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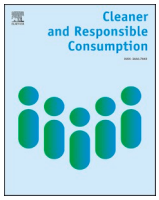

Development of a novel psychological model to predict the eco-block building adoption in Mauritius

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ABSTRACT

As a consequence of energy issues and societal dilemmas, building insulation like the eco-block technology has proven its usefulness to reduce greenhouse gas emissions, improve energy security and enhance the living conditions of building occupants. In Mauritius, the eco-block building material was introduced to improve the energy efficiency of conventional buildings. As observed, limited people's knowledge, poor communication with developers and lack of support from policymakers slow the adoption of the building technology. Mauritian residents are the important stakeholders as they are the final decision-makers of the building insulation. Given recent studies reported that green building adoption is rather psychological than technical, the research makes an original contribution to the literature by extending two consistent psychological frameworks (technology of acceptance model and theory of planned behaviour) and proposing a new framework for assessing the unexplored predictors on eco-block building adoption. A survey questionnaire was forwarded to Mauritian residents through the purposive sampling method to collect data, where 283 responses were useful to undergo structural equation modelling. The results disclosed that attitudes, perceived usefulness, social norm, perceived behavioural control, personal innovativeness, energy concern and price sensitivity have an impact on the acceptance of the eco-block building. Contrarily, subjective knowledge and organisational trust have no influence on the adoption intention. Instead, organisational trust affects behavioural intention indirectly through perceived usefulness. The outcome of this research can serve as a roadmap for relevant stakeholders to promote eco-block building usage in Mauritius.

1. Introduction

In recent decades, environmental, energy and societal issues have grown exponentially while numerous policies have been developed to ensure global sustainability. In this regard, the building sector has drawn particular consideration as it contributes to 40% of the world's energy usage (Hung Anh and Pásztory, 2021) and accounts for 36 % of greenhouse gases emissions (Grazieschi et al., 2021). Establishing energy-saving measures is essential due to the energy inefficiencies in the building industry (Fawaier and Bokor, 2022). According to the World Green building Council, there are numerous global environmental building practices, like (BREEAM and LEED) to grade a building's sustainability and energy performance (WGBC, 2022). To attain sustainable building, green building technologies such as

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energy-efficient building envelopes, renewable energy technologies and green roof technologies are integrated into building design (Chan et al., 2018). Amongst these, the sustainability of the building envelope/wall has attracted certain interest worldwide given that there is significant heat transfer gain or loss across the conventional building envelopes/-walls (Kumar et al., 2020; Hung Anh and Pásztory, 2021; Fawaier and Bokor, 2022). In this respect, the adoption of building insulation technology has become a promising alternative to conventional building, especially in a developing context like Mauritius.

Notably, the building's external envelope influences the local climate since it creates a barrier between the inside and outside environments, thereby influencing the thermal comfort level of the living occupants (Pisello et al., 2016). The insulation material in the building envelope is a core medium that regulates the temperature of the building envelope during the hot and cold seasons, whilst responding to the outer situations with its particular thermo-physical properties (Aditya et al., 2017). According to Hung Anh and Pásztory (2021), the adoption of building envelope insulation can decrease the dependence on cooling and heating systems, which utilises substantial electrical energy to maintain the ambient indoor temperature, thereby ensuring energy cost savings. The insulation material can also improve the health and productivity level of building occupants (Fawaier and Bokor, 2022). The literature reported that there are several categories of insulating materials acceptable for the building envelope; including polystyrene core used in insulated concrete block/eco-block, polyurethane foam, gypsum foam, fibreglass, mineral wool insulation, gas-filled panels, structural insulated panel, vacuum insulation panels and aerogels (Fawaier and Bokor, 2022), which are applied differently depending on a country context.

In line with the Master Plan for the Environment for Mauritius (2020–2030), insulation in buildings has become a prime consideration to ensure the building envelope's sustainability. The eco-block technology also referred to as insulated concrete blocks was launched in Mauritius to fulfil the thermal comfort needs of the building occupants with minimum energy consumption for space cooling as temperature may rise above 35 °C during the summer season (UBP, 2020). The eco-block technology signifies promising alternatives to conventional concrete blocks owing to its ability to enhance the building envelope energy efficiency (Hung Anh and Pásztory, 2021). Unlike conventional block, the eco-block material is embedded with a rigid polystyrene core, which is symmetrically locked into the concrete structure. This kind of insulator provides a variety of distinctive qualities like good thermal and sound insulation properties, lightweight features, huge strength and durability against strong storms (Kumar et al., 2020; Hung Anh and Pásztory, 2021). In view of the green building attributes, the polystyrene insulator remains a sustainable option in Mauritius due to its appropriateness for new housing projects (UBP, 2020). Despite this product emergence, it is discerned that the eco-block building is not currently practiced in building projects while local citizens are still converging towards the traditional building construction mode. Indeed, there is a communication barrier in disseminating the information to the public, given the limited visibility, low support from building organisations and absence of policy measures to implement building insulation. Without a strong market demand, Chan et al. (2018) argued that building developers would lack the willingness to promote green buildings. Given that the community members are the final end-users of the eco-building; this study essentially addresses the influential factors that could potentially trigger the local resident's usage intention.

At the international level, there exist several challenges to public acceptance of green building technologies (Li et al., 2014; Ye et al., 2015). Initially, contextual and technical considerations were perceived as the main obstacles to incline towards green building innovations. For instance, extant research by Nair et al. (2010), Tovar (2012) and Gamtessa (2013) reported that various parameters; including (dwelling type and age, length of residence/tenure, household size, respondent age/income) could impact the homeowners' choice towards the building energy efficiency measures. On the other hand, scholars recently pointed out that the obstacles to green building promotion are no longer based on contextual and technical factors but instead on social and psychological factors (Tunji-Olayeni et al., 2023; Al Mamun et al., 2023). For instance, psychological theoretical models like the technology of acceptance model (TAM) and the theory of planned behaviour (TPB) have been consistently employed to predict green building consumption. A study by Zhang and Liu (2022a) has modified the TPB model augmented with determinants like (information publicity, perceived risk, environmental consciousness, and compatibility) to assess smart home adoption. Another research study by Rajaee et al. (2019) extended the TAM model with other psychological factors like (subjective knowledge, environmental attitudes, social norm, social trust and perceived price) for increasing green building acceptance.

Although previous studies have investigated the TAM and TPB models separately to assess green building consumption, no previous study has specifically employed a combination of the two psychological models from an interdisciplinary approach to obtain larger insights into the influential predictors of behavioural intentions. Still attempting to extend/modify theoretical models to raise the predictive ability of the models is scarce in this field of study. Until now specific studies on the psychological determinants leading to intended behaviour to select building insulation have not been researched before. To fill the literature gaps within green building consumption, the present study makes an important theoretical contribution by drawing from two diverse theoretical perspectives of (TAM-TPB) extended with other psychological constructs including (product knowledge, organisational trust, personal innovativeness, environmental concern and price sensitivity) with support from literature and proposing a novel conceptual framework to predict eco-block building adoption. To attain the study's ultimate goal, a survey questionnaire was designed as the main research instrument to quantitatively evaluate the effect of the psychological variables with respect to the behavioural intention to use the eco-block building. Ignorant of those local citizens aged below 18 years, the survey questionnaire was distributed selectively to local residents consisting of the general house owners including (prospective homebuyers) currently intending to build a house now or in the future and investigating their intention for using the eco-block technology. The outcomes of this research could set a roadmap to aid building developers and policymakers to more effectively understand the psychological processes involved within the resident plan to select the eco-block building insulation in an emerging nation, Mauritius. This study particularly addresses two research questions, as follows:

RQ1. What are the significant psychological factors for predicting the Mauritian residents' intention to adopt the insulated eco-block building?

RQ2. What is the relationship between the psychological predictors and the eco-block building adoption intention within the extended TAM-TPB model?

The paper is organized into various sections to answer the research questions. Section 2 reviews the literature with respect to eco-block building adoption. Chapter 3 proposes the conceptual framework and develops the related hypotheses. Section 4 explains the methodology followed by section 5 relates to the data screening process and section 6 presents the results obtained from statistical analysis. Section 7 discusses the results outcomes in connection to previous studies and proposes significant implications. Section 8 ends with the conclusion, limitations and future research.

2. Literature review

The literature review firstly elaborates on the introduction of building insulation in the Mauritian context, followed by the application of the psychological (TAM-TPB) models to study the adoption of the eco-block building and the contribution of this research.

2.1. Emergence of green building technologies

Within the global context, the emergence of green building sustainability has propelled developers, builders and manufacturers to embrace sustainable practices towards material selection, design, and procurement in order to respond to environmental degradation and energy-saving environment of buildings (Zhao et al., 2019). The World Building Council has also raised a number of initiatives and regulations such as advancing to net zero carbon across 70 countries to raise ecological awareness and promote sustainable building construction (WGBC, 2022). Concerns for the environment and society had led towards green innovative solutions in the building industry such as the adoption of more energy-efficient construction materials for the building envelope (Hwang et al., 2015; Kylili and Fokaides, 2017). In Mauritius, green building products like eco-block technology[1] are technological innovations in the construction process due to their specific characteristics to enhance the sustainability of conventional buildings. Some actions to raise awareness of eco-block building insulation have been initiated by the Mauritian government and eco-block manufacturers. Despite this, there are several barriers like lack of general public awareness, higher cost, rules and regulation that slows the diffusion of the eco-block insulated building. A potential obstacle to the acceptance of building insulation in Mauritius is the mankind challenge; that is people need to be informed and educated to create their interest towards building insulation. Against this backdrop, the existing study's main target is to explore consumer behaviour most specifically to investigate the determinants to influence eco-block building adoption among residents in Mauritius.

2.2. The technology of acceptance model (TAM) to predict eco-block building adoption

With reference to the literature, many psychological theoretical models like the TPB and TAM have been suggested by research scholars in an attempt to develop a new conceptual framework to explain consumers' behaviour and discover the psychological antecedents affecting it (Ajzen, 1985; Davis, 1989). While the TAM is a popular theoretical model (Davis, 1989), the use of the model in green building consumption is rather scarce. Notably, extant research has drawn on the TAM to examine the determinants of green building adoption. For instance, Liu et al. (2018) have expanded the TAM with other psychological factors (subjective knowledge, environmental attitudes, social trust) to assess residents' intention to adopt green residential buildings. Another research by Shin et al. (2018) has modified the TAM with the inclusion of privacy protection and compatibility determinants to influence the diffusion of smart housing. With regards to the adoption of smart home objects, Schill et al. (2019) consider perceived usefulness of the TAM as a key variable to predict usage intention. Further, Chen et al. (2017a) designed an integrated TAM and sustainable energy technology acceptance model (SETA) to examine a series of social-psychological factors affecting the adoption decision of smart meters. In line with the underlying studies, it is stressed that TAM is "*a predictive tool for analysing user adoption of innovation with the aim of comprehending the influence of external factors on behavioural attitudes and intentions*" (Pan et al., 2018). The conception of this theory relates that internal factors, such as people's perceptions of usefulness and ease of use related to technology are supposed to predict their attitude towards it, which in turn establishes usage intentions, resulting in their actual usage of the technology (Cheung and Vogel, 2013; Kim et al., 2017). However, we argue that the inclusion of perceived ease of use within the TAM model may not be reasonable in this study as the local residents may not have direct hands-on experience with the eco-block technology. On the other hand, Liu et al. (2018) emphasise that the model is reliant on the assumption that if society members perceive that green buildings and technologies are useful (for example eco-block promote energy saving, protect the environment and benefit health) and easy to use (for example it is easy to operate and learn about the eco-block building technology), their intention to accept these technologies are certain. While actual usage behaviour is challenging to assess, usage intention is normally used as a substitute. As eco-block building insulation is a new technology integrated into green building design in Mauritius, we suggest that TAM is a suitable model to potentially describe residents' acceptance of the insulated block in the early phases of green building and insulation movements in Mauritius.

