Macrothink Institute™

Journal of Public Administration and Governance
ISSN 2161-7104
2026, Vol. 16, No. 1

Assessing Stakeholders' Intention to Participate in the Belt and Road Initiative (BRI)

Pua, E T

Graduate Business School, Universiti Tun Abdul Razak,

Wisma UNIRAZAK, 195A, Jalan Tun Razak, 50400 Kuala Lumpur, Malaysia

Lai, PC (Corresponding author)

Graduate Business School, Universiti Tun Abdul Razak

Wisma UNIRAZAK, 195A, Jalan Tun Razak, 50400 Kuala Lumpur, Malaysia

Toh, E B H

Department of Marketing Strategy & Innovation, Sunway Business School,

No. 5, Jalan Universiti, Bandar Sunway, 47500 Selangor Darul Ehsan, Malaysia

Received: Apr. 1, 2026 Accepted: May. 12, 2026 Online published: Jun. 10, 2026

doi:10.5296/jpag.v16i1.23816 URL: https://doi.org/10.5296/jpag.v16i1.23816

Abstract

The hottest topic globally which focuses in the Southeast Asian regions is the Belt and Road Initiative (BRI) projects. At present, the implementation of the BRI initiative focuses mainly on the macro-level involving geopolitical strategy, economic spillovers, and debt sustainability. It is assumed that at the macro-level stakeholders are willing to engage in this initiative. The macro-level view has limited insight into the micro-level behavioural mechanisms. To ensure an accurate acceptance of this initiative it is better to combine both macro and micro-level involvement to examine the determinants of stakeholders' behavioural intention to participate in Belt and Road Initiative (BRI) projects. This is done by integrating key constructs of performance expectancy and effort expectancy from the technology adoption theory with the moderating role of trust. As this study follows a quantitative research design, a survey was conducted to collect data from relevant stakeholders involved in or familiar with BRI-related. The findings of this study will contribute to current research by establishing the role of trust as not only a direct

determinant but also a boundary condition influencing the key adoption factors in this initiative. From the standpoint of the findings policymakers and institutions should prioritise trust-building mechanisms such as transparency alongside improving the project benefits. By fostering transparency, consistency, and long-term commitment, stakeholders' participation in BRI projects can be further enhanced, thereby supporting the sustainability and success of the initiative.

1. Introduction

In 2013, China launched the Belt and Road Initiative (BRI). This initiative represents one of the most ambitious transnational infrastructures ever and it required economic cooperation amongst over 150 countries in the Southeast Asian region. This complex initiative exceeded USD 1 trillion in costs and was aimed at enhancing regional connectivity, fostering trade, and promoting sustainable development between countries across Asia, Europe, Africa, and beyond (Huang, 2016). However, despite of this strategic significance, the success of the BRI is not guaranteed by huge investment because it depends on the sustained engagement and participation of the diverse stakeholders such as governments, private enterprises, non-governmental organisations, and local communities (Du & Zhang, 2018). While existing research on the BRI was predominantly focused on macro-level analyses (geopolitical implications, economic impacts, and logistical challenges), there is limited studies on the micro-level behavioural determinants of stakeholder engagement (BRI 2025). Little is known about how stakeholders' perceptions of performance benefits, effort requirements, institutional support, and trust i n influencing their intention to participate in the BRI. This gap in the studies is significant because even with well-funded and strategically beneficial initiatives, it may fail if the key stakeholders are unwilling to engage.

To ascertain the full participation in the BRI project, both macro and micro-level phenomena must be analysed together. This is because participation in large-scale transnational infrastructure initiatives is not a structural or economic decision as it also involves a cognitive and relational evaluation process that is shaped by perceived benefits, perceived costs, and trust by different governments.

This is because it is still unknown if stakeholders rely primarily on calculative performance assessments or if relational trust conditions influence making decisions to participate in the BRI or not. Addressing this gap is essential because the failure of a megaproject like this often stems from not financial limitations but from coordination breakdowns, misaligned expectations, and trust issues among stakeholders. As such, this study investigates if performance expectancy and effort expectancy shape behavioural intention to participate in BRI projects, and also to assess if trust moderates these relationships in this complex cross-border governance environment. Hence, the use of an established adoption namely the Unified Theory of Acceptance and Use of Technology (UTAUT) is used to study the relationships between the performance and effort evaluations as primary drivers of behavioural intention.

As such, the objective of this study is to:

- To identify and evaluate the key determinants of behavioural intention to participate in BRI projects, with a focus on constructs such as Performance Expectancy and Effort Expectancy.
- To assess the moderating effect of Trust on the relationship between Performance Expectancy and Effort Expectancy on Behavioural Intention.
- To conduct an Importance-Performance Map Analysis (IPMA) to identify priority areas for improving stakeholder engagement in BRI projects.

The subsequent sections provide a review of relevant literature, the research methodology, presentation of the findings, along with the discussion and future research directions.

2. Literature Review

This study aims to develop and test an integrated framework to examine the factors shaping behavioural intention (BI) to engage in the BRI by drawing upon the Unified Theory of Acceptance and Use of Technology (UTAUT) theory developed by Venkatesh et al. (2003) and trust-based adoption models (Gefen et al., 2003). For this, the roles of Performance Expectancy (PE) and Effort Expectancy (EE) are tested while exploring the moderating effect of trust. This is done by employing the partial least squares structural equation modelling (PLS-SEM). The function of the importance-performance map analysis (IPMA) is used to prioritize managerial actions by prioritizing the areas with high impact but low current performance. This study provides both theoretical and practical insights into how BRI participation can be enhanced through targeted interventions.

