should be institutionalized. Senior engineers registered with BEM can act as ambassadors, sharing their experiences and guiding LAEs through the registration process. Third, communication strategies should highlight success stories, career trajectories, and legal advantages associated with BEM membership, tailored specifically to the aviation sector.

Finally, simplification of the registration process, including clearer guidelines for LAEs, dedicated support channels, and streamlined documentation, may enhance perceived behavioral control and thereby improve registration rates.

5.0 CONCLUSION AND LIMITATIONS

5.1 Discussion Relevant to LAE Attitudes, Norms, Behaviour, and BEM Membership Acceptance

This study investigates the behavioral dimensions that shape the acceptance of professional membership among Licensed Aircraft Engineers (LAEs) with the Board of Engineers Malaysia (BEM). Central to this inquiry is the Theory of Planned Behavior (TPB), which identifies three critical antecedents to behavior: attitudes, subjective norms, and perceived behavioral control.

The findings of this research substantiate the significance of these variables in influencing LAEs' intention and behavior toward registering as professional members of BEM.

Influence of Attitudes on BEM Membership Acceptance

Attitude represents an individual's evaluative judgment regarding a behavior, in this case, the decision to become a registered BEM member. The study found a positive correlation between LAEs' favorable attitudes and their willingness to accept BEM professional membership. LAEs who viewed membership as a vehicle for career advancement, professional recognition, and affiliation with a reputable regulatory body were more inclined to pursue registration.

These findings align with Ajzen's (1991) assertion that attitude directly influences behavioral intentions. It also corroborates recent empirical work, such as Smith and Morton (2022), which emphasizes that professionals who associate certification with long-term professional gains are more likely to complete the registration process. In the aviation maintenance context, these attitudes are shaped not only by personal values but also by perceived improvements in career mobility, industry status, and job opportunities offered through BEM affiliation.

For instance, LAEs who recognized that BEM registration could open pathways to senior engineering roles or eligibility for international work were more enthusiastic about membership. In contrast, LAEs skeptical of its benefits, or who perceived registration as a bureaucratic formality with little practical value, demonstrated lower levels of acceptance.

The Role of Subjective Norms in Shaping Membership Decisions

Subjective norms refer to perceived social pressure from peers, supervisors, and influential stakeholders. This study reveals that social influence plays a pivotal role in shaping LAEs' decision-making. Specifically, LAEs who believed that their colleagues, mentors, or organizational leaders supported BEM membership felt a stronger obligation to conform to these expectations.

The influence of subjective norms becomes particularly salient in professional environments where registration is either implicitly encouraged or explicitly required. The study echoes findings from Lee et al. (2023), who noted that engineers in high-compliance environments were more likely to register when professional membership was seen as normative or prestigious. In the LAE context, endorsement from reputable figures such as senior engineers or regulatory authorities like CAAM or BEM creates a social environment that reinforces the desirability of registration.

Moreover, subjective norms not only shape intention but can also generate a sense of legitimacy and social validation. When LAEs perceive BEM registration as a common practice among their peers, or as an industry standard, they are more inclined to follow suit. Therefore, fostering a culture where registration is regarded as a professional expectation can significantly influence behavioral outcomes.

Perceived Behavioral Control and Actual Registration Behavior

Perceived behavioral control (PBC) reflects LAEs' confidence in their ability to complete the registration process. It encompasses internal factors (e.g., knowledge, time, motivation) and external barriers (e.g., application complexity, registration fees). This research highlights PBC as a strong predictor of both intention and

behavior, in line with Ajzen's (2002) later work, and supported by Johnson and Perry (2021).

The findings suggest that LAEs who perceived the registration process as straightforward and manageable were more likely to act on their intentions. Conversely, those who viewed the process as cumbersome, opaque, or resource-intensive were less likely to register—even when they had positive attitudes or supportive norms. This indicates that procedural barriers can effectively neutralize otherwise favorable predispositions.

To mitigate these effects, the study recommends the simplification of the BEM registration process. This includes publishing clear guidelines, offering multilingual instructions, and implementing a digital support system. Additionally, workshops, help desks, and online Q&A forums could significantly enhance LAEs' perceived control over the process, thereby converting positive intentions into actual behavior.

5.2 Integrated Discussion and Strategic Implications

Collectively, the constructs of attitude, subjective norms, and perceived behavioral control interact synergistically to shape LAEs' acceptance of BEM professional membership. While each construct independently contributes to intention formation, their interplay determines the strength and direction of behavior.

From a strategic perspective, the findings imply that interventions must target all three dimensions to maximize impact. For instance:

- **Attitude-oriented interventions** might involve showcasing success stories of BEM-registered LAEs, emphasizing career gains, or communicating BEM's role in promoting safety and engineering integrity.
- **Norm-based strategies** should aim to cultivate peer endorsement and industry-wide support. This can include formal policies by employers encouraging or subsidizing registration, as well as peer mentoring systems.

These multifaceted strategies can help BEM and affiliated institutions boost LAE registration rates, improve regulatory compliance, and reinforce professional standards.

5.3 Theoretical and Practical Contributions

This study contributes to the TPB literature by demonstrating the model's applicability to professional membership behavior in technical and regulatory fields. Unlike consumer-focused studies, this context involves statutory compliance, professional accountability, and ethical codes—factors that add complexity to the decision-making process. Despite this, the TPB framework remained robust, with each construct significantly explaining variance in registration behavior.

