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An analysis of sustainable change management for quality 4.0: Evidence from hybrid project management adoption in the Malaysian FinTech context

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A B S T R A C T

In this paper, the authors aim to analyse organisational intention and focus on hybrid project management (HPM) methodology adoption in FinTech system software development. It is important to ascertain the internal and external factors that affect organisational decision-makers' intentions towards HPM adoption. This study aims to apply a theoretical approach integrating Technology-Organisation-Environment (TOE), which examines the factors that impact FinTech organisations' decisions to adopt HPM into their software development projects, together with the Theory of Planned Behaviour (TPB) which examines the behavioural intention. It addresses those factors that form organisational decision-makers' readiness for HPM implementation and enable their intention to use it. When combining the independent, dependent, and moderating variables, the results show that the effect of relative advantage, top management support, and industry pressure have a positive influence on individual's attitude towards HPM adoption in FinTech Malaysia and sustainability in Quality 4.0. The authors also considered the influence of attitudes and perceived behavioural control variables having a positive influence on sustainable intention of HPM adoption in the FinTech industry. Partial Least Squares Structural Equation Modelling (PLS-SEM) was used to verify the proposed hypotheses, with the exception of the direct influence of top management support or attitude on intention to adopt.

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1. Introduction

The term "FinTech" refers to the combination of financial services with innovative technologies offered to financial service providers and organisations (Dorfleitner et al., 2017). As terminology, FinTech denotes the mix of "finance" and "technology" and industrial changes emerging from a convergence of Information Technology and financial services (Khatri et al., 2020). New FinTech participants in the market have also started offering cloud-based and application-oriented software products. In general, FinTech attracts customers through services and products that are more user-friendly, efficient, transparent and automated than those currently available. FinTech is recognised as one of the critical innovations in the financial industry that could result in creating not only new business models, but also in generating a better business flow of system applications, financial and transactional processes, and speeding up product delivery (PWC, 2020). Furthermore, the financial industry must deal with dynamic conditions such as sustainable business requirements change in the market and continuous change management practices in the workplace. Influential factors such as strict regulations, the digital revolution, and customers' needs are forcing the finance industry to keep pace with changes to stay competitive (PWC, 2020). These challenges faced by financial institutions are leading the change in project management methodology, technologies, project status tracking and reporting methods.

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There are many software development institutions implementing conventional predictive project management methodologies to manage and deliver software development projects. Many financial institutions are also still using the traditional predictive approach to project management in order to meet their regulatory or auditory requirements. Some project environments require organisations to implement the predictive approach due to significant regulatory oversight and an environment that requires documentation, process and demonstration requirements (PMBOK® Guide, 2021). Financial institutions must maintain large stores of documentation, which also forms a key component of the predictive methodology. As a result, the predictive approach is still followed in the financial industry due to compliance with stated regulations and audits. In some situations, institutions face the issue that they are not sure which best practices to adopt in order to implement and apply the adaptive methodology in software development project management (Mantilla, 2020).

Adaptive project management methodology has become an appealing alternative choice of project management approach for software development institutions to improve their project development performance, especially in terms of software delivery, due to increasingly rapid changes of path and frequent changes of business user requirements (Liang & Shekhar, 2018). Predictive and adaptive project management methodologies each have their strengths and weaknesses because they focus on different software development life cycles. This results in many financial and FinTech institutions exploring hybrid project management (HPM) methodology as an alternative option for system software development process implementation. This combination aims to leverage each respective methodology's strengths and to improve the entire software planning, coding, and delivery progress. It is important to form a sustainable intention to adopt HPM in the fourth generation of Quality (Quality 4.0) in the FinTech industry, as it helps improve business model quality and quality management harmonisation (Broday, 2022; Hisham Alasad, 2020).

However, project decision-makers must consider all the internal and external factors before choosing to adopt HPM as this could impact the likelihood of success of the project implementation. The decision to adopt HPM is categorised as a strategic organisational-level initiative, therefore organisational theory is the most suitable option for explaining and predicting an organisation's acceptance of HPM. The organisational environment of the firm plays a key role in informing the adoption decision along with the characteristics of the methodology. Consequently, the Technology–Organisation–Environment (TOE) framework designed and developed by Tornatzky and Fleischer (1990) is used in this study to examine the methodology and the influence of the technological, the organisational and the environmental as the consideration factors that influence the degree of usage of HPM (Pateli et al., 2020; Lei, M., 2016). There are various previous studies using the Theory of Planned Behaviour (TPB) in a range of environments, integrated with TOE to examine behaviour intention. In these studies, TPB was used as a moderator and positively affected the individual's behaviour intention for technology adoption in their research framework (Teo & Lee, 2010; Alam & Sayuti, 2011).

This study intends to explore in further depth the factors which affect organisational decision-makers' sustainable intention to adopt HPM in FinTech software delivery and project management. The study focuses on identifying the key internal and external factors leading large financial institutions to make the decision to adopt and apply HPM in software development, while considering the technological, organisational, and environmental constraints these financial institutions have (Kilu et al., 2019). Business problems include that some FinTech institutions do not recognise that a relationship exists between technological, organisational, and environmental factors or their management decision-makers' intention to adopt HPM into FinTech software development projects.

This study focuses on the sustainable intention of the adoption of HPM in the Malaysian FinTech industry. The key factor when selecting HPM is to perform a detailed analysis of the project implementation model and adoption. HPM is a new concept and at an emerging stage within the Malaysian FinTech industry. The aim of HPM is to achieve optimised results throughout the project implementation (Alasad, 2020). This paper aims to create a picture of a sample of the Malaysian FinTech industry at a managerial level, exploring managers' attitudes, their intentions and their perceived support of the adoption of HPM in project implementation in terms of sustainability. An exploration was conducted using these subjects, and questionnaires about these cited dimensions were completed. The scope of this study is limited to the decision-makers of Malaysian FinTech organisations' sustainable intention to adopt HPM, and implementation of the HPM itself does not form part of the study. Participation in this research survey is another delimitation measurement of this study. The participants were limited to FinTech organisations' management or leadership levels, FinTech project managers and FinTech project stakeholders who had a role in their organisations which would allow them to influence the adoption decision process.

This paper is structured as follows. Section 2 discusses the relevant concepts from the existing literature related to HPM, TOE, and TPB. Section 3 explains the framework, hypotheses, and measures used in this study to analyse the data. Section 4 contains a discussion of the measurement model, structural model and mediation results, along with the model's strength and quality. Section 5 further elaborates on the implications and applications of the results of this study and presents relevant suggestions for FinTech decision-makers and practitioners. Section 6 draws conclusions, identifies the limitations of this study and proposes avenues for future research.

2. Literature Review

The challenges surround exploring the relationship between the Malaysian FinTech organisations decision-makers' sustainable intention in adopting HPM, and the technological, organisational, and environmental factors. There is insufficient literature and previous study in this area to provide adequate viewpoints to make informed decisions regarding the adoption of HPM in FinTech software development projects. To address this deficiency, this study combines literature on the TOE and TPB frameworks to examine the factors influencing HPM adoption in Malaysian FinTech software development projects.