This study extends the UTAUT theory by incorporating trust as the moderator. While UTAUT originally posits that performance expectancy and effort expectancy directly influence behavioural intention, but because of the complexity and context of BRI, an understanding of the effects of the cognitive evaluations depends on stakeholders' trust in partner organisations and governing institutions. This extension was drawn from the trust theory in interorganizational collaboration (Mayer et al., 1995; Zaheer et al., 1998) and trust-technology adoption integration models (Gefen et al., 2003; Pavlou, 2003), which conceptualize trust as a condition that strengthens or weakens the perceived benefits leading to behavioural commitment. Hence, we model trust as moderating both the PE→BI and EE→BI pathways. This study contributes to literature in several ways. Methodologically, it demonstrates the utility of PLS-SEM and IPMA in diagnosing stakeholder engagement challenges. In practice, the findings offer evidence-based recommendations for policymakers and project managers seeking to enhance participation in BRI and similar transnational initiatives.

2.1 Theoretical Foundations (UTAUT, TAM)

The study of technology adoption and user behaviour has been profoundly influenced by theoretical frameworks such as the Technology Acceptance Model (TAM) (Davis, 1989) and its evolution into UTAUT (Venkatesh, Morris, Davis, & Davis, 2003). These models posit that an individual's intention to adopt a technology is shaped by cognitive evaluations of its functionality and ease of use, which subsequently influence actual usage behaviour. In

recent years, these frameworks have been extended beyond information systems to explain stakeholder engagement in complex initiatives such as international development projects, public-private partnerships, and large-scale infrastructure programs (Al-Shafi & Weerakkody, 2010; Taiwo & Downe, 2013). In the context of the BRI, an understanding of the determinants of stakeholder behavioural intention (BI) is critical for fostering sustained participation and project success.

2.2 Performance Expectancy and Engagement

Performance Expectancy (PE) is defined as "the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (Venkatesh et al., 2003, p. 447). In the organisational and project settings, PE relates to the perceived benefits, namely efficiency improvements, strategic advantage, and goal attainment. Prior research has established PE as a strong predictor of adoption intention across various contexts, including e-government (AlAwadhi & Morris, 2008) and international business platforms (Zhou, 2011). However, in environments with high uncertainty or weak institutional trust, the direct effect of PE on intention may be affected by other psychosocial constructs such as trust (Gefen, Karahanna, & Straub, 2003). Within the BRI which often involving multi-jurisdictional regulations and diverse stakeholder interests, the perceived performance benefits of participation is based on the trust in partners and governing institutions.

2.3 Effort Expectancy and Perceived Ease

Effort Expectancy (EE) refers to “the degree of ease associated with the use of the system” (Venkatesh et al., 2003, p. 450). In the context of BRI engagement, EE represents perceptions of the complexity of the procedures such as bureaucratic burden, technical requirements, and logistical challenges. While EE is mostly influential in the early stages of adoption (Venkatesh & Davis, 2000), the relevance of it still continues into ongoing collaborations where stakeholders may engage in procedural friction. Studies in cross-cultural project settings suggest that EE may interact with trust to shape behavioural outcomes (Im, Hong, & Kang, 2011). For instance, when stakeholders perceive the need for high effort, strong trust in partners may increase intention.

2.4 Trust in Cross-Border Collaboration

Previous studies have indicated that trust is a multidimensional construct which encompasses beliefs in the ability, integrity, and benevolence of a partner or institution (Mayer, Davis, & Schoorman, 1995). In a study by Zaheer, McEvily, & Perrone (1998), for international projects that involve high stakes, long time horizons, and cultural diversity, trust remains critical for cooperation amongst stakeholders to reduce perceived risk and transaction costs. In the context of information systems and supply chain management, trust has consistently been shown to directly influence intention to transact and collaborate (Pavlou, 2003; Gefen et al., 2003). Hence, in the BRI context where partners may have varying levels of familiarity and institutional alignment, trust plays a pivotal role in converting perceived benefits into engagement intentions.

2.5 Behavioral Intention

Behavioural Intention (BI) represents a willingness to perform specific behaviour. It is a well- established predictor of actual behaviour as noted in the theory of planned behaviour (Ajzen, 1991) and technology adoption literature (Venkatesh et al., 2003). In the context of international project participation, BI represents stakeholders' commitment to engage, invest, or collaborate in BRI initiatives. Understanding the antecedents of BI is crucial, especially those that are through policy or managerial intervention to enhance participation rates and project sustainability.

2.6 Research Model and Hypothesis Development

Past scholarly work has called for the integration of context-specific variables into UTAUT to enhance its explanatory power (Williams, Rana, & Dwivedi, 2015). Trust has been incorporated as a mediator and moderator in technology adoption models in previous studies (Al-Adwan & Al-Debei, 2022). This study chooses to adopt a moderated framework to examine whether trust moderates the effects of PE and EE on BI. This approach allows for an understanding of how cognitive evaluations support shaping engagement intentions in a complex, multi-stakeholder participation in the BRI. Based on the foregoing discussion, the following hypotheses are proposed:

H1: Performance expectancy has a positive effect on behavioural intention to participate in the BRI.

H2: Effort expectancy has a negative effect on behavioural intention to participate in the BRI.

H3: Trust moderates the relationship between performance expectancy (PE) and behavioural intention (BI), such that the positive effect of PE is weaker when trust is high.

H4: Trust moderates the relationship between effort expectancy (EE) and behavioural intention (BI), such that the negative effect of EE is weaker when trust is high.

2.7 Research Gaps and Contribution

Despite the proliferation of UTAUT-based studies in technology and business contexts, limited studies have applied this framework to a large-scale transnational development project. Moreover, few studies have employed the importance-performance map analysis (IPMA) to identify differences across stakeholder segments and to prioritise managerial interventions. Hence, this study investigates the gaps by evaluating the BRI participation by incorporating the trust construct as a moderator in a modified UTAUT framework. This offers both theoretical advancement as well as practical insights aimed at enhancing stakeholder engagement in this initiative.