2.3. The theory of planned behaviour (TPB) to predict eco-block building adoption

The TPB model is another widely acknowledged theoretical model in consumer behavioural theories and it has been applied across intensive behavioural contexts (Ajzen, 1985; Armitage and Conner, 2001). For example in the building sector, Judge et al. (2019) have employed the TPB by incorporating green consumer identity as a moderating factor to examine homebuyers' purchase intentions of sustainable housing. On the basis of TPB, Li et al. (2018) adapted the TPB along with other internal psychological factors (anchoring price and values), external environmental factors (social norm, risk factors) and socio-demographic variables as moderators to assess readiness to pay for green residence. With regards to smart home adoption, Perri et al. (2020) have modified the TPB model to discuss residents' usage intention. Previous research by He et al. (2019) has extended the TPB with (green retrofit cognition, and policy factors) to examine the acceptance of green residential building retrofitting. Through the use of TPB, Zhang et al. (2019) empirically analysed the willingness of Beijing residents to pay for the benefits of green roofs. Another study by Jabeen et al. (2019) has expanded the TPB with additional constructs (awareness, cost, environmental concern, environmental knowledge, moral norms and relative advantage) to scrutinise the factors impacting household intention towards green power for domestic use. Further, Irfan et al. (2021) examined an extended TPB model with the perception of self-effectiveness, perception of neighbours' participation, and belief about renewable energy benefits on the acceptance of renewable energy technologies. Mostly recently, Al Mamun et al. (2023) have utilised the combined TPB and VBN model extended with environmental factors and incentives to analyse the willingness to pay for green housing and Tunji-Olayeni et al. (2023) have employed the TPB model to assess the adoption of green construction methods. In line with the underlying studies, the intentions to conduct the behaviour are idealised as the closest precursor of real behaviour in the TPB model. Intentions are forecasted by attitudes towards the behaviour, social norms and perceived behavioural control over conducting the behaviour (Ajzen, 1991). The addition of perceived behavioural control in the model is to act as a direct predictor of actual behaviour (Albayrak et al., 2011). According to Fishbein and Ajzen (2011) behavioural intention ensures future prediction rather than real behaviour. So, in order to obtain a more accurate prediction, we also employed the TPB model along with the TAM model to investigate the intended behaviour to use the eco-block building. In regards to the TPB model, Ajzen (1991) states that if a person's attitude towards a particular behaviour is more positive, or he/she has higher pressure on social and external norms, the latter feels more control over performing the behaviour and has a stronger determination to accept that behaviour. For the context of this study, green behaviour (the eco-block building usage intention) increases in the presence of PBC (one's perceived control over the adoption decision of the eco-block building based on available opportunities), optimistic attitudes over eco-block benefits like (saving energy, protecting the environment, improving health), and the greater influence of social norm (important people advise others to purchase the eco-block

[1] Please see review paper of Joyram et al. (2022) to obtain detailed description on insulated eco-block building (including an illustration).

building).

2.4. Justification and contribution of this study

With reference to the literature database, few researchers have studied psychological models and investigate their determinants affecting specific green building consumption (like building insulation), where past research is mostly centred on the general green/emergy efficient/smart building consumption. Unlike previous studies, this study proposes to select a combination of the TAM-TPB framework to more effectively explain the eco-block building adoption, owing to the models' consistency, clear methodology, reliable performance and valid predictability. Empirical studies have also confirmed that the extension of the theoretical models characterises powerful models in statistically describing consumers' intended green building consumption since a straightforward interpretation of the models may not capture the complexity of the consumption behaviours. However, attempting to extend theoretical models with psychological determinants has been very rare within the green building context. Therefore, on the basis of a systematic literature search process, the current research has successfully unveiled a set of unexplored psychological factors including (subjective knowledge, organisational trust, personal innovativeness, energy concern and price sensitivity) and contributed to the literature by analytically assessing these psychological factors simultaneously for a more accurate prediction towards the behavioural intention to adopt the eco-block building. Firstly, for instance, past studies revealed that residents with higher knowledge about green building technologies are motivated to incline towards those technologies (Rajaee et al., 2019; Ofek and Portnov, 2020). Secondly, trust in the responsible organisation was found to have a considerable impact on an individual adoption decision towards an innovative technology (Achtnicht and Madlener, 2014; Darko and Chan, 2017), as people normally place their confidence in responsible organisations and employ trust as a risk reduction measure for huge purchase investment (such as the eco-block building) which are yet to be introduced on a wider extent. Thirdly, previous studies have confirmed that personal innovativeness has a positive influence on the acceptance of eco-innovative products, (Ali et al., 2019; Alzubaidi et al., 2020), where people with an innovative mind-set like to experience new products and have favourable attitudes towards the new technology and are willing to accept latest technologies. Fourthly, the research also identifies that energy concern could have an influence on the adoption intention towards eco-block building (Chen and Knight, 2014; Prete et al., 2017; Kowalska-Pyzalska, 2018). Lastly, price sensitivity is the psychological factor that could significantly affect the selection of green building products (Akroush et al., 2019; Jabeen et al., 2019; Nikou, 2019), where price sensitivity is the extent to which a client tolerates the price growth of a particular invention in relation to its psychological and economic gains.

3. Proposed psychological model and research hypotheses

Based on support from the literature, the proposed psychological model is drawn to answer the research questions, as reflected in Fig. 1. The psychological framework includes the predictor variables (attitudes, perceived usefulness, social norm, perceived behavioural control, subjective knowledge, trust in the responsible organisation, personal innovativeness, energy concern and price sensitivity) that are all collectively examined to assess the relationship amongst the theoretical constructs in regards to the intended behaviour towards the selection of the eco-block building.[2] The research hypotheses surrounding the proposed psychological model are formulated as well.

[2] The psychological factors were identified and selected following a systematic literature seach methodology found in Joyram et al. (2022) comprehensive review paper.

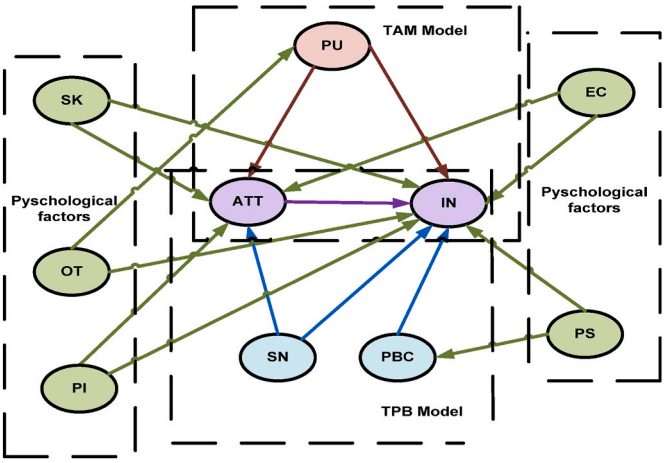

Fig. 1. The proposed psychological model as the research conceptual model (Researcher's Construct). Notes for model: attitude (ATT), perceived usefulness (PU), subjective norm (SN), perceived behavioural control (PBC), subjective knowledge (SK), organisational trust (OT), personal innovativeness (PI), energy concern (EC), price sensitivity (PS), and behavioural intention (IN).

3.1. Attitude (ATT)

According to the TAM and TPB model, an attitude (ATT) refers to "*the extent to which an individual has a favourable assessment of a specific behaviour*" (Davis, 1989; Ajzen, 1985). When the benefits of utilizing a product/measure are viewed favourably, an individual has a positive attitude, which encourages him/her to engage in that behaviour (Ajzen, 1985, 1991). In the context of consumption behaviours in green buildings, Ru et al. (2018) reported that if an individual feels that an energy-efficient material has benefits like carbon emissions reduction to protect the environment, the person is more susceptible to exhibit a strong attitude and engage into energy conservation behaviour. For instance, the study undertaken by Prete et al. (2017) and Jabeen et al. (2019) affirmed that residents' strong attitudes have a positive impact on energy preservation behaviours at home. The results of Zhang et al. (2020) also disclosed that residents' attitudes toward energy-saving technologies greatly influence intention, leading to willingness to pay a cost premium. Along the same line, the research findings of Judge et al. (2019) stated that most citizens have optimistic attitudes towards ecological homes. Likewise, the study of Rajaee et al. (2019) confirmed that attitude has a strong impact on the acceptance of green building technologies. Further, Zhang et al. (2019) reported that attitudes have a substantial influence on the willingness to pay for eco-roof. Other studies reported the optimistic effect of attitudes on the selection of green building inventions (Liu et al., 2020; Zhang and Liu, 2022b). With regard to past findings, the research hypothesis is formed as:

H1. Attitude has a positive influence on Mauritian residents' intention to adopt the insulated eco-block building

3.2. Perceived usefulness (PU)

Perceived usefulness (PU) is considered a major parameter in the TAM framework (Davis, 1989). Most lately, Vahdat et al. (2020) defined perceived usefulness as "*the degree to which the potential users believe that adopting a particular innovation could generate substantial value for them*". Perceived usefulness is designated as the gains of an innovative technology which has a great impact on a person's attitude and intended behaviour. In the field of residential building usage, perceived usefulness was concluded to have a strong effect on attitudes towards green building innovations and the usage intention (Li et al., 2018), adoption of smart residences (Shin et al., 2018; Schill et al., 2019), purchase of ecological housing (Tan and Goh, 2018), adoption of environmentally

friendly technologies (Jabeen et al., 2021; Fatima et al., 2022), energy-efficient innovations (Akroush et al., 2019) selection of smart meter (Chen et al., 2017a,b), usage of renewable energy (Alam et al., 2014) and readiness to pay a price premium for sustainable home (Ofek & Portnov, 2020). By contrast, perceived usefulness has no significant influence on acceptance of smart energy technologies (Billanes and Enevoldsen, 2022). Extending relative to the eco-block building context, perceived usefulness is considered as the residents' judgments of the material efficacy leading to attitudinal adoption to assure energy preservation and future energy cost savings while enhancing the residents' thermal comfort level and productivity. The following research hypotheses are, thus, designed on the basis of past studies:

H2a. Perceived usefulness has a positive influence on Mauritian residents' intention to adopt the insulated eco-block building

H2b. Perceived usefulness has a positive influence on Mauritian residents' attitudes towards the insulated eco-block building

3.3. Social norm/subjective norm (SN)

Social norm or subjective norm (SN) as defined by Ajzen (1985, 1991) in the TPB model, is "*the perceived social pressure to perform or not to perform a particular behaviour*". Social norms are impacted by the expectations of an individual in a social system and the individual determination to satisfy those hopes. Researchers reported that social agents, like (family members, friends, peers and colleagues) can act as a reference point for observational learning as well as an advisor/guide on green product use (Tsarenko et al., 2013; Choi et al., 2014). Extant studies demonstrate that if individuals perceive that their referents engage in energy-saving behaviour, these individuals will receive pressures and intend to preserve energy in a similar manner. Empirical findings of Judge et al. (2019) further reported that social norms have a positive impact on eco-housing adoption given that home acquisition is influenced by the needs and wants of household members. Social norms had also a main effect on the willingness to purchase green roofs (Zhang et al., 2019), preference towards smart household technologies (Perri et al., 2020) and energy renovation in building (Al-Shafi and Weerakkody, 2010; Liu et al., 2018). As reported, social influence is important in the preliminary stages of adopting innovations (Swinerd and McNaught, 2015) as it creates favourable attitudes (Choi et al., 2014). On the other hand, the social norm has no influence on attitudes towards sustainable building (Rajaee et al., 2019) and eco-friendly smart home adoption (Zhang and Liu, 2022a). In light of the majority of past research findings along with Ajzen (1985, 1991) TPB concept, we suggest that subjective/social norms could exert a great influence on attitudes towards eco-block building and usage intentions as far as they pose pressure on a person to engage in the usage behaviour. The following hypotheses are formulated:

H3a. Social norm has a positive influence on Mauritian residents' intention to adopt the insulated eco-block building

H3b. Social norm has a positive influence on Mauritian residents' attitudes towards the insulated eco-block building

3.4. Perceived behavioural control (PBC)

Perceived behavioural control (PBC) is a fundamental construct within the TPB model and is designated as "*the perceived difficulty in undertaking the behaviour in particular circumstances*" (Ajzen, 1985, 1991). Although there may be strong attitudes and societal pressure about the behaviour, it is expected that the plan to converge towards that behaviour will be lower when a person has poor control over completing a certain behaviour due to constrained resources and opportunities (like knowledge, costs, and time). Perceived behavioural control is considered to be a crucial parameter in this study given that the adoption of the new building structure (eco-block building) involves opportunities and resources (such as knowledge, costs, and time) that are needed to assess the adoption decision of the building material, while the time factor is crucial to ensure a shift toward green building consumption behaviours. In the building sector, evidence revealed that perceived behavioural control is positively related to green behaviours. For example, perceived behavioural control is strongly related to the acceptance of smart housing products (Perri et al., 2020), green building retrofitting (He et al., 2019) eco-friendly smart home services (Zhang and Liu, 2022a), adoption of environmentally friendly technologies (Fatima et al., 2022), household energy-saving products usage (Sang et al., 2020; Zahan et al., 2020) and willingness to pay for green building (Al Mamun et al., 2023). On the other side, perceived behavioural control has an opposite relationship with energy-saving intention (Ru et al., 2018) and the decision to pay for green home (Zhang et al., 2018). With reference to the underlying studies, we suggest that perceived behavioural control, within the TPB model, could significantly trigger the usage of the insulated eco-block building. The hypothesis is thus formed as:

H4. Perceived behavioural control has a positive influence on Mauritian residents' intention to adopt the insulated eco-block building

3.5. Subjective/product knowledge (SK)

Most researchers reported that knowledge (SK) plays a crucial role in the context of consumer behaviour. Individual knowledge involves any informative data that remains in the latter mind and eventually affects the purchasing intention (Joshi and Rahman, 2015a). Some investigators revealed that limited knowledge is the prime challenge impacting the implementation of green building (Alam et al., 2014; Zhang et al., 2016; Portnov et al., 2018). Various studies have proclaimed that knowledge has a substantial effect on the use of environmental conservation products in buildings. For instance, Liu et al. (2018) stated that subjective knowledge has a strong impact on residents' attitudes and decisions to incline towards green technologies in the building sector. The study of He et al. (2019) disclosed that cognition about green retrofits significantly influences the residents' intended behaviour towards home retrofitting. In previous research investigating the efficient use of energy resources, the positive impact of knowledge is detected among those people with adequate knowledge of climatic change and energy information (Zografakis et al., 2010; Alam et al., 2014). Product knowledge is also recognised as a significant driver for energy-efficient technology usage (Irfan et al., 2021; Fatima et al., 2022). With regards to green building adoption, households who have knowledge and are familiar with green buildings are willing to pay about 10% of green building price premium in comparison to those households who have low familiarity with green buildings and are willing to pay less than 7% (Ofek and Portnov, 2020). On the other side, the study of Jabeen et al. (2019) reveals that awareness has no association with green power utilisation. In this study, product knowledge refers to the individual subjective knowledge of the eco-block building technology to impact attitudes and plans to adopt the building technology. Based on the literature, the following hypotheses are formulated:

H5a. Subjective knowledge has a positive influence on Mauritian residents' intention to adopt the insulated eco-block building

H5b. Subjective knowledge has a significant influence on Mauritian residents' attitudes towards the insulated eco-block building

3.6. Trust in responsible organisation/organisational trust (OT)

Trust (OT) is an important term which has received attention in social science studies. Ganesan (1994) defined trust as the "*sentiment and expectation of an entity with regard to a particular party's expertise and*

reliability'. People normally use trust as a risk reduction measure for huge investment inventions that have not yet been implemented on a wider scale (Rajaee et al., 2019). By placing trust in companies/organisations that support ecological building materials can help to minimize the complexity, reduce the ambiguity, and perceived risks associated with buying intentions (Rajaee et al., 2019). The local citizens typically do not trust the qualities of new ecological technologies and are unsure that using these products will result in pro-environmental or personal gains (Chen et al., 2017a,b). In this aspect, organisational trust could create a sense of safety to enable people to lean towards green inventions (Joshi and Rahman, 2015b; Chen et al., 2017a,b). Some researchers have examined the influence of organisational trust in promoting ecological product acceptance. Due to individual differences, limited trust in an organisation has been regarded as a fundamental drawback in the adoption of smart green technology (Chen et al., 2017a,b; Darko and Chan, 2017). According to Achtnicht and Madlener (2014), professional energy advice is a useful way to increase trust and confidence in the insulation of renovated buildings. Previous findings of Liu et al. (2018) reported that organisational trust has a substantial effect on homeowners' perceived usefulness and the acceptance of ecological dwellings. Based on the discussions, the hypotheses are put forward as:

H6a. Organisational trust has a positive influence on Mauritian residents' intention to adopt the insulated eco-block building

H6b. Organisational trust has a positive influence on Mauritian residents' perceived usefulness towards the insulated eco-block building

3.7. Personal innovativeness (PI)

Personal innovativeness (PI) originates from the DOI Theory (Rogers, 2003) and this is a significant influencing parameter in this study context. Consumer innovativeness is defined as the "*extent to which a person is relatively earlier to accept a new invention than other entities of his social circle*" (Rogers, 2003; Rogers and Shoemaker, 1971). According to Bowden and Corkindale (2005), innovative people are very queer, enjoy novelty, and are willing to try out new methods/inventions though they express no familiarity with the new inventions. With reference to Rogers (2003) and Rogers and Shoemaker (1971), personal innovativeness is the tendency to buy novel products rather than depending on past choices and similar consumption patterns. As stated by Rogers (2003), a technology is considered to be innovative when consumers perceive the technology as a novelty. Notwithstanding, the impact of innovativeness on the adoption of green and energy-saving building materials has not been fully explored in the building sector with the exception of a few studies. For instance, the research undertaken by Nikou (2019) affirmed that personal innovativeness has a considerable influence on smart home adoption. Similarly, Chen (2014) demonstrated that personal innovativeness has a strong effect on the installation of renewable energy systems. Also, Alzubaidi et al. (2020) drew a conclusion that personal inventiveness influences customers' willingness to adopt environmentally friendly behaviours. Further, the findings of Ali et al. (2019) demonstrate that personal innovativeness significantly affects households' attitudes towards the buying behaviour of energy-saving innovations. Given that the insulated eco-block building is an innovative material which is yet to be diffused and adopted within Mauritian society, the following research hypotheses are drawn in line with the research findings:

H7a. Personal innovativeness has a positive influence on Mauritian residents' intention to adopt the insulated eco-block building

H7b. Personal innovativeness has a positive influence on Mauritian residents' attitudes towards the insulated eco-block building

3.8. Energy concern for the environment (EC)

Environmental concern is a potential determinant which has been widely investigated in the arena of consumer behaviour. Individuals exhibiting higher environmental concerns are likely to engage in energy preservation behaviours (Prete et al., 2017; Kowalska-Pyzalska, 2018). The research by Liu et al. (2018) reported that environmental concern has a direct influence on the general attitude and the intention to accept green building innovations. Another research by Schill et al. (2019) raised that environmental concern has a significant effect on homebuyers' intentions to purchase smart home objects. Environment concern has also a positive effect on eco-friendly smart home adoption (Zhang and Liu, 2022a) and the adoption of environmentally friendly technologies (Fatima et al., 2022). In light of the studies, environmental concern has been regarded as a broad term that encompasses a variety of general environmental attitudes and outcomes (Fujii, 2006). The environmental concern include attitudes towards water, land and air pollution, which are analysed to understand their effect on the overall environmental consumption behaviours (Chen and Knight, 2014). Nevertheless, the present research contends that energy concern (EC) must be considered separately from the general environmental concern as it focuses on utilizing the insulated concrete block as an energy-efficient material. Hence, this research specifically assesses the role of energy concern for the environment measured as individuals' concern about their energy consumption from the insulated eco-block building use and its impact on the environment. Similarly, the prior study by Chen and Knight (2014) unveiled that energy concern amongst building occupants directly impacted the attitudinal behaviour towards building energy efficiency. In addition, Chen et al. (2017a,b) found a strong relationship between energy concern and energy-saving intention. In line with previous findings, the hypotheses are thus developed as:

H8a. Energy concern has a positive influence on Mauritian residents' intention to adopt the insulated eco-block building

H8b. Energy concern has a positive influence on Mauritian residents' attitudes towards the insulated eco-block building

3.9. Price sensitivity (PS)

Extant research has demonstrated that the price associated with a green product/technology represents a main hurdle to the buying intentions of the technology (Gleim et al., 2013; Joshi and Rahman, 2015b). Price sensitivity (PS) is defined as "*the extent of consciousness and reaction displayed by consumers when finding differences in prices of products or services*" (Monroe, 1973). The main obstacle to the acceptance of sustainable innovations is normally the exorbitant purchase prices in the local market. As such, companies usually charge a cost premium for green building technologies. On the other side, local citizens are typically price-sensitive and are more likely to buy environmentally friendly technologies at decreased prices (Anderson, 1996; Eze and Ndubisi, 2013). Price sensitivity is frequently correlated with value-added benefits of the technology such as paybacks from insulated buildings (Achtnicht and Madlener, 2014). For instance, in Mauritius, the eco-block building costs three times more than the conventional building (UBP, 2022), thereby it is important to educate and remind society members that the initial upfront costs are recovered through energy cost savings of the building envelope insulation to reduce price sensitiveness. Notably, extant studies have investigated the association between price/cost sensitivity, willingness to pay and purchase intentions of green building. The study of Judge et al. (2019) discovered that the residents had no plan and were less ready to pay a cost premium of 5%–10% for ecological dwellings due to price sensitiveness. Similarly, Ofek and Portnov (2020) declared that the general public is price sensitive and willing to pay not more than 9.25 % of the green building price. In another study, Achtnicht and Madlener (2014) revealed that

house-owners are price-sensitive and hesitant to use insulation strategies because of the perceptions of the longer time period to obtain a return on their investment. Perceived cost has also a negative impact on green building technologies use (Rajaee et al., 2019), smart home technology acceptance (Nikou, 2019), adoption of environmentally friendly technologies (Irfan et al., 2021; Fatima et al., 2022) and the consumers' intention towards energy products (Akroush et al., 2019). However, perceived cost had no effect on the use of smart technologies at home (Chen et al., 2017a,b). According to Li et al. (2018), if an innovation is priced more than consumers' expectations, it will hamper the effect of their perceived behavioural control over performing the behaviour. As the cost factor plays an important role in the eco-building acceptance, this research assesses the extent to which price sensitivity from willingness to pay affects purchase intentions. In light of the previous studies, the research hypotheses are formulated as:

H9a. Price sensitivity has a significant influence on Mauritian residents' intention to adopt the insulated eco-block building

H9b. Price sensitivity has a significant influence on Mauritian residents' perceived behavioural control towards the insulated eco-block building

4. Research methodology

The research onion methodology was employed as a guide to explain the research philosophy, research approach and research design in order to create a well-designed methodology. Accordingly, a quantitative (correlational) research design, which is non-experimental in nature, was appropriate to answer the research questions. The quantitative research design is founded on the positivism philosophy (scientific paradigm) and the deductive approach (for theory testing) to quantify data and generalize results from a sample of the Mauritian population. This correlational research design was cross-sectional such that all the variables under the study were assessed at one point in time. The survey questionnaire was designed as the main research instrument to quantitatively evaluate the effect of the psychological variables on the eco-block adoption intention amongst the Mauritian residents. In the context of eco-block product adoption, consumer interaction plays a pivotal role as they are the ones finally adopting the products. However, amongst the various stakeholders (building developers, consultants, contractors, government), the clients usually have fewer interventions in the implementation of sustainable construction practices. Despite the developers/manufacturers may have the necessary knowledge, technical capabilities and major influence to implement green construction products (eco-block), the implementation is unrealisable when consumers express reluctance to its usage. As highlighted by Darko and Chan (2017) as well as Chan et al. (2018), building developers would lack the willingness to promote insulation in green buildings without strong market demand. Within this context, the main focus of the survey is to explore the psychological dimensions to enhance the acceptance of eco-block building in Mauritian society, which has not been explored in this field of study. The outcomes of this research may in turn be important for policy makers, manufacturers and suppliers of the eco-block technology, which could enable them to devise efficient approaches to enhance the diffusion and adoption rate of the insulated building envelope in Mauritius.