2.1 Hybrid Project Management (HPM)

The hybrid development approach is defined as a combination of the predictive and adaptive approaches (PMBOK® Guide, 2021). In addition, the hybrid approach is also defined as "the methods that combine planning strategies from the traditional project manager environment with the Agile approach's flexible approach." (Strasser, 2020). Some predictive and adaptive approach elements are selected to form a hybrid approach. HPM is beneficial when project development requires that the deliverables are split into modules or when the deliverables must be developed by teams in different geographical locations (PMBOK® Guide, 2021). The iterative or incremental development approach is used in HPM methodology and continuous flexibility between the predictive and adaptive approaches is used between project stages. Within predetermined timeframes (timeboxes), functionality is added to each iteration and the products are considered complete after the final iteration stage (PMBOK® Guide, 2021). HPM allows the incremental addition of project benefits, accomplishing improved project delivery outcomes, achieving the project's goals, or eliminating unnecessary costs from a project. HPM employs the "thoroughness of Work Breakdown Structure (WBS) with speed and lean benefits of Agile for a new project management method which is both detailed and fast." (Teodesk, 2021). Team member cooperation is important during analysis execution and the project manager in HPM is required to play the role of product manager in addition to representing the business owner of the project (Cooper & Sommer, 2018; Bhavsar, 2016; Monteiro Cavalieri Barbosa & Pego Saisse, 2019).

2.2 Technology–Organisation–Environment (TOE)

There are three contextual aspects that can affect technological innovation adoption (Tornatzky & Klein, 1982):

i. Attitude (ATT)
ii. Subjective Norm (SN)
iii. Perceived Behaviour Control (PBC)

The TOE theoretical model underlines the influences of multi-level technology application contexts, such as technology application scenarios, the degree of organisational fit with technology applications, and organisational needs regarding the effects of technology applications (Wang et al., 2022; Tornatzky & Klein, 1982). The technical context is defined as the internal and external technologies of an organisation or both the current and new technologies in an organisation, and the components comprise relative advantage, compatibility, complexity, and observability, which impact the particular consequences of technology within the organisation (Wang et al., 2022; Sin Tan et al., 2009; Low et al., 2011). The organisational context considers elements such as top management support, organisation size, and organisation readiness (Oliveira et al., 2014; Malik et al., 2021; Melo et al., 2021; Setiyani et al., 2021; You & Lee, 2021). Industry pressure, environmental uncertainty, and business partner quality are elements of environmental influences (You & Lee, 2021; Pacheco-Bernal, 2020; Effendi et al., 2020; Athambawa, 2021).

2.2 Theory of Planned Behaviour (TPB)

TPB is defined as a prediction theory that discusses behaviour and whether that behaviour can be planned and deliberate (Ajzen, 1985). TPB consists of three contextual aspects:

i. Attitude (ATT)
ii. Subjective Norm (SN)
iii. Perceived Behaviour Control (PBC)

ATT denotes the individual's overall positive or negative evaluations of behavioural performance. ATT is also defined by an assessment of the total set of behavioural beliefs linking the behaviour to multiple results and other attributes. ATT is an important determinant in studies which affect the individual's adoption intention in innovation, favourableness or unfavourable general feeling, and evaluation of the user acceptance of technology (Safeena et al., 2013; Zolait et al., 2008). SN refers to the perceived social pressure engagement in a behaviour. ATT and SN are the two perceptual constructs which determine behavioural intentions and actual behaviour, and normative influence occurs when individuals' behaviour corresponds to the expectations of others (Bearden et al., 1986; Yu et al., 2005). PBC is defined as the individual's perceptions of their ability to perform a given behaviour and it is determined by an assessment of the total set of control beliefs on the presence of factors that may promote or discourage behavioural performance (Ajzen, 1991). PBC is an accurate reflection of controlled behaviour and it can be applied together with intention to predict an individual's behaviour. Intention denotes the indication of an individual's readiness to perform a given behaviour. Intention is measured as the immediate antecedent of behaviour and it is based on ATT, SN, and PBC factors with each predictor evaluated for its importance in relation to the behaviour and population of interest. An elevated level of intention in the individual to perform the behaviour in question is used to measure and predict innovation or technology adoption (Safeena et al., 2013).

3. Materials and Methods

3.1 Hypotheses and Research Framework

Integrating the literature and the hypotheses described below, the research framework shown in Fig. 1 is adapted and modified from Pateli et al. (2020) and Piaralal et al. (2015).

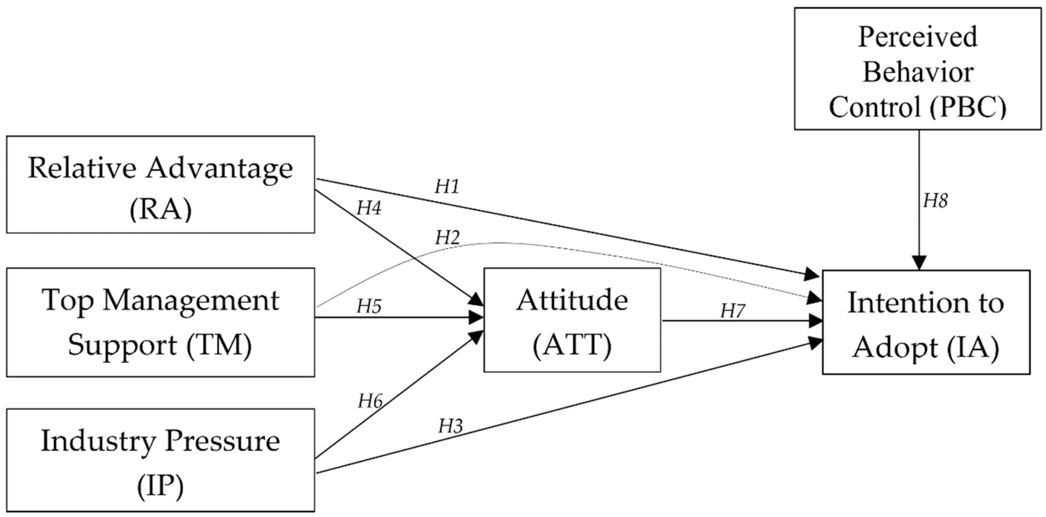

Fig. 1. Conceptual model

3.1.1 Relative Advantage (RA), Top Management Support (TM), Industry Pressure (IP) and Intention to Adopt (IA)

RA reflects the degree by which the technology is perceived to provide an additional inherent business value over the alternative or existing technology (Justino et al., 2022; Wang et al., 2016; Jain et al., 2011; Sin Tan et al., 2009). An organisation will gain sustainable benefits when adopting innovations as they can gain a relative advantage from them (To & Ngai, 2006).

TM plays a role in the commitment to the adoption as top management's willingness to provide funds investment and to take risks is key. They are also in a position to be able to analyse the potential competitive advantage (Lee, 2004; Malik et al., 2021; Prabowo et al., 2018; Chatterjee et al., 2021). The TM performs a significant role in innovation or technology adoption as top managers are the decision-makers for resource allocation, services integration, the organisation's workplace processes and management methodologies (Chang et al., 2013). TM in an organisation can influence the organisation's staff to adopt the changes and to evaluate the advantages of innovative technology adoption, as well as to assign the necessary resources for implementing the adoption (Alshamaila et al., 2013; Wang et al., 2010).

IP and pressure from competitors positively affect an organisation's intention to adopt innovations (Pacheco-Bernal, 2020; Li, 2008). Pressure from competitors is also defined as mimetic pressure, as organisational leaders believe in mimicking practices from competitors to meet industry benchmarks or market needs (Oliveira & Martins, 2011; Gui et al., 2020). In addition, IP has a significant impact on an organisation's digital transformation adoption, and it is a highly influential factor in encouraging organisations to adopt innovations (Premkumar & Ramamurthy, 1995; You & Lee, 2021; Goode & Stevens, 2000).