3. METHODOLOGY

3.1 Research Design

This research employs a positivist, longitudinal approach to examine stakeholder perceptions toward the BRI. This is done by testing the UTAUT dimensions the moderating role of trust,

and behavioural intention. The purpose of this approach is to capture stakeholders' perceptions and intentions. The target population for this study comprises stakeholders who have either participated in BRI infrastructure, trade, or investment projects or been involved in the policy formulation, feasibility assessment, or implementation planning of the BRI initiatives. Given the absence of a comprehensive public registry of BRI stakeholders across sectors and countries, a purposive sampling strategy was employed. The specific characteristics of this sampling group is that the respondents must first be involved in the BRI, have some power in making decisions pertaining to this initiative, middle to top management with more than 10 years of working experience and have experience in the management of projects. This sampling strategy is a widely accepted approach in cross-border project research where probability of sampling is impractical (Patton, 2015).

3.2 Sample and Data Collection

A sample of 400 valid responses was obtained. The sample size adequacy was assessed using G*Power analysis. For a linear multiple regression with 5 predictors (PE, EE, Trust, PE ×Trust, EE ×Trust), detecting a small-to-medium effect size ($f^2 = 0.15$) with $\alpha = 0.05$ and power = 0.80, the minimum sample size is 100. The sample of 400 exceeds the minimum sample size. Also, the sample exceeds the minimum recommended 380 for models with a maximum indicator count of 4 and a maximum number of latent variables (6) at a significance level of 0.05 and power 0.80 (Hair et. al. 2022).

3.3 Instrument Development

All constructs were measured using multi-item, 5-point Likert scales (1 = Strongly Disagree to 5 = Strongly Agree). Existing validated scales were adapted to the BRI context following established cross-context adaptation procedures (Beaton et al., 2000).

Table 1. Items for Study

Construct	**Original Source**	**Items**	**Adaptation for BRI Context**
Performance Expectancy (PE)	Venkatesh et al. (2003)	8	Wording modified from "system use" to "participation in BRI projects"; benefits specified as economic, strategic, and reputational.
Effort Expectancy (EE)		8	Reframed from "ease of use" to "procedural complexity, bureaucratic burden, compliance costs"
Trust (T)	Gefen et al. (2003); Mayer et al. (1995)	5	Adapted to measure trust in BRI implementing agencies, partner organisations, and host governments
Behavioural Intention (BI)	Venkatesh et al. (2003)	4	Wording focused on intention to engage, invest, collaborate, or commit resources to BRI projects.

3.4 Data Analysis Strategy

The data analysis was conducted in four sequential stages using SPSS version 28 and SmartPLS 4 (Ringle et al., 2022). The following section explains the data screening process as well as the descriptive analysis. The normality assessment explored the Shapiro-Wilk, skewness/kurtosis and the respondent profile frequencies, and cross-tabulations were conducted. As for the measurement model assessment, the following threshold was adopted.

Table 2. Demographic Profile

Indicator reliability:	Outer loadings ≥ 0.70
Internal consistency:	Composite reliability (ρ_a) ≥ 0.70
Convergent validity:	Average variance extracted (AVE) ≥ 0.5
Discriminant validity:	Fornell-Larcker criterion (√AVE > inter-construct correlations) Heterotrait-Monotrait ratio (HTMT) < 0.90 with bootstrapped confidence intervals (Henseler et al., 2015)
Multicollinearity:	• Variance inflation factor (VIF) < 10

4. Results

4.1 Respondent Profile

The table below (Table 2) shows the breakdown of the respondents. Most of the respondents (41.5%) were aged between 51 and 60 years. As for the gender makeup of the respondents, 71.3% of them were male. Out of the 400 respondents, 24.5% of them had a degree. In terms of sector of employment, 56.3% of respondents worked in the private sector and had 10 years or more of work experience (64%). Only 59.5% of organisations and respondents participated in the BRI project. This indicated that not many organisations were still unsure about the BRI projects.

Table 3. Descriptive Statistics

		Frequency	Percent	Valid Percent
Age	18-30 years	45	11.2	11.3
	31-40 years	27	6.7	6.8
	41-50 years	97	24.2	24.3
	51-60 years	166	41.4	41.5
	above 60 years	65	16.2	16.3
	Total	400	99.8	100.0
Gender	Male	285	71.1	71.3

	Female	115	28.7	28.8
	Total	400	99.8	100.0
Highest Education Level	Diploma or below	72	18.0	18.0
	Degree	98	24.4	24.5
	Masters degree	91	22.7	22.8
	Doctoral degree	59	14.7	14.8
	Other	80	20.0	20.0
	Total	400	99.8	100.0
Sector of Employment	Public	71	17.7	17.8
	Private	225	56.1	56.3
	NGO	28	7.0	7.0
	Academia	52	13.0	13.0
	Other	24	6.0	6.0
	Total	400	99.8	100.0
Years of Work Experience	1-2 years	3	0.7	0.8
	2-5 years	42	10.5	10.5
	5-10 years	99	24.7	24.8
	10 years and above	256	63.8	64.0
	Total	400	99.8	100.0
Have you or your organisation participated in the Belt and Road Initiative (BRI) project	Yes	162	40.4	40.5
	No	238	59.4	59.5
	Total	400	99.8	100.0

4.2 Descriptive Statistics

In terms of the distribution of the data, the data collected is not normally distributed. This can be seen in the table below:-

Table 4. Measurement Model Assessment

Construct	N	Min	Max	Mean	SD	Skewness	Kurtosis	Shapiro-Wilk (p)
PE	400	2.00	4.75	3.5350	0.612	-0.342	-0.215	0.003
EE	400	1.38	4.63	3.1350	0.648	0.287	-0.456	0.001
T	400	1.00	5.00	3.1825	0.861	-0.418	-0.623	0.000
BI	400	1.00	5.00	3.2538	0.812	-0.389		

Descriptive statistics for all study constructs are presented in Table 3. Mean scores ranged from 3.14 (EE) to 3.54 (PE), indicating moderate-to-high levels of agreement with the measured perceptions. Standard deviations ranged from 0.612 to 0.861, suggesting adequate response variability. Normality was assessed using Shapiro-Wilk tests and skewness/kurtosis values. All Shapiro-Wilk tests were significant ($p < .05$), thus rejecting the null hypothesis of univariate normality. The skewness values range from -0.418 to 0.287, and kurtosis values range from -0.623 to -0.215, all within the acceptable range of ±1 for approximate normality (George & Mallery, 2010). However, the significant Shapiro-Wilk results indicate a deviation from strict multivariate normality. Hence, the use of the Smart PLS (PLS-SEM) was warranted (Hair et al., 2022).