4.1. Sampling process

The sample population included the general house owners (including the prospective homebuyers) amongst the Mauritian residents intending to build a house now or in the future, and who are all above 18 years of age to assess their views and opinions on eco-block building usage. In order to reach the Mauritian residents, the questionnaire survey was distributed by email to 40 targeted organisations comprising; 10 governmental organisations, 10 parastatal organisations, 5 public universities, 5 private universities and 10 private companies through a non-probability purposive sampling. The purposive nature of the sampling was established in that not all Mauritians had the probability to form part in the research exceptionally if they were selectively invited to participate in the survey questionnaire. The judgement made in the selection criteria of the sampling is as follows:

1. Most people working in the designated organisations are educated and knowledgeable, thus they could better understand the topic of interest and the questions set in the questionnaire.
2. Universities and research organisations were selected in order to target academics and experts having knowledge in the research and development area or novel building technology.
3. The research aims to target adults who are above the age of 18 years, therefore, people working in the selected organisations or students at the University have already reached their adult or mature age.
4. Only the staff working at secondary schools were invited to participate in the survey.
5. The survey link was not forwarded to construction companies to reduce biases due to their awareness of novel building techniques and some experts/staff working in those firms were interviewed before finalising the survey.
6. Local companies such as some textile industries, constituting numerous ex-pats or a few working Mauritian citizens were excluded from the sampling.
7. In order to achieve maximum responses, the researcher also selectively interviewed some potential volunteers expressing their willingness to fill out the survey while commuting in the local transport.
8. Disabled persons, low-educated people or those people who are not able to comprehend the topic was omitted from the research survey.

4.2. Survey questionnaire design

The questionnaire comprises two main sections with a total of 50 questions. The first section A included questions about the respondent's psychological opinion on the use of eco-block buildings in contrast to the conventional building block. The second section B captures the demographic details of the surveyed participants, including (gender, age, education and income of the family). Important guidelines were adopted as criteria for formulating a good questionnaire design, which include:

1. A brief description of the eco-block/insulated concrete block (with an illustrative picture) was included in the cover letter. The insertion of the picture was to enable those participants, who have never heard of the term 'eco-block' prior to partake in the survey and share their views and opinions while lessening any occurrence of biases in the survey.
2. Ethical issues such as confidentiality of participants' responses were highly esteemed and stressed in the cover letter.
3. The questions were formulated using simple language to enhance rapid understanding for most respondents. Complex questions, technical terms and jargon were simply eluded as far as possible.
4. A structured design layout was employed. The question statements contain several parts to assess the psychological predictor variables grouped into their respective indicator variables in a rational sequence.
5. As posited by scholars, common method bias (CMB) can pose an issue in a research survey when both the independent (such as the psychological variables) and dependent variable (such as eco-block building adoption) are analysed within one survey, using a similar (or a common) response method (such as interval scales), thereby affecting the reliability and validity of the empirical findings (Kock et al., 2021). In this study, CMB was resolved by separating the independent and dependent variables by creating a short time lag between the measurements (such as the insertion of three attention-check questions) as well as the inclusion of 8

reverse-worded items for the same scale, one item respectively from ATT, PBC, OT, EC and three items from PS, to reduce common method bias.
6. As a criterion of good questionnaire design, the demographic details were positioned last in the questionnaire to allow the respondents to ponder well on the most important questions.
7. A validation check was computed by the online software to confirm that the required questions (marked with an *) were filled, hence ensuring the successful submission of all completed questionnaires.

The established questionnaire items were adapted and revised from question statements that were validated in previous studies to fit the context of this study. For instance, **Attitude** consists of 4 items which were procured from Paul et al. (2016a), Jabeen et al. (2019), Judge et al. (2019), Rajaee et al. (2019) and Wang et al. (2019) followed by revision. **Perceived usefulness** consists of 4 items which were procured from Chen et al. (2017a,b), Rezaei and Ghofranfarid (2018) and Rajaee et al. (2019) followed by revision. **Social norm** consists of 3 items which were procured from Jabeen et al. (2019) and Judge et al. (2019) followed by revision**. Perceived behavioural control** consists of 4 items which were procured from Alam et al. (2014), He et al. (2019), Jabeen et al. (2019) and Judge et al. (2019) followed by revision. **Subjective knowledge** consists of 4 items which were procured from Rezaei and Ghofranfarid (2018), He et al. (2019) and Rajaee et al. (2019) followed by revision. **Organisational trust** consists of 4 items which were procured from Chen et al. (2017a,b) and Rajaee et al. (2019) followed by revision. **Personal innovativeness** consists of 4 items which were procured from Chen (2014), He et al. (2018) and Alzubaidi et al. (2020) followed by revision. **Energy concern** consists of 4 items which were procured from Paul et al. (2016a), Trivedi et al. (2018), Jabeen et al. (2019), Schill et al. (2019) and Alzubaidi et al. (2020) followed by revision. **Price sensitivity** consists of 4 items which were procured from Alam et al. (2014), C. fei Chen et al. (2017a,b), Jabeen et al. (2019), Rajaee et al. (2019) and Nikou (2019) followed by revision. **Behavioural intention** consists of 3 items which were procured from Paul et al. (2016b), Chen et al. (2017a,b), Rezaei and Ghofranfarid (2018), He et al. (2019), Judge et al. (2019), Nikou (2019) and Rajaee et al. (2019) followed by revision. Only willingness to pay, was measured on a single scale item, ranging from (0% to more than 30 %) to assess eco-block purchase intention.

4.3. Data collection

The survey questionnaire was then hosted online using the google forms survey tool as it is easily available, user friendly and it allows the possibility to transfer responses into an excel spreadsheet to facilitate statistical analysis.

The designed questionnaire was first piloted with 18 participants (including research experts as well as the sample population) and pre-tested for content validity, simplicity, consistency and rationality before being fully distributed. The survey was primarily held in June 2021 and closed upon 3 months. Subsequently, 283 responses were useful for statistical analysis after data screening out of the 324 total responses. As a sample size of at least 200 would be sufficient to undergo structural equation modelling (SEM) as per Hair et al. (2013) and Kline (2015), the collected responses are thus sufficient.

5. Data screening and preliminary data analysis

Prior to conducting any statistical analysis, data screening is an important step to ensure the data is free from error/mistakes to ensure precise and accurate results (Abdulwahab et al., 2011; Abubakar et al., 2017). As for this study, absent data was firstly primarily taken into consideration during the questionnaire design to render no missing values within the data sets. For instance, a particular respondent had to attempt all the questions mandatorily before submitting the questionnaire via the google form platform. In the event, the respondent has missed answering a particular question, google form will prompt the respondent to answer those questions marked with an asterisk before submitting the responses. Secondly, the dataset was screened for univariate outliers which particularly emphasizes an abnormal value on a specific case basis. Univariate outliers were obtained from the z-scores (standardized values) of the Likert variables generated from the SPSS software. Offending values were detected in 56 responses over 10 psychological indicator variables, namely ATT1, ATT3, PU2, PU3, SN3, OT2, OT4, EC4, PI4, and IN3. New z-scores were produced for the studied variables and the findings varied from −3.27 to 2.47 which are regarded to be satisfied within the standardized z-score range of |3.29|. Thirdly, the dataset was screened for multivariate outliers which demonstrates the degree to which the case's scores of at least two variables depart from the norm (Tabachnick, 2013; Kline, 2015). In the survey research instrument, 41 psychological variable indicators were analysed. As such, the critical value of the chi-square ($\chi 2$) for inspecting the Mahalanobis distance (D^2) of the cases was set to 74.75 in SPSS. As observed, the Mahalanobis distances (D^2) of 10 cases were higher than 74.75 with the Mahalanobis probability (p-value <0.001). These cases were omitted from the dataset with no further value exceeding the threshold point. Fourthly, data normality was assessed in terms of the skewness (variable distribution symmetry) and kurtosis (variable distribution peakedness) before selecting estimation methods like (maximum likelihood) which assumes normal data during SEM analysis. The results in SPSS showed that the measurement variables were approximated to the normal distribution given the skewness values lie between −2.0 and +2.0 and kurtosis values lie between −7.0 and 7.0, to satisfy the recommended criteria for data normality (Hair et al., 2013; Kline, 2015). Lastly, the sample dataset was tested for non-response bias which occurs when respondents chosen as the sample are unable to reach during the survey timeframe or they are reluctant to participate in the study and have some other constraints where they drop out before the survey can be completed (Abdulwahab et al., 2011; Abubakar et al., 2017). The current study employed the time trend extrapolation approach, which is an effective approach for investigating non-response bias and reducing uncertainty (Armstrong and Overton, 1997). Accordingly, the sample was divided into two groups: the early (first 100) responses and late responses (last 100). The results for the Chi-square test in SPSS reveal that the distribution of the early and late respondents on the basis of gender ($df = 1$, $\chi 2 = 5.024$, $p = 0.025$), age ($df = 4$, $\chi 2 = 15.807$, $p = 0.003$), education ($df = 3$, $\chi 2 = 12.150$, $p = 0.008$) and income ($df = 6$, $\chi 2 = 13.122$, $p = 0.035$) are homogenous. Since the ($\chi 2$ *critical,* p-value <0.05) in all demographics, the results confirm that non-response bias was not an issue for this research study.

6. Statistical analysis and results

After the data screening process, descriptive and inferential statistical analyses were performed in the current research. All the descriptive information thus provides an overview of the sample's characteristics with respect to adoption intention of the insulated building block. SEM was then utilised to test the formulated hypotheses surrounding the proposed psychological model and answer the research questions.

6.1. Descriptive analysis of sample demographics

The sample population consisted of 52.3 % females and 47.7% males, implying that women were generally more responsive to the survey, where women are perceived to have more interest in matters concerning green building technologies, as reported in previous studies (Azizi et al., 2020). In terms of the sample age profile, the results demonstrated that most of the surveyed participants' age was in the range of 25–35 (30.0%), followed by 36–45 (23.3%) and 46–60 (20.5%). In terms of education, the findings implied that most of the participants were well-educated, where 41.0 % of them were undergraduate and 40.3 %

post-graduate. In terms of income, the findings disclosed that most of the surveyed participants had a monthly income in the range of Rs 21,000–Rs 30,000 (20.8 %), followed by Rs 31,000 – Rs 40,000 (20.5 %) and above Rs 50,000 (18.7 %). The results reflected that approximately 84 % of the respondents had a total monthly income of greater than Rs 20, 000, which confirmed that the surveyed respondents were well above the low-income group in the sample population.