Social science and information systems researchers have verified that the intention to adopt technology usually leads to actual use (Shropshire et al., 2015; Bagozzi, 2007; Ifinedo, 2011). It has been well-documented that IA is a predictor of behaviour (Venkatesh et al., 2003). Hence, IA shall be used as a signifier of actual use. Thus, the following hypotheses are proposed:

Hypothesis 1 (H1). *Relative Advantage (RA) has a positive influence on the intention of HPM adoption (IA).*
Hypothesis 2 (H2). *Top Management Support (TM) has a positive influence on the intention of HPM adoption (IA).*

Hypothesis 3 (H3). *Industry Pressure (IP) has a positive influence on the intention of HPM adoption (IA).*

3.1.2 Attitude (ATT)

ATT is defined as the psychological assessment of a specific product by consumers or users (Bonne et al., 2007). Much of the previous research has discovered that ATT has a positive and significant influence on the behavioural intention towards new technology and innovation adoption (Mostafa, 2007). In Püschel et al.'s 2010 study, the ATT construct was used as a mediator in their research framework and they summarised that ATT positively influenced the individual's intention to adopt mobile banking. Thus, the following hypotheses are proposed:

Hypothesis 4 (H4). *Attitude (ATT) mediates the relationship between Relative Advantage (RA) and intention of HPM adoption in the FinTech industry (IA).*
Hypothesis 5 (H5). *Attitude (ATT) mediates the relationship between Top Management Support (TM) and intention of HPM adoption in the FinTech industry (IA).*
Hypothesis 6 (H6). *Attitude (ATT) mediates the relationship between Industry Pressure (IP) and intention of HPM adoption in the FinTech Industry (IA).*
Hypothesis 7 (H7). *Attitude (ATT) has a positive influence on the intention of HPM adoption (IA).*

3.1.3 Perceived Behaviour Control (PBC)

PBC is referred to as "the extent to which a person feels able to engage in the behaviour" and whether the individual feels control over the behaviour or the individual has the motivation to execute or not execute the behaviour (Ajzen, 1991). There are numerous studies using PBC in fields such as intention in technology usage and halal food purchasing and it was found that the PBC construct has a positive effect on behaviour intention (Teo & Lee, 2010; Alam & Sayuti, 2011). Thus, the following hypothesis is proposed:

Hypothesis 8 (H8). *Perceived Behaviour Control (PBC) has a positive influence on the intention of HPM adoption (IA).*

3.2 Methodology

This study aims to assess the key managerial factors such as technology, organisational behaviour and the external environment that affect a FinTech organisation decision-makers' intention to adopt HPM methodology into their software development project to deliver a higher rate of successful projects. The quantitative deductive approach was chosen for this study. It was considered to be suitable since hypotheses of existing concepts are to be evaluated.

A quantitative approach with correlational design flow was chosen as this study researches methods for measuring the correlation between the technological, organisational and environmental factors and the intent of decision-makers in FinTech organisations to adopt HPM methodology into their software development process. A quantitative research method is used to examine the opinions, behaviours, attitudes and other variables by recapitulating results from numeric statistical data based on a defined area of population samples (Mohajan, 2020; Ahmad et al., 2019). Questionnaires, experiments, or observations are methods used in quantitative research to study groups of people or populations, and researchers perform complicated statistical data analysis based on a series of quantitative data (Mohajan, 2020; Rubin & Babbie, 2017).

Participants with FinTech knowledge-sharing experiences at work were invited to participate in this study as the sole respondents. The target population was employees of FinTech organisations based in Malaysia. According to Fintech News Malaysia (2021), there were 233 FinTech companies and 27 banks in Malaysia in 2021 (Fintech News Malaysia, 2021). The construct's indicator reliability and validity will be measured by the analysis of FinTech firms' experiences and information regarding implementing or offering software development services and project management services in projects. The participants were professionals who were working in FinTech organisations and played a managerial role in deciding whether to adopt new project management methodology, project planning and innovations in their respective companies.

The questionnaires in this study were available for survey participants to access via an online Google form and the data were collected in Excel format. Following collection, the data were reviewed in detail, and odd answers were chosen. All survey participants had an understanding of predictive, adaptive and HPM methodologies for delivering FinTech software solutions. The aspects affecting HPM adoption were measured using a clearly labelled seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). SmartPLS 3.3.3 software and Partial Least Square (PLS) regression were used for data analysis in this study. Structural Equation Modelling (SEM) was used to validate the instruments and evaluate the correlation between constructs. The PLS procedure is used by many researchers as it has the capability to build a picture from small and medium sample data sizes and find hidden connections between the conceptual contexts and the gauge of each construct. The logical analysis was performed using SmartPLS adopting an SEM approach, and the hypotheses were evaluated. Multiple variables were analysed and the variables indicated the measurement extracted from the surveys, which are a method typically employed as primary data collection. PLS–SEM was the preferred option as it offers an approximation of complex models with many item variables and constructs and allows the flexibility of relationships specification and data requirements (Lundin, 2020). Table 1 shows the demographics of the respondents and descriptive statistics.

Table 1
Demographics and descriptive statistics

	Freq.	%
Gender		
Male	135	60.54
Female	88	39.46
Age Group of Respondents		
20–30	52	23.32
31–39	88	39.46
40–49	69	30.94
50 or above	14	6.28
Highest Education Level		
High School	3	1.35
Diploma	3	1.35
Bachelor	166	74.44
Master	50	22.42
PhD	1	0.45
Respondent Category		
Director of Organisation	9	4.04
Head of Department	5	2.24
Project Manager	66	19.60
Scrum Master	16	7.17
Business Lead	31	13.90
Technical Lead	80	35.87
Testing Lead	16	7.17
Years of Working Experience		
Below 3	22	9.87
3–5	7	3.14
5–10	60	26.94
10–15	47	21.08
15–20	44	19.74
Above 20	43	19.28
Number of Employees in Organisation		
< 50	38	17.04
50–100	20	8.97
101–500	69	30.94
501–1000	21	9.42
> 1000	75	33.63

A total of 415 questionnaire invitations were sent out and 223 people responded, yielding a total response rate of 53.74%. After checking data for any missing values, unusable responses or outliers, 223 responses remained usable, partly because the questions were set to require a compulsory answer in the Google form. A sample size of 223 is appropriate for this study as it aligns with the widespread application of the "10 times rule of thumb" which has suggested the minimum sampling size should be more than 10 times the total number of independent variables (Hair et al., 2013). This study has a maximum of four arrows pointing at a latent variable and this is in line with the requirement of a minimal sampling size of 65 (Hair et al., 2013; Marcoulides & Saunders, 2006; Wong, 2006). The outer and inner models would have a maximum of five independent variables when "one would need ninety-one observations to achieve a statistical power of 80%, assuming a medium effect size and a 5% a-level" as suggested in Marcoulides and Saunders (2006), Wong (2006) and Cohen (1988). The sampling size of 223 in this study has met all the above criteria. All participants could choose the option at the end of the questionnaire to receive the study's findings when complete, to encourage more professionals to participate in this study.

3.2.1 Measures

Measurement tools from several previous studies were adapted for use in this study to ensure that the tools and instruments being applied did not contain any validity or reliability issues. The final questionnaire for this study was adapted from several different existing studies and questionnaires. The questionnaire used for data collection was divided into two main parts: the first section contained demographic questions and the second section included questions related to each of the constructs in the model. To examine in which stage of the process the organisation was in at the time of the questionnaire, participants were asked to choose one answer from six options measuring the dependent variable of HPM adoption:

i. My organisation or the organisation I work for is not considering adoption of HPM.
ii. My organisation or the organisation I work for is currently in the process of evaluating adoption of HPM.
iii. My organisation or the organisation I work for has evaluated HPM, but do not plan to adopt it.
iv. My organisation or the organisation I work for has evaluated HPM and intends to adopt it.
v. It is likely that my organisation or the organisation I work for will take steps to adopt HPM in the future.

vi. My organisation or the organisation I work for has already adopted HPM.