4.3 Measurement Model Assessment

All indicator loadings exceeded the recommended threshold of 0.70, demonstrating item reliability. Composite reliability (rho_a) values ranged from 0.941 to 0.958, indicating satisfactory internal consistency. As for convergent validity, all the constructs achieved the AVE values of above the recommended 0.50 threshold (ranging from 0.803 to 0.892). The variance inflation factor (VIF) values were below the conservative threshold of 10, indicating that multicollinearity was not a critical concern.

Table 5. Fornell-Larker Criterion

	Items	Outer loadings	Composite reliability	Average variance extracted (AVE)	VIF
Behaviour intention (BI)	BI1	0.905	0.942	0.803	3.169
	BI2	0.898			3.020
	BI3	0.888			2.731
	BI4	0.893			2.928
Effort expectancy	EE6	0.940			3.502
	EE7	0.960			6.402

(EE)	EE8	0.933	0.961	0.892	4.956
Performance expectancy (PE)	PE5	0.849	0.941	0.843	2.798
	PE6	0.947			3.932
	PE7	0.954			3.324
Trust (T)	T1	0.930	0.958	0.850	4.176
	T2	0.930			4.285
	T3	0.912			3.573
	T4	0.915			3.548

4.4 Structural Model Assessment

The next step is to test the discriminant validity of the model. For this, the Fornell-Larker criterion was used. The results are as follows:-

Table 6. HTMT Ratio

	Behaviour intention	**Effort expectancy**	**Performance expectancy**	**Trust**
Behaviour intention	**0.896**			
Effort expectancy	-0.287	**0.944**		
Performance expectancy	-0.177	0.889	**0.918**	
Trust	0.878	-0.325	-0.217	**0.922**

Discriminant validity was assessed using the Fornell–Larcker criterion. As seen in the table above, the square root of AVE for each construct was greater than its correlations with other constructs. Given the limitations of the Fornell–Larcker criterion in detecting discriminant validity issues, the HTMT ratio was further examined to provide a more robust assessment.

Table 7. Confidence Intervals Bias Corrected

	Behaviour intention	**Effort expectancy**	**Performance expectancy**	**Trust**
Behaviour intention				
Effort expectancy	0.303			
Performance expectancy	0.168	**0.948**		
Trust	**0.943**	0.339	0.202	
Trust x Effort expectancy	0.103	0.343	0.197	0.087

Trust x Performance expectancy	0.054	0.221	0.207	0.018	

Discriminant validity was further assessed using the Heterotrait–Monotrait (HTMT) ratio. Most construct pairs met the recommended threshold of 0.85–0.90. However, HTMT values between Performance expectancy and Effort Expectancy (0.948) and Behavioural Intention and Trust (0.943), indicating potential discriminant validity concerns among these constructs. Despite this, the constructs were retained as distinct based on their theoretical differences and prior empirical validation in the literature. However, according to Franke & Sarstedt (2019), if the upper bound of "Confidence intervals bias corrected" is below the critical HTMT value of 1, then discriminant validity is achieved. This is as seen in the table below :-

Table 8. Path Coefficient

	Original sample (O)	Sample mean (M)	Bias	2.5%	97.5%
Effort expectancy <-> Behaviour intention	0.303	0.303	0.000	0.194	0.397
Performance expectancy <-> Behaviour intention	0.168	0.171	0.003	0.081	0.264
Performance expectancy <-> Effort expectancy	0.948	0.949	0.000	0.909	0.978
Trust <-> Behaviour intention	0.943	0.943	0.000	0.912	0.968
Trust <-> Effort expectancy	0.339	0.339	0.000	0.231	0.432
Trust <-> Performance expectancy	0.202	0.205	0.002	0.117	0.298

4.5 Direct Path and Moderation Analysis

The structural model results indicate that performance expectancy has a positive and significant effect on behavioural intention ($\beta = 0.133$, $t = 2.356$, $p = 0.018$), thus supporting H1. Effort expectancy was found to have a negative and significant effect on behavioural intention ($\beta = -0.130$, $t = 2.037$, $p = 0.042$), supporting H2. Regarding the moderating effects, trust significantly moderates the relationship between performance expectancy and behavioural intention ($\beta = -0.105$, $t = 2.709$, $p = 0.007$), supporting H3, indicating that the positive influence of performance expectancy on behavioural intention weakens at higher levels. Similarly, trust significantly moderates the relationship between effort expectancy and behavioural intention ($\beta = 0.078$, $t = 1.983$, $p = 0.047$), supporting H4, suggesting that the negative effect of effort expectancy on behavioural intention is attenuated as trust increases.