6.2. Descriptive analysis of psychological variables

The psychological variables, measured on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree", were analysed descriptively through mean (M) and standard deviation (SD), as reflected in Table 1. A high value was obtained for energy concern (M = 4.30; SD = 0.64) followed by attitude (M = 4.06; SD = 0.70) and perceived usefulness (M = 3.85; SD = 0.64). Subjective knowledge received the lowest value (M = 2.73; SD = 1.02). With respect to willingness to pay (WTP), 29.0% of the sample population are WTP more than 10% for building insulation, followed by 26.9% of the sample population are WTP 5% more. A relatively low percentage of 4.2% of the sample is WTP more than 30% for building insulation.

6.3. Results of structural equation modelling (SEM)

The current study employed the SEM, an advanced statistical method combining the traditional regression method and confirmatory factor analysis, to test the proposed structural model (Babin and Svensson, 2012; Civelek, 2018). The benefits of SEM lie in the estimation of unobserved variables via observed variables, measurement error evaluation and assessment of path analysis (Babin and Svensson, 2012; Civelek, 2018; Liu et al., 2020). In principle, the SEM is referred to as a statistical approach to examine the association and influence between the variables in a model that encompasses a measurement (CFA) model as well as a structural (hypothesised path) model (Anderson and Gerbing, 1988; Hair et al., 2013; Kline, 2015) in a two-step approach. Based on the different types of SEM methods, this study employed the CB-SEM of the AMOS software which is appropriate for confirmatory research (when the goal is to test a theory) while CB-SEM could also predict excellent results for factor-based models (Dash and Paul, 2021).

6.3.1. Measurement (CFA) model assessment

In the first stage of SEM, the confirmatory factor analysis (CFA) is a technique employed to investigate whether the data fit the hypothesised measurement model based on certain theories (Brown, 2015; Kline, 2015). During the CFA analysis, the estimation method was set to maximum likelihood (ML) given data normality was confirmed, as reflected in section 5. The psychological measurement (CFA) model was then examined for model fit indices which is the degree to which the measurement model reproduces the structure of the variables (Dragan and Topolšek, 2014; Civelek, 2018). The fundamental measures of the model fit test encompass the Chi-square (χ^2) statistics, Degree-of-Freedom (df), and significance level (p-value) which are highly sensitive to sample size (Bagozzi and Yi, 1988). Notably, the most frequently reported model fit indices to assess the discrepancies between the modelled and observed data in the literature (Kline, 2015; Civelek, 2018) include the following: (1) standardized root mean square residual (SRMR), goodness-of-fit index (GFI) and root mean square error of approximation (RMSEA) which fall under the absolute fit, (2) Tucker Lewis index (TLI) and comparative fit index (CFI) which fall under the incremental fit, and ratio $\chi 2/df$ which fall under the parsimonious fit. According to Dragan and Topolšek (2014) and Civelek (2018), a model is an excellent fitting to the data when the GFI, TLI, and CFI model fit indices are greater than 0.90. In addition, an SRMR and RMSEA value of lower than 0.05 indicates the best fit. Further to this, the χ^2/df ratio must be less than 3.0 to demonstrate a good fit (Dragan and Topolšek, 2014; Kline, 2015; Civelek, 2018).

Table 1
Descriptive statistics of measurement variables.

Variable code	Question statement	Mean (M)	Standard Deviation (SD)
ATT1	I have a favourable attitude towards using building insulation	4.10	0.70
ATT2	I believe that using eco-block is a good idea	4.09	0.68
ATT3	I believe that using eco-block is beneficial	4.05	0.70
ATT4	I believe that using eco-block is a wise decision	4.03	0.73
ATT (M)		**4.06**	**0.70**
PU1	As eco-block contains an insulation material, it is useful to prevent hot air/cold air to penetrate the house	3.86	0.62
PU2	I feel that eco-block is useful in the home to improve people's indoor comfort level and their health	3.87	0.62
PU3	I feel that eco-block is useful to reduce future electricity costs as a result of low air conditioning use	3.86	0.67
PU4	Overall, I find building insulation useful to increase the value of my house	3.79	0.64
PU (M)		**3.85**	**0.64**
SN1	I prefer to use the eco-block rather than a conventional block if my family members advise me to do so	3.77	0.81
SN2	I prefer to use the eco-block rather than a conventional block if people in my social circle (friends, neighbours, colleagues) advise me to do so	3.70	0.88
SN3	I prefer to use insulation in my house if other people who are important to me advise me to do so	3.70	0.83
SN (M)		**3.72**	**0.84**
PBC1	I am confident in my capabilities to purchase eco-block rather than conventional blocks when building a house	3.49	0.83
PBC2	I have adequate financial resources to purchase eco-block in the future	3.28	0.87
PBC3	There are likely to be plenty of opportunities for me to purchase eco-block when building/renovating my house in the future	3.47	0.81
PBC4	Using green building and insulation technology completely depends on me	3.08	1.03
PBC (M)		**3.33**	**0.89**
SK1	I have sufficient knowledge about all the various types of insulation in building	2.75	1.01
SK2	I was already familiar with technologies related to building insulation (such as insulated concrete block/eco-block) before filing this survey form	2.79	1.01
SK3	I was already aware of the benefits of eco-block over the conventional block before filing this survey form	2.90	1.03
SK4	I know how to judge the quality of eco-block	2.48	1.02
SK (M)		**2.73**	**1.02**
OT1	I trust that responsible organisations (such as experts in construction companies) can give me valuable information on the use of insulated concrete block/eco-block	3.83	0.73
OT2	I do trust that construction companies are reliable	3.64	0.71
OT3	I trust construction companies to help me in case I have doubts and confusion about using insulation in building	3.71	0.72
OT4	I trust the responsible organisation to make my purchase decision easier	3.73	0.71
OT (M)		**3.73**	**0.72**
PI1	I usually take the first opportunity to gather the latest information about new technologies	3.84	0.79

(continued on next page)

Table 1 (*continued*)

Variable code	Question statement	Mean (M)	Standard Deviation (SD)
PI2	I intend to search on large information about new building technologies before my friends and other people in my social circle	3.63	0.88
PI3	I hope to be the first in my social circle and peer groups to use insulation in my house	3.37	0.85
PI4	I am keen to experience the eco-block technology since I heard it is a new method for green building construction	3.77	0.68
PI (M)		**3.65**	**0.80**
EC1	I am concerned about the usage of energy resources (coal, oil) leading to environmental problems such as (climate change and global warming)	4.40	0.62
EC2	I am concerned about energy usage in Mauritius and its impact on the environment	4.37	0.61
EC3	I am willing to reduce my energy consumption (such as electricity use) to protect the environment.	4.39	0.63
EC4	I believe that eco-block is an energy-efficient product that brings many benefits to the environment	4.06	0.68
EC (M)		**4.30**	**0.64**
PS1	For high-investment projects, the cost of purchasing an insulated house matters to me	4.08	0.64
PS2	Eco-block is worth paying a lot of money as far as it is providing long-term financial benefits than conventional block	3.58	0.86
PS3	I am willing to pay extra money for building insulation and technologies	3.30	0.90
PS4	I prefer to use eco-block even if the price for buying eco-block is two times higher than conventional block	2.99	1.01
PS (M)		**3.49**	**0.85**

Table 2 reflects the results of the measurement (CFA) model fit indexes and factor loading of the psychological variables. Results indicated that the model fit indices were a good fit to the data except for the GFI value. This issue was tackled by removing the indicator variables with the lowest factor loadings below the cut-off point of 0.60 and running the CFA model again through a methodical elimination process. Firstly, the psychological indicator variables: PBC4 and PS1 were below the cut-off point of 0.60 and were thus omitted from the measurement model. It was further found that excluding the psychological indicator variables: ATT1, PU4 and EC4, could favourably improve the GFI fit index as well as the other model fit indices. As observed, these underlying indicators were also poorly loaded to their respective predictor variables and were thus deleted after an iterative process. Table 2 illustrates the new fit values obtained for the measurement (CFA) model. At this stage, after removing the mentioned 5 indicator variables, the psychological measurement (CFA) model represents an adequate fit to the data, close to the criterion in use.

After the psychological measurement (CFA) model fit was satisfactory, the model was further examined for construct (convergent and discriminant) validity. In CFA evaluation, the calculations of composite reliability (CR) together with average variance extracted (AVE) are prerequisites when determining convergent validity (Fornell and Larcker, 1981; Hair et al., 2013). While CR measures the internal consistency based on the correlations between the indicators within the same predictor variable, AVE calculates the proportion of variance absorbed by the predictor variable with respect to the variance caused by the measurement error (Hair et al., 2013). Along with CR's cut-off point of 0.70, the AVE values ought to be above the threshold point of 0.50 to confirm reasonable convergent validity (Fornell and Larcker, 1981; Anderson and Gerbing, 1988; Hair et al., 2013). The findings in Table 3 reveal that the CR values for the psychological model surpassed the suggested value of 0.70. Also, the AVE for the psychological (predictor) variables was well above the threshold value of 0.50. Overall, these findings confirmed the requirements of the convergent validity of the psychological measurement (CFA) model.

Further to this, the correlation values were obtained from the psychological measurement (CFA) model to calculate discriminant validity. As such, the inter-factor correlation between the predictor variables ought to be lesser than the square root of the AVE ($\sqrt{AVE}$) for a model to confirm acceptable discriminant validity (Fornell and Larcker, 1981; Hair et al., 2013; Kline, 2015). The maximum shared variance (MSV) is also a measure to assess discriminant validity. The MSV is calculated as the square of the greatest correlation coefficient between the independent parameters, that is (MSV = greatest R^2) and must be lesser than AVE, implying that (MSV < AVE) to fulfil adequate discriminant validity (Fornell and Larcker, 1981; Hair et al., 2013; Kline, 2015). Table 3 illustrates that all AVE square roots (highlighted cells) were greater than the correlation values between the psychological predictors (that is, $\sqrt{AVE} > R$), in addition to which the MSV results are lesser than the AVE (that is, MSV < AVE). Overall, these findings confirmed the requirements of the discriminant validity of the psychological measurement (CFA) model.

6.3.2. *Structural model (hypothesised path) assessment*

In the second stage of SEM, the structural models were developed to validate the research hypotheses and conclude the findings. In structural models, regression analysis and path analysis are employed to examine the significant relationships among the latent (unobserved) predictor variables (Hair et al., 2013; Brown, 2015). The assessment of the proposed psychological model includes the verification of model fit indices and estimation of the standardized path coefficients before drawing conclusions about the hypothesised relationships. Firstly, the model fit results in Table 4 revealed that the proposed psychological model was an adequate fit for the data as per the recommended criteria aforementioned. Secondly, for the hypotheses to be confirmed, the standardized path coefficient must be significant when ($\beta > 0.100$, t-value >1.960, p-value <0.050) (Byrne, 2010; Hair et al., 2013). The magnitude of the path coefficient and significance value indicates the power of the relationship between the two constructs. The results in Table 4 thus concluded that the path coefficients between ATT ⇢IN; PU ⇢IN; PU ⇢ATT; SN⇢IN, PBC⇢IN, OT ⇢PU, PI⇢IN, EC⇢IN, EC ⇢ATT, PS ⇢IN and PS ⇢PBC are all significant. On the other hand, the path coefficients between SN⇢ ATT, SK⇢ IN, SK⇢ ATT, OT⇢ IN and PI⇢ ATT are not significant. Thirdly, the percentage of explained variance R^2 (squared multiple correlations) for intended behaviour (IN) was assessed. R^2 is normally recognised as a measure of the model's predictive accuracy which serves as a reliable indicator of the variance amount of the independent construct that is explained by the model (Cohen, 2013; Hair et al., 2013). According to Cohen (2013), R^2 values above 0.26 are considered as large, values around 0.13 as moderate and values below 0.02 as low in analysis. As such, the amount (%) of variance demonstrates that PS followed by PBC, SN, ATT, PU, PI and EC could explain 58.1% of the total variance (R^2) towards the intended behaviour to select the insulated eco-block building. In light of the result outcomes, the predictive ability of the proposed psychological model is regarded as favourably acceptable.