4. Results

The survey data which were collected were analysed using the multivariate analysis method which in this case is a Partial Least Squares (PLS) approach and is based on Structural Equation Modelling (SEM). The research model was assessed using the SmartPLS 3.3.3 software tool, which is the popular software application used by researchers for PLS-SEM. Multiple variables retrieved from the survey could be analysed simultaneously, as PLS-SEM has better predictive power than factor-based SEM and can simultaneously calculate relationships between independent and dependent variables in the structural model. Multiple latent variables in a measurement model can also be observed (Ringle et al., 2015; Venaik et al., 2005).

According to Azzopardi et al. (2013), multiple regression analysis aids researchers in evaluating the relationship between multiple independent and dependent constructs. PLS-SEM is classified as a non-parametric method where it is not essential for the survey data to meet distribution assumptions that the responses are not necessarily distributed across the seven-point Likert scale and it is also ideal for small sample size data studies (Vinzi et al., 2010). According to Hoyle (2015), the ideal starting point for completing path modelling is a value from 100 to 200. The dataset size in this study is 223, which is more than the suggested starting value, hence the PLS-SEM approach is a good option for this research. The analysis of this study does not focus on the involvement of model invariance measurement and focuses on the prediction factors relating to decision makers' intention to adopt HPM. The parametric significance test cannot be implemented to calculate significant coefficients. Bootstrapping is defined as a method to create multiple datasets out of one dataset. The PLS-SEM approach relies on a bootstrap procedure to evaluate whether the various results are significant (Davison & Hinkley, 1997). Sub-sample data are randomly illustrated observations from the original set of replacement data in bootstrapping and this drives the datasets although it may consist of few copies of some of the initial data points. Simulation of the new dataset can be made by selecting data points randomly from the original dataset. According to Hair et al. (2013), the bootstrap sample number and the size of the subsample should be 5000 each to construct valid observations. Furthermore, according to Lai et al. (2012), PLS is believed to be the preferred approach for studies concerned with decision-making, management-oriented problems and prediction. Thus, PLS is considered to be the best option in situations other methods are unable to adequately cover or when developed solutions are inadmissible.

4.1 Measurement Model

Indicator reliability of the measurement model is measured by examining the items' loadings. A measurement model is said to have satisfactory indicator reliability when each item's loading is at least a value of 0.7 or more and to be significant if at least a level of 0.05 or more (Chin & Marcoulides, 1998). The internal reliability and consistency of a measurement item are examined using Cronbach's Alpha (CA). According to Cronbach (1971), higher CA values of constructs mean that the items within the construct have the same range and meaning. CA values offer an estimation of the reliability based on the inter-correlations indication. According to Chin and Marcoulides (1998), internal reliability is measured by using composite reliability (CR) in PLS as both CA and CR evaluate the same internal consistency and CR indicators have different loadings. CA offers over or underestimation of internal consistency reliability as it assumes all indicators are an equal number of weights (Werts et al., 1974). Convergent reliability can be measured by using the average variance extracted (AVE) value. Convergent validity is adequate when constructs have an average variance extracted (AVE) value of at least 0.5 or more (Fornell & Larcker, 1981). According to Urbach and Ahlemann (2010), convergent validity involves the degree by which individual items reflect a construct convergence compared to items of different constructs measurement. Discriminant reliability is used to differentiate the measurement of one construct from another. In contrast with convergent reliability, discriminant reliability measures the items which do not intentionally measure something else (Urbach & Ahlemann, 2010). The Fornell–Larcker criterion requires a latent variable (LV) to share more variance with its assigned indicators than with any other LV. Hence, the AVE of each LV should be greater than the LV's highest squares correlation with any other LV (Chin & Marcoulides, 1988). The Fornell–Larcker criterion compares the square root of AVE with the latent variable correlations. The measurement model's convergent validity can be assessed by AVE and composite reliability (Urbach & Ahlemann, 2010). Cross-loading is measured by correlating each LV's component score with all of the other items. It can be inferred for each indicator that the different constructs' indicators are not interchangeable if the loading value is higher for its specific construct compared to any other constructs (Chin & Marcoulides, 1988). The Heterotrait–Monotrait Ratio (HTMT) is the measurement of similarity between latent variables. If the HTMT value is less than a value of 1, discriminant validity can be regarded as established. In many studies, a threshold of 0.85 reliably distinguishes between the pairs of latent variables that are discriminant valid and those that are not (Franke & Sarstedt, 2019). Table 2 shows that most of the values have a value of at least 0.7 or more, thus confirming sufficient reliability.

Table 2
Item loadings

Constructs	Item	ATT	IA	IP	PBC	RA	TM
Attitude (ATT)	ATT1	0.892					
	ATT2	0.918					
	ATT3	0.921					
	ATT4	0.877					
	ATT5	0.915					
Intention to Adopt (IA)	IA1		0.811				
	IA2		0.618				
	IA3		0.724				
	IA4		0.698				
	IA5		0.749				
	IA6		0.707				
Industry Pressure (IP)	IP1			0.900			
	IP2			0.861			
	IP3			0.827			
	IP4			0.747			
Perceived Behaviour Control (PBC)	PBC1				0.833		
	PBC2				0.793		
	PBC3				0.639		
	PBC4				0.773		
Relative Advantage (RA)						0.851	
						0.886	
						0.831	
						0.804	
Top Management Support (TM)							0.815
							0.901
							0.899
							0.850

Construct validity is assessed by examining both the convergent and discriminant validity, and if the value is 0.5 or higher it is set as the acceptable value of AVE.

Table 3 shows that all the constructs had AVE values greater than 0.5 and ranged between 0.582 and 0.819, thus confirming convergent validity. The discriminant reliability was examined using both the Fornell–Larcker criterion and HTMT.

Table 3
Reliability and convergent validity

	Cronbach's Alpha	RhoA	Composite Reliability (CR)	Average Variance Extracted (AVE)
ATT	0.945	0.946	0.958	0.819
IA	0.813	0.818	0.865	0.519
IP	0.855	0.860	0.902	0.698
PBC	0.760	0.781	0.847	0.582
RA	0.865	0.874	0.908	0.711
TM	0.889	0.890	0.924	0.752

The Fornell–Larcker criterion compares the square root of AVE with the latent variable correlations. The measurement model's convergent validity can be assessed by AVE and composite reliability. The square root of construct ATT, IA, IP, PBC, RA, and TM are greater than its highest correlation with any other construct and with this assessment, discriminant validity can be achieved.

Table 4 shows the discriminant validity: Fornell–Larcker criterion.

Table 4
Discriminant validity: Fornell–Larcker criterion

	ATT	IA	IP	PBC	RA	TM
ATT	0.905					
IA	0.867	0.720				
IP	0.628	0.719	0.836			
PBC	0.758	0.813	0.621	0.763		
RA	0.733	0.892	0.523	0.617	0.843	
TM	0.586	0.786	0.798	0.687	0.594	0.867

As shown in Table 5, all the variables displayed acceptable discriminant validity in the HTMT test and bearing values are mostly below thresholds.

Table 5
Discriminant validity: Heterotrait–Monotrait Ratio (HTMT)

	ATT	IA	IP	PBC	RA	TM
ATT						
IA	0.978					
IP	0.684	0.831				
PBC	0.847	1.012	0.758			
RA	0.799	1.069	0.582	0.725		
TM	0.637	0.909	0.909	0.850	0.671	

4.2 Structural Model Assessment

Fig. 2 below shows the structural model for this study.