Table 9. PLS Predict

Hypotheses		Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Results
H1	Performance expectancy -> Behaviour intention	0.133	0.128	0.056	2.356	0.018	Significant
H2	Effort expectancy -> Behaviour intention	-0.130	-0.125	0.064	2.037	0.042	Significant
H3	Trust x Performance expectancy -> Behaviour intention	-0.105	-0.104	0.039	2.709	0.007	Significant
H4	Trust x Effort expectancy -> Behaviour intention	0.078	0.078	0.039	1.983	0.047	Significant

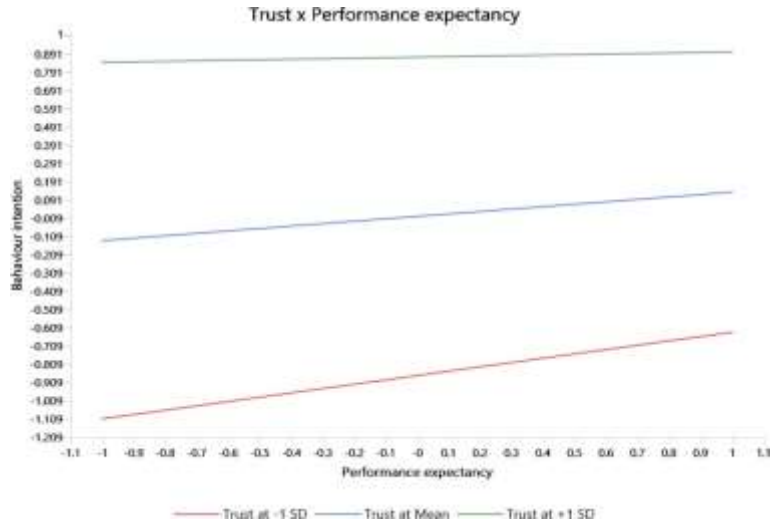

Figure 1. Trust x performance expectancy

Figure 1 Depicts the Moderating Effect of Trust on the Relationship Between Performance Expectancy and Behavioural Intention. the Results Indicate That Performance Expectancy Is Positively Related to Behavioural Intention Across All Levels of Trust. However, the Slope of This Relationship Is Steepest Under Low Trust Conditions (–1 SD). This Suggests That When Trust Is Low, the Increase in Perceived Performance Substantially Enhances Behavioural Intention. in Contrast, the Slope Is Flatter Under High Trust Conditions (+1 SD), Indicating That When Trust Is High, Users Rely Less on Performance Expectancy in Forming Their Behavioural Intention. These Findings Support H3 and Demonstrate a Significant Non-Crossover (Ordinal) Moderation Effect of Trust.

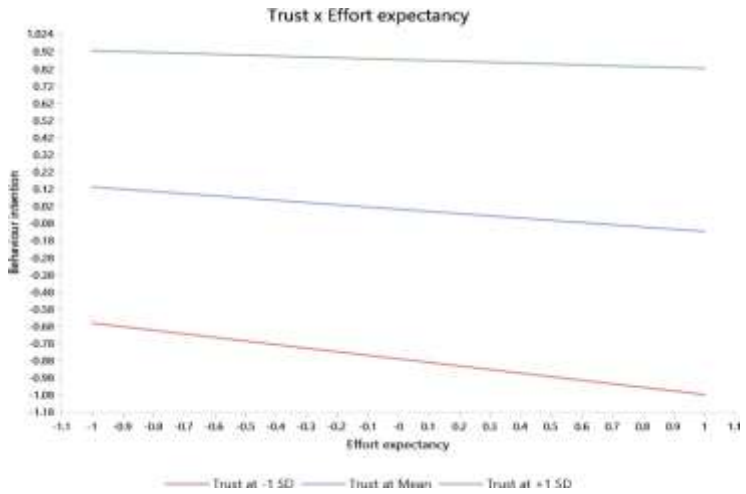

Figure 2. Trust x Effort expectancy

Figure 2 Illustrates the Moderating Effect of Trust on the Relationship Between Effort Expectancy and Behavioural Intention. the Results Reveal That Effort Expectancy Is

Negatively Related to Behavioural Intention Across All Levels of Trust. However, the Slope Is Steepest Under Low Trust Conditions (–1 SD), Indicating That When Trust Is Low, Increases in Perceived Effort Substantially Reduce Behavioural Intention. in Contrast, the Slope Is Flatter Under High Trust Conditions (+1 SD), Suggesting That Higher Trust Buffers (Attenuates) the Negative Effect of Effort Expectancy on Behavioural Intention. These Findings Support H4, Demonstrating a Significant but Non-Crossover (Ordinal)

Moderation Effect of Trust. the Figure (Figure 3) Below Illustrates the Full Model for This Study.

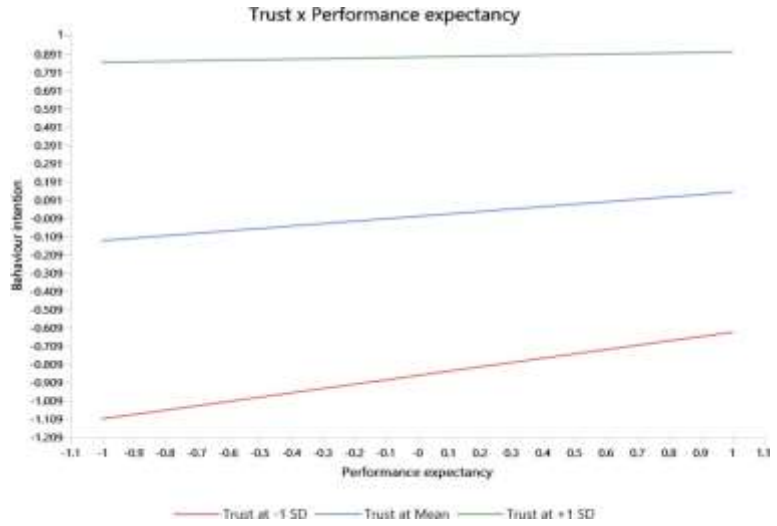

Figure 3. Path Analysis

4.6 PLS Predict

The predictive performance of the model was assessed using the PLS predict procedure. The Q ²predict values for all behavioural intention indicators were positive and ranged from 0.585 to 0.645, indicating satisfactory out-of-sample predictive relevance. Furthermore, comparison of prediction errors showed that the PLS-SEM model performed as well as or better than the linear model (LM) benchmark for most indicators in terms of both RMSE and MAE. In addition, the PLS-SEM model substantially outperformed the indicator-average (IA) benchmark across all indicators. Overall, these results suggest that the structural model possesses medium-to-high predictive power (Table 9).