In light of the path analysis results obtained, Fig. 2 further illustrates a schematic representation of the proposed psychological model.

7. Discussions and implications of findings

Based on the result findings, 11 out of the 16 research hypotheses are supported with respect to the proposed psychological model. Initially, as confirmed by the research findings, H1 is supported such that attitude has a positive influence on Mauritian residents' intention to adopt the

Table 2
Measurement model fit values and uni-dimensionality.

Model Fit index	Requirement	Initial Values for the measurement model	New Values for the measurement model (after deleting the indicator with low factor loading)
SRMR	< 0.05	0.032	0.025
GFI	> 0.90	0.845	0.913
TLI	> 0.90	0.931	0.969
CFI	> 0.90	0.939	0.973
RMSEA	< 0.05	0.049	0.036
χ2 Goodness of fit	Ratio χ2 /*df* < 3	χ2= 1206.998; *df*=724; *p* < 0.001 Ratio χ2 /*df* = 1.667	χ2= 690.452; *df*=505; *p* < 0.001 Ratio χ2 /*df* = 1.367
Construct factor	**Factor loadings**	**Construct factor**	**Factor loadings**
Attitude (ATT)		**Perceived usefulness (PU)**	
ATT1	0.697	PU1	0.809
ATT2	0.950	PU2	0.803
ATT3	0.925	PU3	0.796
ATT4	0.906	PU4	0.661
Perceived behavioural control (PBC)		**Social norm (SN)**	
PBC1	0.787	SN1	0.944
PBC2	0.839	SN2	0.905
PBC3	0.823	SN3	0.857
PBC4	0.543	**Subjective Knowledge (SK)**	
Organisational trust (OT)		SK1	0.913
OT1	0.779	SK2	0.903
OT2	0.802	SK3	0.866
OT3	0.884	SK4	0.800
OT4	0.825	**Personal innovativeness (PI)**	
Energy concern (EC)		PI1	0.689
EC1	0.819	PI2	0.741
EC2	0.857	PI3	0.739
EC3	0.788	PI4	0.713
EC4	0.618	**Price sensitivity (PS)**	
Behavioural intention (IN)		PS1	0.136
IN1	0.909	PS2	0.714
IN2	0.920	PS3	0.798
IN3	0.773	PS4	0.878

insulated eco-block building (ATT⇢ IN, β = 0.215, p < 0.001). This study finding corroborates the results of the previous studies with respect to attitudes in the green building consumption field (Liu et al., 2020; Tan and Goh, 2018; Wang et al., 2019; Zhang and Liu, 2022a). The reason behind this positive attitude could be due to the insertion of the picture in the survey questionnaire, which enabled the participants to grasp some insights about the product's benefits, such as its thermal insulation properties. Following this, local residents have positive attitudes since they feel eco-block building technology could be a good alternative to provide adequate indoor thermal comfort in contrast to conventional building, especially during the hot summer season in Mauritius. Indeed, positive attitudes might substantially stimulate the intended behaviour to use the eco-block innovation, leading to the actual usage of the technology. The positive attitudes found in this study could be a starting point to further develop effective marketing strategies to promote sustainable building construction in Mauritius.

As confirmed by the research findings, H2a is supported such that perceived usefulness has a positive influence on Mauritian residents' intention to adopt the insulated eco-block building (PU⇢ IN, β = 0.195, p < 0.05). Similarly, H2b is supported such that perceived usefulness has a positive influence on Mauritian residents' attitudes towards the insulated eco-block building (PU⇢ ATT, β = 0.679, p < 0.001). The study finding is coherent with past results with respect to the effect of perceived usefulness on smart housing acceptance (Shin et al., 2018; Schill et al., 2019). The research outcomes indicate that in a developing country like Mauritius, people's purchase decisions for high-investment projects, such as eco-block building acceptance, are based on their evaluation of the perceived usefulness of the technology in comparison

Table 3
Construct validity results.

	CR	AVE	MSV	ATT	PU	SN	PBC	SK	OT	PI	EC	PS
ATT	0.949	0.861	0.501	0.928								
PU	0.845	0.644	0.227	0.708	0.803							
SN	0.929	0.814	0.297	0.228	0.263	0.902						
PBC	0.858	0.668	0.486	0.181	0.096	0.545	0.818					
SK	0.927	0.760	0.052	0.168	0.248	0.108	0.051	0.872				
OT	0.894	0.678	0.095	0.374	0.452	0.139	0.211	0.227	0.824			
PI	0.802	0.504	0.205	0.207	0.136	0.427	0.526	0.010	0.209	0.710		
EC	0.869	0.689	0.035	0.537	0.476	0.236	0.211	0.071	0.308	0.153	0.830	
PS	0.841	0.640	0.540	0.122	0.048	0.245	0.697	0.049	0.233	0.453	0.186	0.800

Table 4
Structural model fit values and path analysis.

Model fit index	Values for the psychological structural model
SRMR	0.059
GFI	0.900
TLI	0.945
CFI	0.952
RMSEA	0.050
$\chi 2$ Goodness of fit	$\chi 2 = 1049.360$; $df = 542$; $p < 0.001$ Ratio $\chi 2/df = 1.936$

Path analysis	**Path coefficient (Standardized, β)**	***Critical ratio***	**Result of hypothesis testing**
ATT ⇢IN	0.215	2.876***	Supported
PU ⇢IN	0.195	$1.985^{.021}$	Supported
PU ⇢ATT	0.679	10.435***	Supported
SN⇢ IN	0.274	5.505***	Supported
SN⇢ ATT	0.069	$1.313^{.233}$	Not Supported
PBC⇢IN	0.336	5.683***	Supported
SK⇢IN	−0.085	$-1.529^{.112}$	Not Supported
SK⇢ATT	0.070	$0.873^{.309}$	Not Supported
OT⇢IN	0.065	$0.861^{.345}$	Not Supported
OT⇢PU	0.353	5.353***	Supported
PI⇢IN	0.167	2.100**	Supported
PI⇢ATT	0.076	$1.576^{.176}$	Not Supported
EC⇢IN	0.111	$1.985^{.041}$	Supported
EC⇢ATT	0.314	5.892***	Supported
PS⇢IN	0.429	5.148***	Supported
PS⇢PBC	0.515	8.270***	Supported

Notes for the model and asterisks indication: n.s Not Significant, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$ (%) Variance explained, R^2 for behavioural intention = 0.581 (58.1%).

to its alternative. As a result of the actual usefulness of building insulation (energy efficiency, thermal comfort, energy cost savings, low paybacks) and the justified adoption like (evaluation of the cost-benefit analysis of the eco-block building as well as considering diverse aspects), it appears that if the specifications are provided, the Mauritian residents' intention to adopt the building insulation technology would raise. Essentially, it is important to design programs that explicitly outline the benefits of building insulation for society.

As confirmed by the research findings, H4a is supported such that social norm has a positive influence on Mauritian residents' intention to adopt the insulated eco-block building (SN⇢ IN, $\beta = 0.274$, $p < 0.001$). Contrarily, H4b is not supported such that social norms exert no significant influence on Mauritian residents' attitudes towards the insulated eco-block building (SN⇢ ATT, $\beta = 0.069$, $p > 0.05$). This study's finding is similar to the results of Prete et al. (2017), Jabeen et al. (2019) and Perri et al. (2020) with respect to the effect of social norms on behavioural intention in the green building consumption field. In a cultural country like Mauritius, behavioural decisions are affected by family, friends or social expectations because of the community's interest to integrate into reference groups. The findings reported that society is influenced by feedback and recommendations from social groups, thus triggering a positive perception in the mind of consumers. Before embarking on a high-investment project like the eco-block building construction, the Mauritian society is more likely to obtain views and opinions from their social circle having either knowledge or experience with the technology. Evidently, the result suggests that when members of the social groups support the purchase decision of the eco-block technology, other members of the same group are more likely to incline towards the innovation. For this purpose, in order to accelerate the growth of the building insulation industry, feedback and recommendations from post-purchase behaviours of community members must be included in the long-term implementation strategies.

As confirmed by the research findings, H5 is supported such that perceived behavioural control has a positive influence on Mauritian residents' intention to adopt the insulated eco-block building (PBC⇢ IN, $\beta = 0.336$, $p < 0.001$). The results outcome is in support of the previous result by He et al. (2019), Perri et al. (2020), Zhang and Liu (2022a) with respect to the effect of perceived behavioural control in the green building consumption field. This study finding disclosed that the local residents believe that they might have the required resources and opportunities (e.g., knowledge, cost, time) and they feel that financial resources would not be an obstacle when the opportunity to purchase building insulation arises. On the other hand, in Mauritius, the purchase of high-investment building insulation requires a huge capital undertaking and there is a constant rising cost of building construction materials. The average income in Mauritius is Rs 33,000, as per the Statistics of Mauritius (Statistics Mauritius, 2020), and this value is not sufficient to complement the upfront cost when purchasing a typical insulated house, amounting to a minimum of Rs 3 million (UBP, 2022). The research suggests that effective policy measures must be established in terms of providing financial support (incentives, credits) along with information on building technology (via educational courses) to facilitate society's decisions on the usage of building insulation.

As confirmed by the research findings, H6a is not supported such that subjective knowledge has no significant impact on Mauritian residents' intention to adopt the insulated eco-block building (SK⇢ IN, $\beta = -0.085$, $p > 0.05$). Likewise, H6b is also not supported such that subjective knowledge has no significant influence on Mauritian residents' attitudes towards the insulated eco-block building (SK⇢ ATT, $\beta = 0.070$, $p > 0.05$). The study findings are opposite to that of the previous research of Irfan et al. (2021) and Fatima et al. (2022) with respect to the

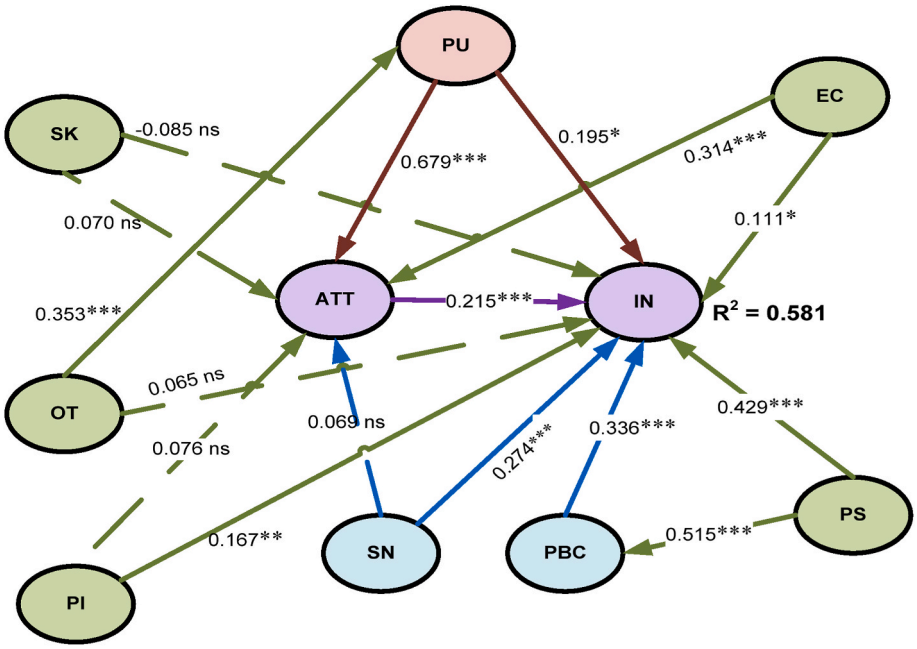

Fig. 2. The psychological structural model illustration with results.

effect of subjective knowledge on behavioural intention in the green building consumption field. One plausible explanation is that Mauritians are not up till now entirely informed about building insulation and its related advantages in comparison to other types of green building products. Currently, in Mauritius, conventional building techniques are still dominant despite the introduction of eco-block building insulation. There is actually no market for building insulation due to a lack of support and communication from various stakeholders and policymakers. As long as society is not familiar with insulation technologies, they cannot be expected to move towards the use of insulation strategies in buildings when deciding to renovate or construct their residence. In light of the research findings, stakeholders are recommended to focus on community awareness programs and mass media communication to highlight the importance of building insulation among community members.