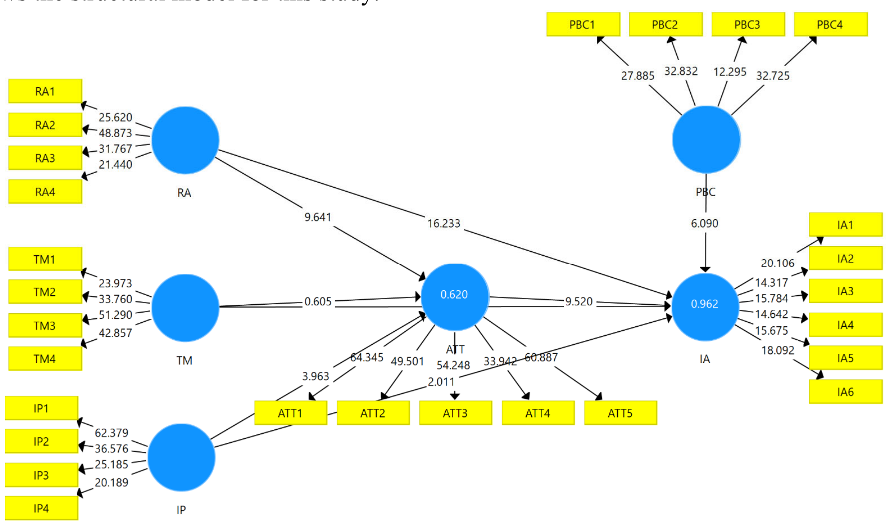

Fig. 2. Structural model

From the Path Coefficients statistic in Table 6 below, it can be seen that the t-value of constructs ATT, IP, PBC, and RA are larger than the critical values (1.96 and 2.58), and these two constructs are considered significant with the levels of 5% and 1% respectively. In addition, the p-value of constructs ATT, IP, PBC, and RA are less than the value 0.05 and this shows that constructs ATT, IP, PBC, and RA are significant.

Table 6
Path coefficients and hypotheses testing results

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values	Results
H1: RA → IA	0.449	0.450	0.028	16.233	0.000	Supported
H2: TM → IA	0.222	0.223	0.029	7.746	0.000	Supported
H3: IP → ATT	0.045	0.046	0.022	2.044	0.045	Supported
H4: RA → ATT	0.567	0.565	0.059	9.641	0.000	Supported
H5: TM → ATT	-0.043	-0.035	0.071	0.605	0.546	Not Supported
H6: IP → ATT	0.366	0.360	0.092	3.963	0.000	Supported
H7: ATT → IA	0.259	0.256	0.027	9.520	0.000	Supported
H8: PBC → IA	0.159	0.160	0.026	6.090	0.000	Supported

Based on the path analysis above, it shows that:

H1: RA ($\beta = 0.449$, $t = 16.233$, $p < 0.05$) has a significant relationship with IA.
H2: TM ($\beta = 0.222$, $t = 7.746$, $p < 0.05$) has a significant relationship with IA.
H3: IP ($\beta = 0.045$, $t = 2.011$, $p < 0.05$) has a significant relationship with IA.
H4: RA ($\beta = 0.567$, $t = 9.641$, $p < 0.05$) has a significant relationship with ATT.
H6: IP ($\beta = 0.366$, $t = 3.963$, $p < 0.05$) has a significant relationship with ATT.
H7: ATT ($\beta = 0.259$, $t = 9.520$, $p < 0.05$) has a significant relationship with IA.
H8: PBC ($\beta = 0.159$, $t = 6.090$, $p < 0.05$) has a significant relationship with IA.
As a result, Hypothesis H1, H2, H3, H4, H6, H7, and H8 are supported.

On the other hand, the path analysis also shows that:

H5: TM (β = -0.043, t = 0.605, p > 0.05) does not have a direct influence on ATT.
As a result, Hypothesis H5 is not supported.

The t-value test for the level of significance was calculated by using two-tailed estimation (Hair et al., 2013). Table 6 shows the t-values and p-values indicating that TM did not prove to have a significantly negative relationship with ATT (t = 0.605, p = 0.546). All other direct relationships have proved to be significant with t-values well above a threshold of 1.96 and p-values of less than 0.05. Based on the t-value rule of thumb for interpretation of a two-tailed test (t = 1.96), all the hypotheses were supported with one exception, namely H5.

R Square (R^2) is defined as the strength of the least-squares fit to the training set activities. An R^2 value of 0.9 is explained as the model accounts for 90% of the variance in the observed activities for the training set. The value gets closer to 1 (100%) as more PLS factors are incorporated into the fit. R^2 also refers to the proportion of the variance in the response variable which can be explained by the predictor variable. R^2 value ranges from 0 to 1. A value of 0 indicates that the response variable is unable to be explained by the predictor variable and a value of 1 indicates that the response variable can be perfectly explained without error by the predictor variable. The R^2 value indicates the amount of variance in endogenous variables that is explained by the exogenous variables. Thus, a larger R^2 value increases the predictive ability of the structural model. In this analysis, the SmartPLS algorithm function is used to obtain the R^2 values, while the SmartPLS bootstrapping function is used to generate the t-statistics values. For this study, the bootstrapping generated 5000 samples from 223 cases. Referring to Fig. 2 above and Table 7 below, in the structural model, 62.0% of the variation in ATT is explained by the RA, TM and IP constructs. However, 96.2% of the variation in IA is explained by the RA, TM, IP and PBC constructs.

Table 7
R^2 results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values
ATT	0.620	0.626	0.047	13.133	0.000
IA	0.962	0.963	0.008	121.900	0.000

F Square (F^2) is defined as effect size (>=0.02 is small; >=0.13 is medium; >=0.26 is large). F^2 measures variance to illustrate each exogenous variable in the model. **Table 8** below shows each construct effect size: the TM to ATT path was extremely strong with an F^2 value of 0.827 and similarly the IP to IA path was also strong with an F^2 value of 0.400:

Table 8
F^2 results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values	Effect Size
RA → IA	2.195	2.335	0.586	3.743	0.000	Small
TM → IA	0.359	0.387	0.132	2.718	0.007	Small
IP → IA	0.017	0.023	0.020	0.842	0.400	Large
RA → ATT	0.544	0.559	0.168	3.243	0.001	Small
TM → ATT	0.002	0.005	0.007	0.219	0.827	Large
IP → ATT	0.126	0.132	0.065	1.939	0.053	Medium
ATT → IA	0.496	0.515	0.148	3.357	0.001	Small
PBC → IA	0.222	0.245	0.098	2.259	0.024	Small

Q Square (Q^2) refers to predictive validity and relevance, and it measures the test model to ascertain whether it has predicted validity or not (>0 is good). For the Q^2 value, a value of >=0.02 is small; >=0.15 is medium; >=0.35 is large. The Q^2 value for construct ATT has a value of 0.500 and construct IA has a value of 0.488 which means these two constructs are considered to be large and have predicted validity. Table 9 shows that all the constructs cross-validated redundancy:

Table 9
Construct cross-validated Redundancy

	SSO	SSE	Q^2 (= 1 – SSE / SSO)
ATT	1115.000	557.052	0.500
IA	1338.000	685.431	0.488
IP	892.000	892.000	
PBC	892.000	892.000	
RA	892.000	892.000	
TM	892.000	892.000	

4.3 Mediating Analysis

The direct and indirect relationship can be examined by conducting mediating or moderating analysis and this can be assessed with the significance of the mediating relationships. This is based on the theoretical reasoning that suggests construct

ATT as a key mediating factor that influenced construct IA. Post-hoc analysis is conducted to examine the mediating effect of construct ATT on construct IA.