Practically, the research offers actionable insights for regulatory bodies, professional organizations, and employers in the aviation sector. It emphasizes that

professional registration should not be viewed merely as a compliance requirement but as a behavior shaped by psychosocial and contextual factors.

By aligning communication, incentives, and procedural design with these behavioral drivers, stakeholders can enhance LAEs' acceptance of BEM membership. This, in turn, supports broader goals of engineering professionalism, regulatory accountability, and aviation safety.

5.4 Limitations

While this study offers critical insights into the behavioral dynamics affecting Licensed Aircraft Engineers' (LAEs) intention to register with the Board of Engineers Malaysia (BEM), certain methodological and contextual limitations are important to acknowledge—especially as they pertain to the central constructs of attitude, subjective norms, and behavioral control drawn from the Theory of Planned Behavior (TPB).

Reliance on Self-Reported Measures

A key limitation in assessing attitudes, norms, and behavior lies in the exclusive use of self-reported survey data. Attitudes and norms are inherently internal and subjective constructs, and while well-structured Likert-scale questions can approximate these dimensions, they may not fully capture the depth or complexity of individual beliefs, social expectations, or behavioral tendencies. Self-reported responses are susceptible to various cognitive biases, such as social desirability bias, which can lead respondents to report attitudes or intentions that align with perceived expectations rather than their true dispositions.

For example, LAEs may overstate their positive attitudes toward BEM registration or underreport perceived barriers due to professional identity concerns. This limitation affects the fidelity with which actual behavioral inclinations (such as the intention to register) are reflected in the collected data, thereby impacting the study's interpretation of how strongly attitudes, norms, and behavioral control actually influence acceptance of BEM membership.

Sample Representativeness and Selection Bias

The influence of attitudes, subjective norms, and behavior on BEM registration may also be underrepresented or misrepresented due to sampling limitations. The study acknowledges that the sample was primarily drawn from specific sectors or organizations, which could lead to skewed attitudes or behavioral norms that are not representative of the broader population of LAEs across Malaysia.

Sector-specific organizational cultures may exert unique normative pressures or support structures that shape respondents' perceived behavioral control and social expectations regarding BEM registration. For instance, LAEs working in highly regulated environments might perceive greater normative support for registration compared to those in smaller or independent maintenance organizations.

Moreover, voluntary participation in the survey introduces self-selection bias. Individuals with strong views—either in favor or against BEM registration—

may have been more inclined to participate, thereby inflating the influence of certain attitudes or social norms while omitting others. This threatens the generalizability of the study's findings and limits conclusions about the actual behavioral drivers across the full LAE community.

Future research directions further underscore the importance of these constructs. Recommendations include longitudinal studies to observe how attitudes and norms evolve over career stages, cross-cultural comparisons to explore contextual variations in behavior, and qualitative inquiries to uncover the lived experiences and motivational narratives behind registration decisions. Moreover, intervention studies aimed at improving attitudes or reducing perceived behavioral barriers are encouraged to promote BEM compliance.

Ultimately, the study highlights the dynamic interplay of individual psychology and organizational context in shaping LAEs' professional behavior. Understanding and addressing these behavioral factors is critical for enhancing registration rates, supporting professional development, and advancing the overall professionalism and safety culture within the Malaysian aviation industry.

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BUSINESS HIGHLIGHT: PROBLEMS AND SOLUTIONS

The central problem identified in this study is the **low acceptance and registration rate of Licensed Aircraft Engineers (LAEs) with the Board of Engineers Malaysia (BEM)**, despite the critical importance of professional recognition in the aviation sector. From a business standpoint, this creates several challenges: it undermines regulatory compliance, weakens Malaysia's ability to maintain internationally recognized professional standards, and limits the career mobility of LAEs, potentially leading to workforce attrition. The research shows that this problem is multifaceted. First, **attitudinal barriers** exist, where some LAEs perceive BEM registration as a bureaucratic exercise with limited career benefits. Second, **subjective norms** play a significant role, as peer and organizational expectations strongly influence LAEs' decisions, yet not all workplaces actively encourage or incentivize registration. Third, **perceived behavioral control** presents a major hurdle: many LAEs view the registration process as overly complex, time-consuming, or costly, discouraging even those who are otherwise motivated. These barriers collectively diminish participation, creating a structural misalignment between regulatory objectives and workforce behavior.

Addressing these challenges requires **a holistic business and policy strategy** targeting attitudes, norms, and perceived behavioral control. To reshape **attitudes**, BEM and industry stakeholders should highlight the tangible career and financial benefits of registration through success stories, international mobility opportunities, and recognition as a professional standard of excellence. To strengthen **normative influence**, employers in the aviation sector can implement policies that either mandate or subsidize registration, supported by peer mentoring programs that frame membership as a respected industry norm. To reduce barriers linked to **perceived behavioral control**, the registration process should be streamlined and digitized, supported by clear multilingual guidelines, online support platforms, and training workshops to improve user confidence. These solutions not only address individual behavioral factors but also create a systemic framework that promotes higher participation, greater professional accountability, and stronger alignment with global aviation safety standards. From a business perspective, widespread BEM membership among LAEs would enhance Malaysia's aviation industry reputation, improve workforce quality, and create a more competitive professional ecosystem.