As confirmed by the research findings, H7a is not supported such that organisational trust has no significant influence on Mauritian residents' intention to adopt the insulated eco-block building (OT⇢ IN, $\beta = 0.065$, $p > 0.05$). However, H7b is supported such that organisational trust has a positive influence on Mauritian residents' perceived usefulness towards the insulated eco-block building (OT⇢ PU, $\beta = 0.353$, $p < 0.001$). The results obtained are contradictory to the finding of Liu et al. (2018) and Rajaee et al. (2019) with respect to the influence of organisational trust on behavioural intention in the green building consumption field. The reason for this difference in results may be attributed to the fact that building organisations have failed to demonstrate their ecological performance since there is a lack of intervention, support and communication from these organisations to promote the acceptance of insulated building in Mauritius. On the other hand, global building organisations are exerting much emphasis on green/energy efficiency initiatives in building and post-purchase behaviour while at the same time, green consumers are paying more attention to these organisations and increasing their trust in green building products. At the initial stage of development, it is central for suppliers/manufacturers to focus on improving organisational trust by encouraging the purchase of the building insulation through proper information to reduce any uncertainty and potential risks while raising the perceived usefulness of the innovation. Inaccessible experts with technical skills and those experts who are not able to disseminate a proper understanding of the benefits of building insulation may represent a major barrier to building organisational trust and the ultimate adoption of the technology amongst the local residents. The image and credibility of green building companies are indeed a concern for both adopters and policymakers.

As confirmed by the research findings, H8a is supported such that personal innovativeness has a positive influence on Mauritian residents' intention to adopt the insulated eco-block building (PI⇢ IN, $\beta = 0.167$, $p < 0.01$). Contrastingly, H8b is not supported such that personal innovativeness has no influence on Mauritian residents' attitudes towards the insulated eco-block building (PI⇢ ATT, $\beta = 0.076$, $p > 0.05$). The study finding is similar to the previous results of Ali et al. (2019), Nikou (2019) and Alzubaidi et al. (2020) with respect to the effect of personal innovativeness on behavioural intention in the green building consumption field. The results outcome showed that despite, Mauritius being a developing country, the society members have an innovativeness mindset/personality and they have the desire to advance with new technological/emerging trends as well as experience with innovative products; including the eco-block building insulation. In line with the study finding, a local resident's personal innovativeness characteristic does not seem to depend on the expectations of the latter social environment. The local citizens are also able to assess the degree of the eco-block technology's newness as compared to the existing conventional alternative. As the insulated eco-block building is considered a new concept to Mauritians, this study proposes that personal innovativeness can help in understanding the early adoption of the technology. Marketers in the building sector should devise different strategies to target both the early adopters and late adopters to enhance the diffusion of building insulation technology in Mauritian society.

As confirmed by the research findings, the results of this study confirmed that H9a is supported such that energy concern has a positive influence on Mauritian residents' intention to adopt the insulated eco-block building (EC⇢ IN, $\beta = 0.111$, $p < 0.05$). Similarly, H9b is supported such that energy concern has a positive impact on Mauritian residents' attitudes towards the insulated eco-block building (EC⇢ ATT, $\beta = 0.314$, $p < 0.001$). The study finding is coherent with the past research of Chen et al. (2017a,b), Zhang and Liu (2022a) with respect to the influence of energy concern on behavioural intention in the green building consumption field. The local citizens are ethically concerned about the various energy management issues such as energy shortages, energy usage, energy depletion and the related impact on the environment. These strong attitudes also motivate them to feel obliged to

purchase high-investment measures such as eco-block building insulation. Indeed, residents could recognise the extent to which their efforts can make a difference in solving the global energy concern from the usage of building insulation. Along the same line, the local citizens could perceive the energy efficiency attributes of the eco-block technology, where they believe that their purchase behaviour would be meaningful in protecting future energy resources. As such policymakers must develop effective strategies to showcase that the consumption of the eco-block building could potentially reduce the total energy consumption in building from space cooling and heating while ensuring building energy-saving measures and environmental protection.

Lastly, as confirmed by the research findings, H10a is supported such that price sensitivity has a significant influence on Mauritian residents' intention to adopt the insulated eco-block building (PS⇢ IN, $\beta = 0.429$, $p < 0.001$). Likewise, H10b is supported such that price sensitivity has a significant influence on Mauritian residents' perceived behavioural control towards the adoption of the insulated eco-block building (PS⇢ PBC, $\beta = 0.515$, $p < 0.001$). This study's findings are opposite to the previous results of Rajaee et al. (2019), Irfan et al. (2021) and Fatima et al. (2022) with respect to the effect of price sensitivity on behavioural intention in the green building consumption field. The findings disclosed that Mauritian residents were actually less price sensitive where 56% of them were willing to pay 5–10 % more for the eco-block building technology in comparison to the other types of green building technologies use in the literature. Unlike past studies, the current finding signifies that the local citizens are able to weigh the advantages of the eco-block building (such as reduced energy costs, and improved thermal comfort) more than the additional purchase cost involved. The reason behind this is that the local citizens may have probably acquired a sufficient understanding of the usefulness of building insulation in a hot tropical country like Mauritius, via this research survey. On the other side, the research highlights that the setting up of building insulation costs approximately twice the price of a conventional building (UBP, 2020). As this huge amount may not be affordable to most citizens of the middle-class category, financial support such as (grants and discounts) from the local government and the building construction organisation play an important role to reduce the upfront investment and to further reduce the residents' price sensitivity. These financial supports can motivate the local resident's willingness to pay more, leading to the successful establishment of building insulation technology in Mauritian society.

7.1. Research implications

The literature demonstrates that research on green building consumption is rather scarce, while the research area is evolving. While most previous research works were centred on the overall green/energy-efficient building product consumption, no prior research has empirically examined behavioural intention towards specific green building technology (like the eco-block building technology). Due to the proven feasibility of implementing the insulated eco-block building in Mauritius, this research focuses on understanding the residents' intended behaviour of the eco-block building to increase the technology acceptance in large-scale housing construction projects. A conceptual framework based on the TAM-TPB framework has been developed to examine behavioural intention towards eco-block building adoption. Despite the TAM-TPB theoretical frameworks have been applied separately within other research contexts, no past study has uniquely employed the combined theoretical model from an interdisciplinary approach. In addition, psychological determinants like organisational trust, personal innovativeness and price sensitivity have not been fully explored within the green building context. The proposed psychological model represents an excellent predictor of intended behaviour, where psychological determinants like attitudes, perceived usefulness, social norm, perceived behavioural control, personal innovativeness, energy concern and price sensitivity can effectively explain 58.1 % of Mauritian residents' intention towards opting for the insulated eco-block building. The resulting outcome is in line with past research of Tunji-Olayeni et al. (2023) and Al Mamun et al. (2023) which disclosed that the obstacles to green building promotion are indeed based on social and psychological factors. Future studies can use information from the research outcomes and explore the determinants impacting the adoption of green building technologies in similar frameworks. Overall, the study is useful in bringing together the various theoretical psychological processes with respect to comprehending the resident need for building insulation in Mauritian society.

7.2. Policy and practical implications

Given the empirical findings, this study proposes some significant understandings and recommendations to the relevant stakeholders (Government and building developers) to improve the adoption and diffusion of building insulation. With reference to Ding et al. (2018), the practical implication suggestions for both the Government and Company level can be grouped into (information strategy, economic strategy and technology strategy) as depicted in Fig. 3. Notably, each strategy has its own advantages and disadvantages. Firstly, in the building arena, '*Information strategy refers to a* ***"strategic plan for managing building information flow and knowledge resources across several communication channels".*** The advantages of information strategies are to ensure that local residents are no longer constrained by limited reasoning, which makes it easier for them to gather, store, and analyse a huge amount of information prior to reaching their buying decisions about the eco-block building material. Basically, the main pitfall of the information strategies is that the local citizens may not demonstrate their concern and they may ignore the significance of building insulation in the long term. Accordingly, economic measures are equally important to further raise acceptance of the building insulation technology in the Mauritian context. In the building sector, the economic strategy refers to the ***"application of economic policies to provide homebuyers with affordable alternatives aimed at reducing the financial burden of high residential building investment decision".*** Notably, the disadvantage of economic strategies like the provision of government incentives, is that they usually signify a small portion of the building technology's overall cost, and in the event of an economic crisis, they may only be temporary and the citizens must pay the full cost of the technology. In such cases, the resident behaviour is more likely to disintegrate if the regulatory bodies stop providing economic incentives. For lifelong consideration, both the information and economic measures should be combined simultaneously to raise the diffusion and adoption rate of the eco-block building innovation. Overall, the technology strategy plays a fundamental role in further promoting the consistent growth of the building insulation market in Mauritius. In the building field, technology strategy refers to "***the creation of an overall building project plan which consists of tactics for integrating people in using green building technologies to achieve sustainability goals"***. As such, both the local government and the building organisation must wisely consider the traits and perceptions of the local citizens based on their various psychological dimensions to accelerate diffusion of the building innovation. As explained in the following sections, the present study recommends that both the regulatory body and the responsible building organisation to consider the advantages and disadvantages of each strategy, while ensuring the long-term establishment of the building insulation technology.

7.2.1. Implication strategies proposed for the government

The government is the main regulatory and legislative body for endorsing the successful establishment of the insulated eco-block building in Mauritius. The implications proposed for the local government are discussed below.

Information strategy: The present findings revealed that limited knowledge of eco-block technology represents the main barrier to