4.3.1 Influence of Construct RA on Construct IA

The post-hoc analysis is started by examining the influence of construct RA on construct IA. Fig. 3, Table 10 and Table 11 below show the analysis construct IA is influenced positively by RA (β = 0.953, t = 227.998, p = 0.00, R^2 = 0.908):

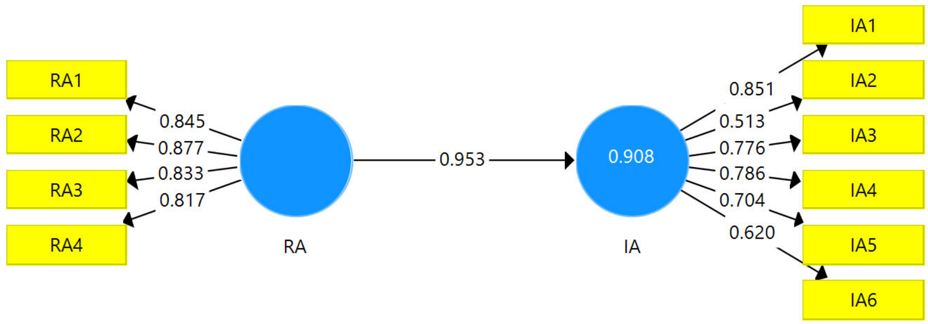

Fig. 3. Influence of RA on IA

Table 10
Path coefficients and hypotheses testing results (Influence of RA on IA)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values
RA → IA	0.953	0.954	0.004	227.998	0.000

Table 11
R^2 value (Influence of RA on IA)

	R^2	R^2 Adjusted
IA	0.908	0.907

4.3.2 Mediating Effect of Construct ATT on Construct RA and Construct IA

To test the mediating effect of construct ATT, the mediating variable is introduced into the relationship between RA and IA. Fig. 4, Table 12 and Table 13 show:

Construct ATT positively influences construct IA (β = 0.407, t = 20.004, p = 0.000)
Construct RA positively influences construct ATT (β = 0.734, t = 16.327, p = 0.000)
Construct RA positively influences construct IA (β = 0.628, t = 31.601, p = 0.000)

The introduction of the mediating variable reduced the coefficient value between construct RA and construct IA from 0.953 to 0.628. However, the direct effect of construct RA to construct IA is also significant (β = 0.628, t = 31.601, p = 0.000). Therefore, we can conclude that there is partial mediation in the relationship between construct RA and construct IA as the direct effect is significant. Based on further analysis, it can also be seen that the introduction of construct ATT as a mediator increases the R^2 value from 0.908 (or 90.8%) to 0.936 (or 93.6%).

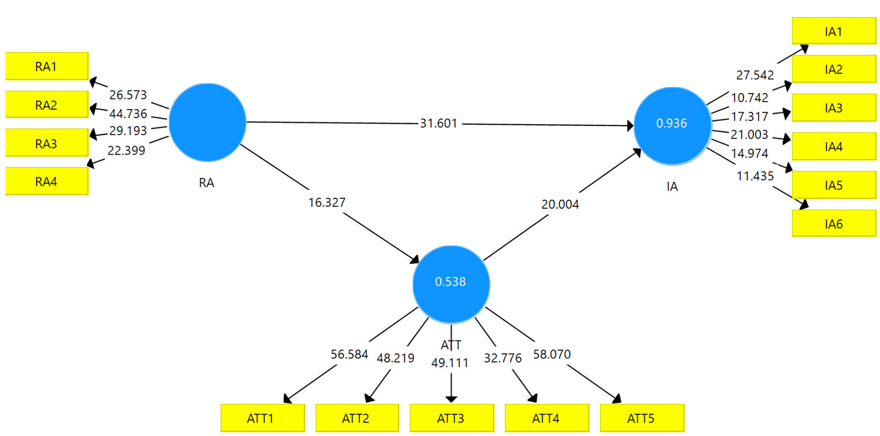

Fig. 4. Mediating effect of construct ATT on construct RA and construct IA

Table 12
Path coefficients and hypotheses testing results (Influence of ATT on construct RA and construct IA)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values
ATT → IA	0.407	0.405	0.020	20.004	0.000
RA → ATT	0.734	0.735	0.045	16.327	0.000
RA → IA	0.628	0.630	0.020	31.601	0.000

Table 13
R^2 testing results (Mediating effect of construct ATT on construct RA and construct IA)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values
ATT	0.538	0.542	0.068	7.887	0.000
IA	0.936	0.936	0.008	124.613	0.000

4.3.3 Influence of Construct TM on Construct IA

The post-hoc analysis is started by examining the influence of construct RA on construct IA. Fig. 5, Table 14 and Table 15 below show the analysis construct IA is influenced positively by RA (β = 0.840, t = 53.608, p = 0.00, R^2 = 0.705):

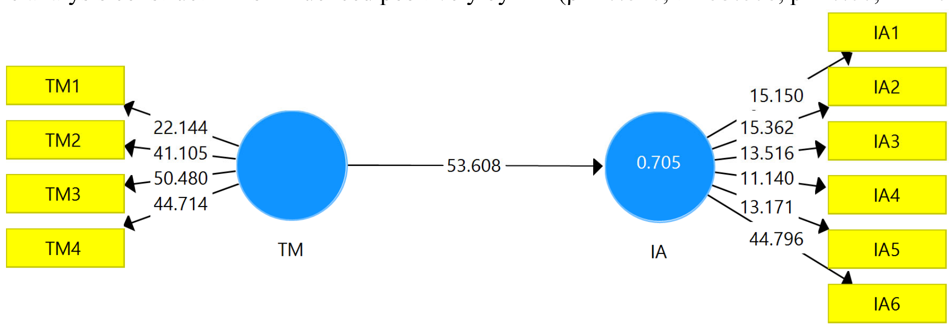

Fig. 5. Influence of TM on IA

Table 14
Path coefficients and hypotheses testing results (Influence of TM on IA)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values
TM → IA	0.840	0.842	0.016	53.608	0.000

Table 15
R^2 testing results (Mediating effect of construct ATT on construct RA and construct IA)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values
IA	0.705	0.710	0.026	26.713	0.000

4.3.4 Mediating Effect of Construct ATT on Construct TM and Construct IA

To test the mediating effect of construct ATT, the mediating variable is introduced into the relationship between TM and IA. Fig. 6, Table 16 and Table 17 below show:
Construct ATT positively influences construct IA (β = 0.626, t = 18.548, p = 0.000)
Construct TM positively influences construct ATT (β = 0.586, t = 12.147, p = 0.000)
Construct TM positively influences construct IA (β = 0.429, t = 12.519, p = 0.000)

The introduction of the mediating variable reduced the coefficient value between construct TM and construct IA from 0.840 to 0.429. However, the direct effect of construct TM on construct IA is also significant (β = 0.429, t = 12.519, p = 0.000). Therefore, we can conclude that there is partial mediation in the relationship between construct TM and construct IA as the direct effect is significant. Analysis also shows that the introduction of construct ATT as a mediator has increased the R^2 value from 0.705 (or 70.5%) to 0.890 (or 89.0%).

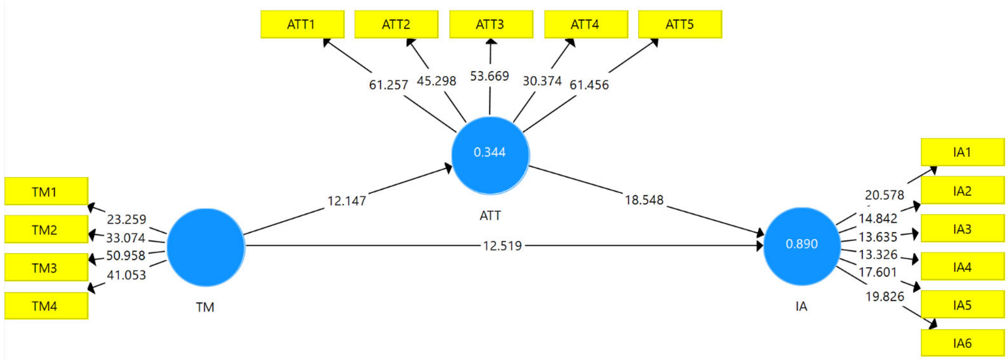

Fig. 6. Mediating effect of construct ATT on construct TM and construct IA

Table 16
Path coefficients and hypotheses testing results (Influence of ATT on construct TM and construct IA)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values
ATT → IA	0.626	0.627	0.034	18.548	0.000
TM → ATT	0.586	0.585	0.048	12.147	0.000
TM → IA	0.429	0.428	0.034	12.519	0.000