Table 10. IPMA Analysis

	Q ²predict	PLS-SEM_RMSE	PLS-SEM_MAE	LM_RMSE	LM_MAE	IA_RMSE	IA_MAE
BI1	0.633	0.454	0.251	0.461	0.254	0.748	0.465
BI2	0.605	0.473	0.265	0.479	0.266	0.752	0.464
BI3	0.645	0.440	0.253	0.440	0.243	0.740	0.460
BI4	0.585	0.472	0.265	0.483	0.271	0.733	0.454

4.7 Importance-Performance Map Analysis

From Table 10, the Importance–Performance Map Analysis (IPMA) indicates that trust has the highest importance (total effect = 0.88) in predicting behavioural intention, but a relatively moderate performance score (= 55) (Figure 4). This suggests that trust represents a key area for managerial improvement, as enhancements in trust are likely to yield the greatest gains in behavioural intention. Performance expectancy shows moderate importance (= 0.18) and relatively high performance (= 69), indicating that current perceptions of usefulness are satisfactory and should be maintained rather than prioritised for major investment. As for the effort expectancy, it exhibits the lowest importance (= –0.13) and the highest performance (= 78). This implies that the potential to over-invest in ease of use on this initiative in relation to its actual impact on behavioural intention. Overall, the IPMA highlights that trust is the most critical function in improving users' behavioural intentions.

Table 10. IPMA analysis

Construct	Importance (Total Effect)	Performance	What this means
Trust	**Highest (~0.88)**	**Moderate (~55)**	Very important, but the performance is not high
Performance Expectancy	Moderate (~0.18)	High (~69)	Fairly good performance, but less critical than Trust
Effort Expectancy	Lowest (~– 0.13, very small)	Very high (~78)	Performs well but is not a key driver of BI

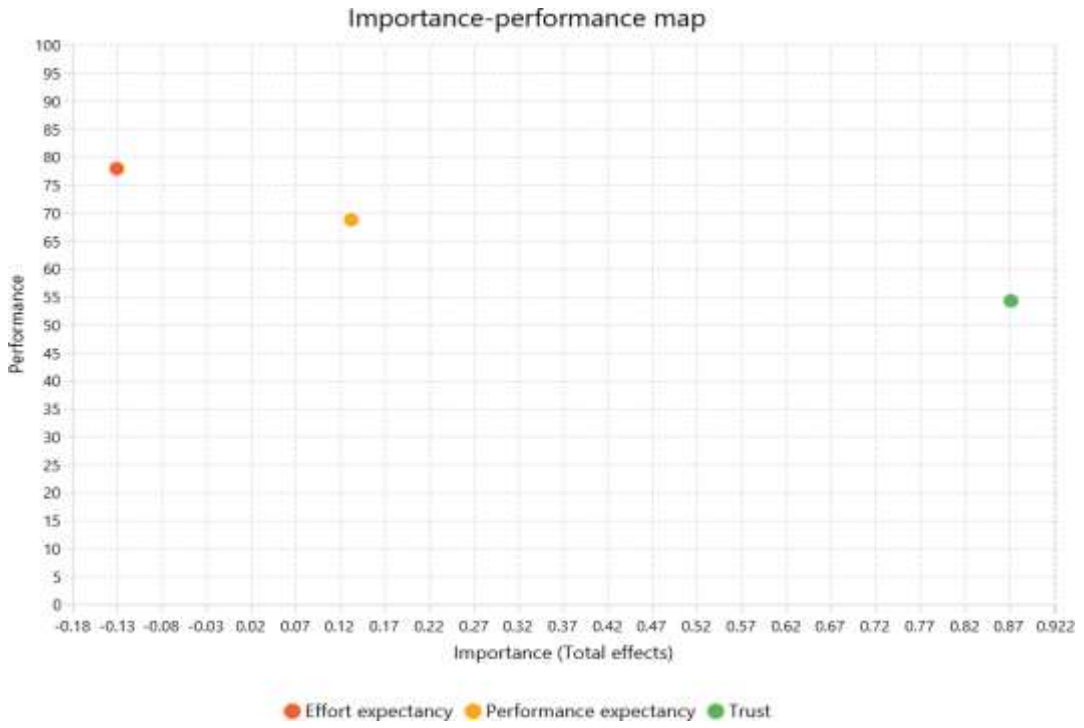

Figure 4. Importance -Performance map

5. Discussion

As seen in the earlier section all the hypothesised direct and moderating relationships are supported. Performance expectancy has a significant effect on behavioural intention (β = 0.133, p = 0.018). This suggests that individuals are more likely to exhibit stronger behavioural intentions when they perceive that the technology or system improves their performance or helps them complete a task efficiently. This is in line with established technology adoption literature, which states that perceived usefulness remains a determinant of intention. As for Effort expectancy, the β is negative but the p value is less than 0.05 indicating that it has a significant relationship with behavioural intention (β = -0.130, p = 0.042) thus this supports H2. This negative coefficient indicates that if the perceived effort increases, this will reduce behavioural intention. This means that when users perceive the system as difficult or requires more effort, their intention to adopt or use it declines.