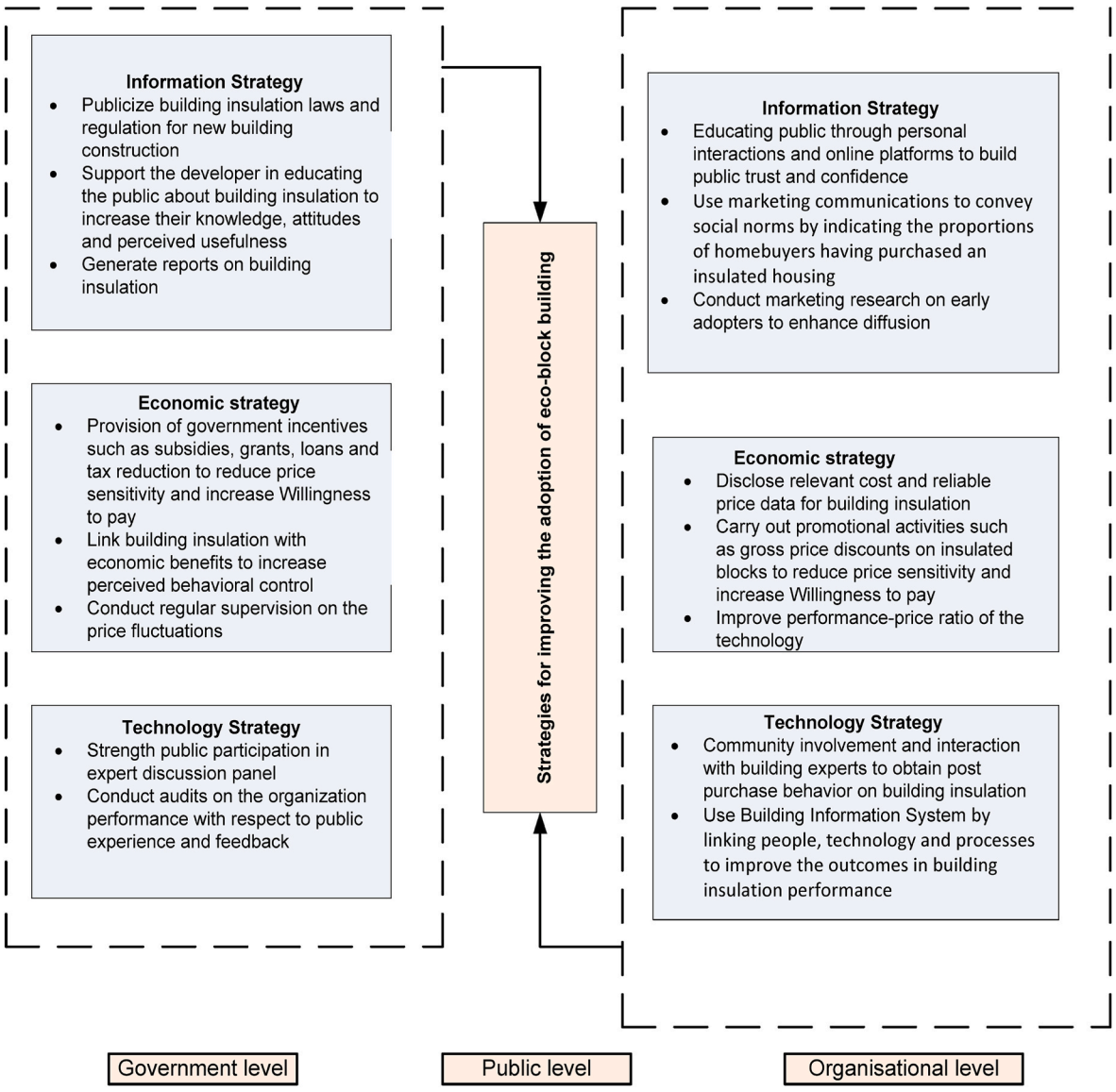

Fig. 3. The practical implication suggestion framework.

technology acceptance. In order to increase the general public knowledge of the new building technology and ultimately lead to their acceptance, the local government should first promote the concept of building insulation in Mauritius and publicize building insulation laws and regulations for new building construction. This is equally important as building insulation is not yet mandated in the building energy regulation in Mauritius. The government should also work in collaboration with the building developer in educating the public about the benefits of insulated building through national education and dissemination workshops. The dissemination campaigns could, in turn, increase the general society's knowledge, attitudes and perceived usefulness of the eco-block building, which are recognised as influential parameters influencing the adoption of the technology. These types of informative workshops are equally important to inform the local public, particularly to the LOHAS (lifestyles of health and sustainability) human categories about the complete life cycle of eco-block building insulation and its impacts on the environment to showcase the actual usefulness of the technology. Given that local citizens expressed high energy concern over their residential energy consumption, the local government can further generate building reports to further familiarise Mauritian residents with the concept of the eco-block building and its associated benefits in comparison to the low energy efficient conventional building. This would, in turn, lead to positive attitudes from energy concern for the environment, leading to the adoption intention of the technology.

Economic strategy: As confirmed by the research findings, price sensitivity exerts the greatest influence on the acceptance of the insulated eco-block building. The study suggests that economic policy incentives like (subsidies, direct grants, low-interest loans and tax decreases) could further reduce price sensitivity and motivate the adoption of the insulated eco-block building amongst the society members during the initial stage of the diffusion process (Lester, 2013; Wong and Lau, 2013; Delmastro et al., 2016; Kaveh et al., 2018; Zhang et al., 2018). These economic policies and financial support are indeed important as grants and subsidies for building insulation are not currently regulated as part of the drafted Building Control Act in Mauritius. The government economic incentives could have a substantial effect on the moderate price-sensitive target populations, increasing their perceived behavioural control towards the usage of the eco-block building technology. Accordingly, subsidy programs must be carefully planned to reduce the upfront burden cost for society. In order to guarantee the successful launch of building insulation in Mauritius, the government should further conduct regular supervision of the price

fluctuations associated with the insulated building as announced by the building developers. The current study suggests that the local government can form a dedicated expert panel on cost assessment to guide cost fluctuations in residential buildings to avoid building developers from increasing housing prices randomly.

Technology strategy: The technology strategy is suggested for the policymakers to integrate the society members when establishing green building insulation projects. This is equally important to obtain the local residents' consistent views from post-purchase behaviour, which can form a vital aspect in the planning, design, operation and maintenance phase of the building. Since the society members are the final consumers of the building insulation technology in Mauritius, the local government should aim to strengthen public participation in the expert discussion platform like Green Building Council (GBCM) seminars, New Social Living development (NSLV) events and circular economy for the construction focus group discussions. Also, the local government should consistently increase support for the building organisation and conduct frequent audits on the organisation's performance to assess the society's intended behaviour towards the eco-block building usage with respect to the final users' feedback and experiences.

7.2.2. Implication strategies proposed for the building organisation

The building construction organisation is the main company/institutional body to initiate the planning, design and implementation of the insulated eco-block building in Mauritius. The implications proposed for the building organisation are discussed below.

Information strategy: In line with the study results, awareness about building insulation is important to motivate the acceptance of eco-block building insulation amongst society members. Building developers must, therefore, capitalize on information communication strategies like; spreading information on building insulation via personal interaction and online information sources. In the technologically advanced Mauritian society, the general public has more access to the internet and a lack of disclosure across the builders' websites could slow the eco-block building acceptance. Online browsing through dedicated construction organisation websites and social platforms can aid the local public to acquire accurate details on the building innovation during the collection of information in the diffusion process, to ultimately direct them in their buying decision. In addition, visiting a house to see the installation and personal interaction with people having experience with the eco-block building can increase the visibility to draw residents' attention. Building developers should address marketing communications to convey social norms by indicating the proportions of home-buyers having purchased insulated housing in relevant locations. By creating an interactive platform, prospective home buyers could obtain feedback on the social norm of their experience from post-purchase behaviour. During the home-building process, limited discussion with building experts about building insulation can affect the perceived usefulness of the novel building advancement. Thus, maintaining a constant interaction between the organisation and the local public could raise the trustworthiness of building organisations to impact the perceived usefulness towards green building innovations. The study further recommends that commitments from top management of green building construction should demonstrate the overall building insulation performance in real-time to engage the local citizens in a new living experience. This initiative would certainly raise consumer trust, reduce the perception of risk and uncertainty, and eventually increase public demand for building insulation. Given the empirical findings, the building organisation should further establish policy measures that focused on the various target groups, including (innovators, early adopters, early majority, late majority and laggards). At the initial stage of development, the innovators and early adopters are regarded as those people having a high purchase intention. In this line, it is expected that early recognition of the eco-block building amongst the innovators and initial adopters could exert a great influence on the initial diffusion of the building insulation market. For the continuous growth of building insulation, the building developers should set up aggressive informative marketing strategies for those who are resistant, have low purchase intention and are late in purchasing, such as the laggards market segment. As such, more effort is needed in terms of setting policies and strategies to convince the laggards market group and enhance the diffusion of building insulation technologies.

Economic strategy: The building developer must disclose relevant cost and reliable price data of the building insulation to allow the successful implementation of this initiative. The current study suggests that economic strategy in terms of gross discounts provided by the building developer could motivate the adoption of the building insulation measure. Since price sensitivity has a considerable impact on the acceptance of the eco-block building, gross discounts might have a substantial effect on the moderate price-sensitive target populations, influencing their purchase intentions through their willingness to pay a cost premium. Also, given that residents are willing to pay a maximum incremental cost of 10 % as per the findings, residents' willingness to pay could serve as a benchmark for developers' assessments of cost-benefit analyses to improve production behaviour and government incentive programs. The economic incentives can also accelerate the levels of an individual perceived behavioural control in terms of financial resources, time and opportunities.

Technology strategy: The building organisation should take into account the residents' attributes during the establishment of the technology; otherwise, it would be ineffective. The building developers must take into account the involvement of the various attributes of the residents given that they are affected by psychological factors comprising of (attitude, social norm, perceived behavioural control, personal innovativeness, energy concern and price sensitivity), as confirmed by the study findings. This study suggests that advanced information and communication technologies could assist the developers to integrate building information modelling (BIM) by linking people, technology and processes to enhance the building and construction outcomes. Along with this, robust analysis is required to validate the real performance of the building insulation through post-occupancy satisfaction and experience-based feedback to address any information asymmetry between the anticipated performance and the real performance of building insulation.

8. Conclusion, limitations and way forward

In line with the Master Plan for the Environment for Mauritius (2020–2030), insulation in buildings is one of the major strategies to maintain building energy efficiency and ensure the sustainability of the building envelope. As the society members are the final adopters of insulation measures in green buildings, research investigating the decision-making process towards the adoption of building insulation has become a topic of interest within Mauritian society. From a research standpoint, the literature database on the consumption behaviours of green building technologies from an individual dimension is rather scarce. Using an extension of a combined technology of acceptance model and theory of planned behaviour, this study attempts to fill the research gaps by examining the psychological determinants impacting the residents' adoption intention towards green building technologies with a focus on the eco-block building. The research findings disclosed that price sensitivity demonstrates the greatest relationship with intended behaviour, followed by perceived behavioural control, social norm, attitude, perceived usefulness, personal innovativeness and energy concern. On the other hand, subjective knowledge and organisational trust exert no influence on the adoption intention. However, organisational trust effect behavioural intention indirectly through perceived usefulness.

Without any exception, this study has some limitations associated with the research methodology and theoretical framework, whereby significant recommendations for future research are proposed, as follows:

1. A methodological limitation comes from the research design where a cross-sectional study was adopted to collect data at a particular time period. In the interest of generalization, a longitudinal study is appropriate to assess the degree to which the findings can be prolonged to include other populations, contexts and periods. This longitudinal study is also useful to analyse the changing patterns of the local public needs for building insulation as well as to measure the purchase intention and actual behaviour gap.
2. Another methodological limitation arises from the quantitative research design used in this study. For future research, a qualitative method is important to gather in-depth data on the respondents' responses on this particular topic. A structured interview could be undertaken with several respondents to obtain a comprehensive insight into the residents' perceptions, attitudes and post-purchase behaviour toward eco-block building adoption in the long term. A mixed-method research design is therefore proposed including both qualitative and quantitative research methods for future research.
3. A theoretical constraint with the combined behavioural model (TAM and TPB) is that both are generally based on a rational decision-making process that requires individuals to be motivated to perform a given behaviour. This assumption may be challenging when studying adoption behaviours such as in the context of eco-block building adoption. The results findings demonstrated that most respondents were unfamiliar with building insulation, thereby leading to accustomed answers, particularly for constructs related to perceived usefulness and perceived behavioural control. With the growing need for the implementation of building insulation in Mauritius, the local citizens are expected to be more informed through marketing communications, allowing future studies to assess the changes in the relationships between the adoption intention and the influential determinants.
4. The proposed psychological model has tested a number of potential psychological factors that influence behavioural intention, but an investigation of other psychological determinants is yet to be investigated. In order to improve the explanatory power of the proposed psychological structural model, future research could consider adding psychological variables like (policy factors, technology anxiety, perceived risk, perceived payback period, price anchoring and green consumer identity) which have not been explored within the field of green building consumption.

CRediT authorship contribution statement

Hashita Joyram: Writing – review & editing, Writing – original draft, Validation, Software, Methodology, Conceptualization. **Kannan Govindan:** Supervision. **Robin Nunkoo:** Supervision.

Declaration of competing interest

I affirm that the research work entitled '*Development of a novel psychological model to predict the eco-block building adoption in Mauritius*' is purely original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere.

Data availability

Data will be made available on request.

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