Table 17
R^2 testing results (Mediating effect of construct ATT on construct TM and construct IA)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values
ATT	0.344	0.347	0.059	7.887	0.000
IA	0.890	0.891	0.013	70.584	0.000

4.3.5 Influence of Construct IP on Construct IA

The post-hoc analysis begins by examining the influence of construct RA on construct IA. Fig. 7, Table 18 and Table 19 below show the analysis construct IA is influenced positively by RA ($\beta = 0.764$, $t = 31.806$, $p = 0.00$, $R^2 = 0.583$):

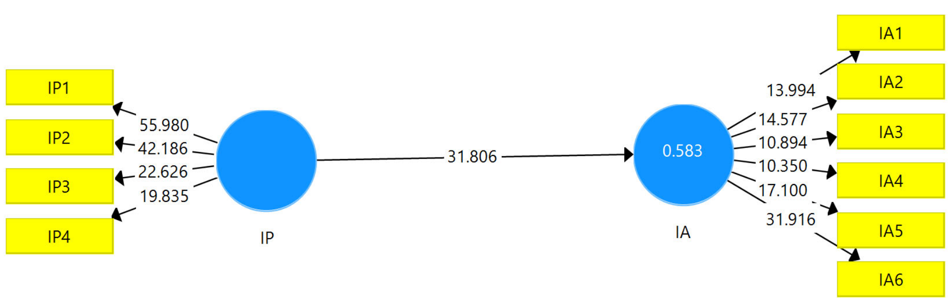

Fig. 7. Influence of IP on IA

Table 18
Path coefficients and hypotheses testing results (Influence of IP on IA)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values
IP → IA	0.764	0.768	0.024	31.806	0.000

Table 19
R^2 testing results (Mediating effect of construct ATT on construct IP and construct IA)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values
IA	0.583	0.590	0.037	15.838	0.000

4.3.6 Mediating Effect of Construct ATT on Construct IP and Construct IA

To test the mediating effect of construct ATT, the mediating variable is introduced into the relationship between TM and IA. Fig. 8, Table 20 and Table 21 show the following analysis:
Construct ATT positively influences construct IA (β = 0.706, t = 23.549, p = 0.000)
Construct IP positively influences construct ATT (β = 0.628, t = 14.673, p = 0.000)
Construct IP positively influences construct IA (β = 0.287, t = 9.042, p = 0.000)

The introduction of the mediating variable reduced the coefficient value between construct IP and construct IA from 0.764 to 0.287. However, the direct effect of construct TM on construct IA is also significant (β = 0.287, t = 9.042, p = 0.000). Therefore, we can conclude that there is partial mediation in the relationship between construct IP and construct IA as the direct effect is significant. Further analysis also shows that the introduction of construct ATT as a mediator has increased the R^2 value from 0.583 (or 58.3%) to 0.835 (or 83.5%).

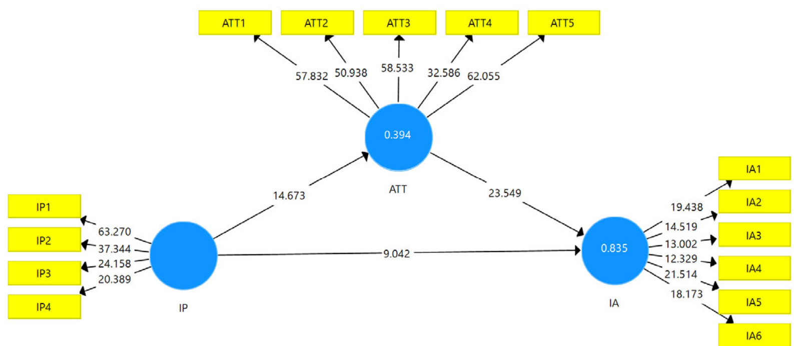

Fig. 8. Mediating effect of construct ATT on construct IP and construct IA

Table 20
Path coefficients and hypotheses testing results (Influence of ATT on construct IP and construct IA)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values
ATT → IA	0.706	0.704	0.030	23.549	0.000
IP → ATT	0.628	0.630	0.043	14.673	0.000
IP → IA	0.287	0.291	0.032	9.042	0.000

Table 21
R^2 testing results (Mediating effect of construct ATT on construct IP and construct IA)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values
ATT	0.394	0.399	0.054	7.354	0.000
IA	0.835	0.839	0.015	55.087	0.000

4.3.7 Mediating Effect of Construct ATT on Construct RA, Construct TM, Construct IP and Construct IA

Finally, the effect of the mediating variable on the dependent variable (DV) with independent variables (IVs) is tested, with results shown in Fig. 9 and Table 22. From the analysis, both the IVs to the DV are affected by mediating construct ATT. Therefore, construct ATT is mediating the relationship between construct RA and construct IA, construct TM and construct IA, and construct IP and construct IA.

Table 22
Path coefficients and hypotheses testing results (Mediating effect of construct ATT on construct RA, construct TM, IP and construct IA)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values
ATT → IA	0.332	0.332	0.027	12.488	0.000
IP → ATT	0.366	0.369	0.090	4.048	0.000
IP → IA	0.040	0.039	0.029	1.388	0.166
RA → ATT	0.567	0.568	0.055	10.320	0.000
RA → IA	0.472	0.473	0.028	16.803	0.000
TM → ATT	-0.044	-0.047	0.073	0.595	0.552
TM → IA	0.277	0.278	0.030	9.126	0.000

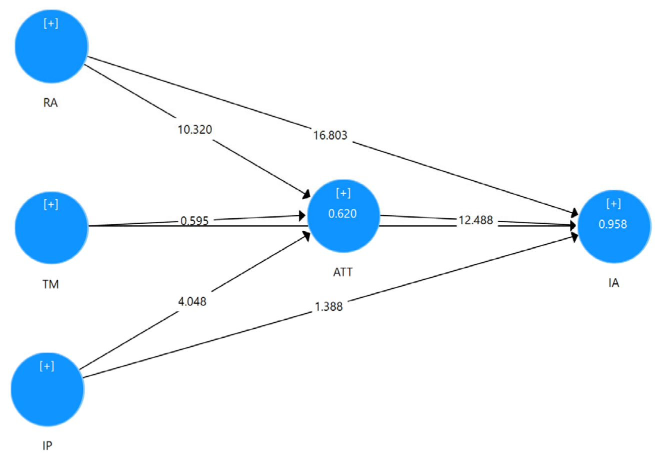

Fig. 9. Mediating effect of construct ATT on construct RA, construct TM, construct IP and construct IA

The results showed that:

Construct RA and construct IA have a positive relationship (β = 0.706, t = 16.803, p = 0.000)
Construct RA and construct ATT have a positive relationship (β = 0.567, t = 10.320, p = 0.000)
Construct ATT and construct IA have a positive relationship (β = 0.332, t = 12.488, p = 0.000)
Thus, we can conclude that there is no mediation between construct RA and construct IA.

Construct TM and construct IA have a positive relationship (β = 0.277, t = 9.126, p = 0.000)
Construct TM and construct ATT have a positive relationship (β = 0.366, t = 4.0486, p = 0.552)
Construct ATT and construct IA have a positive relationship (β = 0.332, t = 12.488, p = 0.000)
Since the direct effect is significant, we can conclude that there is partial mediation between construct TM and construct IA.