As for the results of the moderating effects of trust, trust significantly moderates the relationship between performance expectancy and behavioural intention (β=-0.105, p=0.007), thus supporting H3. The negative interaction as indicated in the results shows a weakening effect such that when trust increases, the positive influence of performance expectancy on behavioural intention becomes less obvious. This suggests that when users have high levels of trust, their intention to engage becomes less dependent on performance-related considerations. Hence, when trust is low, performance expectancy becomes critical to intention. As for effort expectancy, trust significantly moderates the relationship to behavioural intention (β = 0.078, p = 0.047), hence supporting H4. The

positive interaction coefficient indicates that trust weakens the negative impact of effort expectancy. Therefore, when trust increases, the adverse effect of perceived effort on behavioural intention is reduced. Hence, trust is like a buffering mechanism while mitigating concerns related to difficulty or required effort in technology adoption. The findings from this study reveal the central role of trust, not only in reshaping the main constructs in the UTAUT model. The results highlight that both performance-related evaluations and effort perceptions do not operate in isolation, but their effects on behavioural intention are dependent on the level of trust held by users.

The Importance–Performance Map Analysis (IPMA) provides an additional managerial insight by examining the total effects (importance) and average latent variable scores (performance) of the key predictors of behavioural intention. The results from this analysis indicate that trust is the highest level of importance (total effect ≈ 0.87), which is relative to performance expectancy and effort expectancy. The performance score is comparatively moderate (≈ 55), which suggests that trust is a critical driver of behavioural intention even when the current performance level is not optimal. Trust represents the most promising leverage point for managerial intervention, as enhancing trust perceptions may contribute to substantial improvements in behavioural intention because of its strong total effect.

PE shows moderate importance (= 0.13) with relatively high performance (= 69), suggesting that users already see the system as useful in helping them achieve better outcomes. While it remains an important predictor of behavioural intention, its strong performance indicates that it does not require immediate attention. Instead, it is something that should be maintained rather than significantly improved. Interestingly, the EE has a negative importance (=–0.13) despite having the highest performance level (=78). This means that when users perceive the system as requiring more effort, their intention to use it decreases. At the same time, the high- performance score suggests that users already find the system quite easy to use. As a result, putting in more effort to further simplify the system may not lead to meaningful improvements, as the benefits are likely to be minimal at this stage.

5.1 Theoretical Implications

This study makes several important contributions to the literature on technology adoption. Firstly, it extends UTAUT into a transnational infrastructure context, which received limited attention in previous studies. While UTAUT has been widely validated across individual, organisational, and information systems contexts, applying it to large-scale, cross-border infrastructure projects introduces additional complexity. These settings involve multiple stakeholders, differences in institutional environments, and higher levels of uncertainty. As such, this highlights the need to extend UTAUT to explain behaviour in contexts that go beyond traditional technology adoption scenarios. This study conceptualises trust as a moderating mechanism rather than a direct antecedent of behavioural intention. By this, it exerts trust as a main influence on the UTAUT relationships. The findings reveal that trust does not strengthen adoption drivers, but from this context, it reshapes their relative importance.

This study demonstrated the weakening effect of trust on the relationship between performance expectancy and behavioural intention. The results indicate that high levels of trust may reduce the reliance on performance-based evaluations. This finding can be explained by the fact that trust serves as an alternative assumption that reduces the need for careful assessment of expected benefits. This challenges the assumptions in adoption theory and suggests that trust can, under certain conditions, impact beliefs.

Trust plays a buffering role in the relationship between effort expectancy and behavioural intention. High levels of trust mitigate concerns related to complexity and usability by fostering psychological safety and reducing perceived risks. This reinforces the idea that trust operates as a risk-reduction mechanism in complex and uncertain environments, enabling individuals and organisations to engage despite the perceived effort barriers.

5.2 Practical Implications

The findings of this study provide important practical implications for policymakers, project managers, and institutions involved in the BRI as it provides direction to enhance stakeholder participation. For policymakers, the need to understand is needed as trust is fundamental in building confidence in adoption of technology. Trust can be built through consistent and stable policies, transparent regulatory practices and accountability. With the establishment of clear and transparent communication channels, available project information systems, and independent monitoring mechanisms, policymakers can reduce uncertainty and strengthen trust in the institutional reputation. Such measures also facilitate smoother cross-border collaboration by aligning governance practices.

For project managers, the findings highlight that the success of the BRI implementation extends beyond technical efficiency to include the management of relationships with stakeholders. The success to this initiative is dependent on the ability to integrate stakeholder engagement into the entire project lifecycle, from its pre-planning, planning to post-completion stages. To do this, the need to have structured engagement strategies that focus on encouraging participatory decision-making that maintains a two-way communication with all the relevant stakeholders. By having transparency in decision-making processes and actively addressing stakeholder concerns, trust can be fostered and this will reduce resistance and mitigate potential risks. Also by assessing stakeholder satisfaction and trust levels from time to time would further enhance project outcomes and long-term acceptance.

For institutions and stakeholders participating in the BRI, the findings suggest a strategic shift in resource allocation. The weak influence of performance expectancy, coupled with the strong role of trust, indicates that stakeholders are already aware of the functional and economic benefits of the initiative. As such, further emphasis on promoting these benefits may lead to diminishing returns. Instead, institutions should focus investments in trust-building measures, by having transparent reporting practices, adherence to international standards, and consistent stakeholder communication. The demonstration of constant reliability, ensuring accountability, and long-term commitment through sustained engagement and capacity-building efforts are essential for maintaining stakeholder

confidence. Ultimately, these efforts contribute to stronger adoption, deeper engagement which bring about overall success of BRI as these reinforce trust.

5.3 Conclusion, Limitations, Future Research

This study examined the factors that affect stakeholders' intention to participate in BRI projects. It was done by using a trust-moderated UTAUT framework. Findings reveal that

while performance and effort evaluations influence intention, trust fundamentally reshapes these relationships. For complex transnational initiatives such as the BRI, relational trust serves as a basis to buffer perceived complexity. Enhancing trust will therefore represent the most effective strategy for increasing stakeholder engagement towards this project.