Construct IP and construct IA have a positive relationship (β = 0.040, t = 1.388, p = 0.166)
Construct IP and construct ATT have a positive relationship (β = 0.366, t = 4.048, p = 0.000)
Construct ATT and construct IA have a positive relationship (β = 0.332, t = 12.488, p = 0.000)
Since the direct effect is not significant, we can conclude that there is mediation between construct IP and construct IA.

In conclusion, the relationship between construct TM and construct IA, and construct IP and construct IA is mediated by the intervening construct ATT. However, there is no mediation effect between construct RA and construct IA.

5. Discussion

This study aims to investigate the factors that affect FinTech organisations' decisions to adopt HPM in their software development projects. Based on the TOE framework, we found that different technological, organisational and environmental factors influence the organisation in HPM adoption decisions in Malaysia. The results show that all hypotheses which were developed in this study were supported, with the exception of H5. In addition, the results confirm that the variable PBC significantly affects HPM adoption. The results, interpretation of the TOE context framework and comparison with the past studies are discussed further below.

Construct RA in this study positively influences the adoption of HPM. Businesses tend to assess the related costs and benefits as determinants before making any decision on the adoption or use of technology. RA shows the degree to which new technology is perceived to offer an inherent business value over the alternative or existing technology (Justino et al., 2022; Wang et al., 2016; Jain et al., 2011; Sin Tan et al., 2009). Our finding is consistent with Ramdani et al. (2013) and Sin Tan et al. (2009) whose studies identified RA in the technology context as one of the main factors affecting the adoption of innovative technology, as it provides increased benefits to the organisation. When an organisation sees a RA in the innovation, it will increase the chances of the organisation adopting that new technology. Logically, it makes sense for the organisation to assess the benefits gained from adopting innovations into the organisation (To & Ngai, 2006; Lee, 2004).

Top management support is defined as an important factor in innovation or technology adoption as the management is involved in the judgement of resources allocation, services integration, an organisation's engineering processes and management methodologies (Chang et al., 2013). Our findings are consistent with those of Oliveira et al. (2014), Malik et al. (2021), Melo et al. (2021), Setiyani et al. (2021), You & Lee (2021), Alshamaila et al. (2013) and Wang et al. (2010). This is because top management leaders have the authority to decide upon and approve strategic decisions such as adopting new technology and allocating resources to it. In addition, according to Alshamaila et al. (2013), top management can influence the staff in the organisation to adapt to the changes and can determine the benefits of new technology adoption. Salwani et al. (2009) also concluded that top management views on whether the new technology innovation provides value play a key role in the organisation adopting new technology.

The positive influence of industry pressure on HPM adoption implies that organisations work to remain competitive and stay ahead of their competitors. Industry pressure prompts organisations to find ways to develop and sustain their competitive advantage. Our finding is consistent with studies of Oliveira et al. (2014), Malik et al. (2021), Melo et al. (2021), Setiyani et al. (2021) and You & Lee (2021), whom all found that industry pressure and pressure from clients positively affect an organisation's intention to adopt new innovations. Furthermore, our finding is aligned with \cite{ref-journal53} that industry pressure is one of the most influential factors in encouraging organisations to adopt innovations. The direct impact of perceived behaviour control is found to be positive, causing organisations' intentions to adopt HPM to rise. This finding also aligns with the earlier study from Salwani et al. (2009) which reported that individual controls over behaviour positively impact the adoption of innovation.

We found that attitude (ATT) mediates the relationship between top management support (TM) and intention to adopt HPM (IA), and the relationship between industry pressure (IP) and intention to adopt HPM (IA). The findings are aligned with earlier studies (Goode & Stevens, 2000; Bonne et al, 2007) which used an attitude construct as a mediator in their research framework and concluded that the attitude construct significantly affected the individual's intention to adopt innovation. However, the findings also show that hypothesis H5 is not supported and there is no mediation effect between construct RA and construct IA. This finding is contrary to our proposed hypothesis. A possible explanation for this might be that when organisations consider there is a high level of top management support, they feel more comfortable and are inclined towards HPM adoption.

Our study outlines several important implications for both theory and practice. Firstly, this is one of the first positivist studies that provides empirical evidence about the positive factors influencing organisations in adopting HPM in the Malaysian context, to the best of our knowledge. Most of the studies on HPM are from the understanding of a technical advancement perspective. The understanding of HPM adoption is important in maximising value creation, although the technological perspective of HPM is also important in future development. Hence, this study contributes theoretically by establishing the basis for future research in the Malaysian context. Secondly, there are limited studies on the organisational adoption of HPM which establish a linear relationship between the TOE factors and the intention to adopt HPM. This is one of the first studies that extends the TOE framework by introducing a moderating and mediating variable for the organisational adoption of HPM. Researchers can use this extended TOE framework – shown in **Figure 1** – as a starting point for future research to study organisations' intentions to adopt any innovation in general and HPM in particular. With the addition of the new factors, the extended structural model will become more explanatory than the original TOE framework. Thirdly, the study identifies the factors that influence the organisational adoption of HPM in the Malaysian context. Finally, our study presents a validated research framework for HPM adoption at the organisational level.

In addition to the theoretical implications, the study has various important practical implications. Our study could help organisational decision-makers by providing guidelines for them on the important factors to consider when choosing a project management methodology prior to software development. We have found that organisations feel reluctant to adopt HPM due to their lack of knowledge of HPM. Therefore, these findings are important for the FinTech sector to remove the uncertainties hindering HPM adoption. Our study highlights the role of an organisation's top management in HPM adoption. As a result, the organisation's top management decision-makers should be determined and focused on the adoption of innovations. Top management's clarity about benefits and value creation encourages the organisation to adopt HPM successfully. In addition, the industry pressure factor is found to be positive for HPM adoption.

6. Conclusion

Adoption and implementation of the HPM methodology is becoming a new trend in FinTech organisations. For FinTech organisations' management and project investors, it is important to have a project methodology which can increase team productivity, reduce project costs and budgets, and increase project profitability. However, decision-makers in organisations use detailed and thorough criteria including technological, organisational and environmental factors before making any decision to adopt HPM in their software development project. FinTech organisations do not always know if a relationship exists between technological, organisational and environmental factors before adopting HPM. The significance of this research is that it reveals the relationship between the intention of FinTech organisations' decision-makers, project stakeholders and project managers to adopt HPM methodology into their software development project and some of the technological, organisational and environmental elements that they will encounter. The new information that has resulted from this study could help the FinTech industry identify the factors which should be taken into consideration while adopting HPM methodology during the implementation of a software development project, especially a financial software system project. The outcomes of this study outline the advantages and risks related to HPM adoption in FinTech, which should be beneficial to FinTech organisations during their sustainable strategy planning.

Technological, organisational and environmental factors play an important role in creating positive perceptions of the sustainable intention to adopt HPM i.e., relative advantage, top management support and industry pressure. However, the results for H5 show that TM → ATT, which implies that hypothesis H5 is not supported, contrary to our expectations. The possible explanation for this might be that when organisations enjoy the support of top management, they are more inclined to adopt HPM. However, if organisations are more experienced with HPM, they would already know how to manage the risks. Moreover, from the results of this study, we can conclude that there is a mediation relationship between RA and IP with construct ATT on the intention to adopt HPM.

This study has its limitations. The authors consider the sampling method to be a limitation of this study, even though the sampling size in this study was appropriate from the analytical and theoretical points of view. The scope of the study also focused on Malaysia. A larger sample size with a more diverse geographical range of respondents including another country or multiple additional countries would improve the strength of the statistics and achieve more generalisable results. Secondly, this paper studied relative advantage, top management support and industry pressure as antecedents of TOE. However, these are not the sole determinants of the decision in FinTech organisations on whether to adopt HPM; the complexity of adoption is one example of another measurement that was not considered in this study. We also suggest including factors other than ATT as mediators between TOE and IA in future studies.

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