This study was a complex study, but there are several limitations to it that provide avenues for future research. Firstly, the use of purposive sampling for this study was due to the absence of comprehensive sampling frames for stakeholders of the BRI. This approach may have been appropriate for this context at the point in time of this study, but it may limit generalizability. As more formal databases of participating organisations and stakeholders become available, future studies should adopt a probability-based sampling approach to enhance the findings.

Secondly, this study measures behavioural intention rather than actual behaviour. Although intention is a well-established proxy in adoption research, it does not always translate into action. Future research should extend by examining actual adoption and usage behaviours through archival data, project participation records, or longitudinal tracking of stakeholder engagement. From the results of this study, the high heterotrait–monotrait (HTMT) ratios between key constructs suggest challenges in discriminant validity. This indicates that some constructs, especially PE and EE, may not be as conceptually distinct in complex project settings as compared to traditional settings. Future research should focus on scale refinement by developing context-specific measurement items to better reflect the large-scale infrastructure contexts.

This study was conducted in one country, and this may limit the generalizability of findings across different institutional and cultural contexts. Given the global scope of the BRI, future research should do comparatively across multiple countries. This would help uncover how the variations in governance, culture, and economic conditions influence the role of trust and other adoption factors that affect intention.

Finally, for this study, trust is operationalised as a unidimensional construct. Prior research has suggested that trust is multidimensional by encompassing dimensions such as competence, integrity, and benevolence. Future research should decompose this construct into these dimensions to examine their distinct effects and moderating roles with adoption models. This will help in providing a better understanding of how different forms of trust shape stakeholder perceptions and decision-making processes in implementation and adoption in a complex infrastructure contexts.

References

Ajzen, I. (1991). The theory of planned behaviour. *Organisational Behaviour and Human Decision Processes, 50*(2), 179–211.

Al-Adwan, A. S., & Al-Debei, M. M. (2022). The determinants of WhatsApp continuance intention: The mediating role of trust. *International Journal of Information Management, 62*, 102433.

AlAwadhi, S., & Morris, A. (2008). The use of the UTAUT model in the adoption of e-government services in Kuwait. *Proceedings of the 41st Hawaii International Conference on System Sciences*, 1–11.

Al-Shafi, S., & Weerakkody, V. (2010). Factors affecting e-government adoption in the state of Qatar. *European and Mediterranean Conference on Information Systems*, 1–18.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319–340.

Du, J. L., & Zhang, Y. F. (2018). Does One Belt One Road Strategy Promote Chinese Overseas Direct Investment? *China Economic Review, 47*, 189–205. https://doi.org/10.1016/j.chieco.2017.05.010

Flyvbjerg, B. (2014). What you should know about megaprojects and why: An overview. *Project Management Journal, 45*(2), 6–19. https://doi.org/10.1002/pmj.21409

Franke, G. R., & Sarstedt, M. (2019). Heuristics versus statistics in discriminant validity testing: A comparison of four procedures. *Internet Research, 29*(3), 430–447.

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. *MIS Quarterly, 27*(1), 51–90.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). Sage. https://doi.org/10.1007/978-3-030-80519-7

Huang, Y. (2016). Understanding China's Belt & Road Initiative: Motivation, framework and assessment. *China Economic Review, 40*, 314–321. https://doi.org/10.1016/j.chieco.2016.07.007

Im, I., Hong, S., & Kang, M. S. (2011). An international comparison of technology adoption: Testing the UTAUT model. *Information & Management, 48*(1), 1–8.

Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision Support Systems, 44*(2), 544–564.

Liu, W., & Dunford, M. (2016). Inclusive globalisation: Unpacking China's Belt and Road Initiative. *Area Development and Policy, 1*(3), 323–340.

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of

organisational trust. *Academy of Management Review, 20*(3), 709–734.

NDRC. (2015). *Vision and actions on jointly building Silk Road Economic Belt and 21st-Century Maritime Silk Road*. Report of the National Development and Reform Commission, People's Republic of China. http://en.drc.gov.cn/2015-10/13/content_22174539.htm

Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model. *International Journal of Electronic Commerce, 7*(3), 101–134.

Ringle, C. M., Wende, S., & Becker, J.-M. (2022). *SmartPLS 4*. SmartPLS. https://www.smartpls.com/

Saunders, M. N. K., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.). Pearson.

Taiwo, A. A., & Downe, A. G. (2013). The theory of user acceptance and use of technology (UTAUT): A meta-analytic review of empirical findings. *Journal of Theoretical and Applied Information Technology, 49*(1), 48–58.

Tan, G. W. H., Ooi, K. B., Leong, L. Y., & Lin, B. (2014). Predicting the drivers of mobile payment acceptance: A hybrid SEM-neural network approach. *Technological Forecasting and Social Change, 88*, 1–19.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science, 46*(2), 186–204.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27*(3), 425–478.

Williams, M. D., Rana, N. P., & Dwivedi, Y. K. (2015). The unified theory of acceptance and use of technology (UTAUT): A literature review. *Journal of Enterprise Information Management, 28*(3), 443–488.

Zaheer, A., McEvily, B., & Perrone, V. (1998). Does trust matter? Exploring the effects of interorganizational and interpersonal trust on performance. *Organisation Science, 9*(2), 141–159.

Zeng, Y., Maxwell, S., Runting, R. K., Venter, O., Watson, J. E. M., & Carrasco, L. R. (2020). Environmental destruction not avoided with the Sustainable Development Goals. *Nature Sustainability, 3*, 795–798. https://doi.org/10.1038/s41893-020-0555-0

Zhou, T. (2011). Understanding mobile Internet continuance usage from the perspectives of UTAUT and flow. *Information Development, 27*(3), 207–218.

Zhou, T., Lu, Y., & Wang, B. (2010). Integrating TTF and UTAUT to explain mobile banking user adoption. *Computers in Human Behaviour, 26*(4), 760–767.