Chapter 19
Exploring the Factors Driving Smart Home Adoption: An Extension of the Unified Theory of Acceptance and Use of Technology

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Abstract The smart home concept integrates automation, security, energy efficiency, and comfort, promoting an environmentally friendly and improved living experience. This study examines the factors influencing the adoption of technology for smart homes by extending the Unified Theory of Acceptance and Use of Technology (UTAUT2) model. Incorporating five external variables (convenience and comfort, health and wellbeing, security and safety, sustainability, and privacy) into the model, this research offers a comprehensive understanding of the determinants affecting individuals' intention to use technology for smart homes. A survey of 795 individuals, including households from various age groups and levels of urbanization, was conducted to ensure a representative analysis. The results indicate that all external variables positively impact the core UTAUT2 variables. Habit has the strongest effect on intention to use, followed by performance expectancy and personal innovativeness. Along with hedonic motivation and social influence, these variables explain 76.9% of the variance in intention to use smart home devices. This research contributes added value by extending the UTAUT2 model with five external variables, addressing gaps in previous literature, and utilizing a diverse sample group, ultimately providing a more comprehensive knowledge of the factors influencing the adoption of smart home technology.

19.1 Introduction

Smart homes, also referred to as connected or automated homes, utilize advanced technologies that allow for remote control, monitoring, and automation via smart devices such as speakers, thermostats, and security systems [1]. The concept of smart homes has existed for some time but has recently gained popularity due to technological advancements and increased demand for convenience and efficiency

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[2]. One of the primary advantages of smart homes is the ability to remotely control and monitor various aspects of the home using a smartphone or other device [3], which can conserve energy, reduce costs, and enhance security [4, 5]. Moreover, smart home technology has potential benefits beyond convenience and efficiency, including aiding in tasks like meal planning, grocery shopping, and healthcare [6, 7]. For example, smart appliances can notify homeowners when supplies are low, and smart home systems can integrate with medical equipment to monitor the health of elderly or disabled individuals [8].

Smart homes have a lengthy history dating back to the early twentieth century. The concept has evolved over time, but the underlying goal has remained the same: to increase convenience, efficiency, and ease of living through technology [9]. One early example was the "Home of Tomorrow" built in the 1930s, which showcased several futuristic technologies such as automatic doors, a central vacuum system, and an automated kitchen [10]. Home automation systems emerged in the 1950s and 1960s, enabling homeowners to remotely control household functions like lighting and heating using switches and timers [11]. The introduction of personal computers and the internet in the 1980s and 1990s paved the way for modern smart homes, allowing homeowners to control their homes remotely via their computers or cellular phones, and access them from anywhere [12]. More recent developments have focused on energy efficiency, with the introduction of smart thermostats and energy management systems [13]. Today, smart home technology is advanced and affordable, offering a broad range of features and can integrate with smart devices.

Upon analyzing current research on the development of smart homes, it is apparent that numerous factors affect the utilization of smart home devices. Previous studies have employed various approaches to examine the factors that influence the usage of smart home appliances. In recent years, researchers have primarily tested the original or adapted version of the "Unified Theory of Acceptance and Use of Technology" (UTAUT2) in combination with different external factors. These investigations include the works of Baudier et al. [14], Aldossari and Sidorova [15], Gansser and Reich [16], Gultom and Asvial [17], Iqbal and Idrees [18], Große-Kreul [19], and Sequeiros et al. [20].

Based on our analysis of current research, we propose further development of the existing theory on the acceptance of smart home devices. This can be accomplished by testing the original UTAUT2 model with five additional external variables that are closely connected with the adoption of smart home devices, while also adding a new variable, "Privacy" to the current theory. Furthermore, we suggest testing an extended UTAUT2 model, as the original proposition often confirms all the relationships between variables. The goal of this study is to gain a better understanding of the factors that affect adoption of smart homes. This study's objective is to develop an enhanced UTAUT2 model that explains the relationship between a number of factors and individuals' intention to use smart home appliances. The study will concentrate on "Convenience and comfort", "Health and wellbeing", "Security and safety", "Sustainable development", and "Privacy" as the primary elements influencing individuals' "Intention to use" smart home devices.

19.2 Method

Tech acceptance models explain how people decide to adopt or reject new technologies. They help designers, developers, and marketers understand user behavior. UTAUT and UTAUT2 are two such models developed by Venkatesh et al. [21, 22]. They recommend measuring factors such as performance, effort, social influence, and habit to determine the level of tech acceptance. UTAUT2 is a model developed by Venkatesh, Thong, and Xu in [22] that aims to explain how people decide whether or not to adopt and use new technology. UTAUT2 builds upon and expands upon the previously discussed theories and includes seven factors that influence technology acceptance.

Personal innovativeness is a concept introduced by Agarwal and Prasad [23] that helps professionals and researchers understand the adoption of new information technologies. It serves as a practical measure with favorable psychometric characteristics and moderates both antecedents and outcomes of an individual's perceptions regarding new technologies. According to Chen et al. [24], the Smart Home can be characterized by four dimensions: "Convenience and comfort, Healthcare/Wellbeing, Safety and security, and Sustainable development". Guhr et al. [25] added a fifth dimension, Privacy concerns. It is believed that living in a smart home can enhance an individual's performance in these areas, leading to a positive impact on their Performance Expectancy. Additionally, it is hypothesized that frequent interaction with smart home technology may shape one's habit.

Convenience and comfort (CC) can be defined as the degree to which a technology or system provides ease, efficiency, and a sense of wellbeing to its users, while also reducing the need for physical effort and cognitive load. [26]. Smart home technology allows for the automation and personalization of various aspects of the home, such as temperature, lighting, and appliances, which can make daily tasks more efficient and convenient [27]. Additionally, smart home technology can provide personalized experiences through the use of voice assistants and smart home security systems, as well as the use of smart appliances that can make household tasks easier and more enjoyable [28]. We suggest that:

H1a. "Smart home comfort and convenience has significant positive influence on performance expectancy."

H1b. "Smart home comfort and convenience has significant positive influence on effort expectancy."

Health/wellbeing (HW) can be defined as the overall state of an individual's physical, mental, and social wellbeing, which encompasses not just the absence of illness or disease, but also the presence of positive factors that promote good health and quality of life. It is a complex and multidimensional construct that can be influenced by a range of biological, environmental, and social factors, including lifestyle choices, social support, and access to healthcare services. Smart home technology has numerous applications for promoting health and wellbeing [29]. These devices can track and monitor various health indicators, such as sleep patterns, physical

activity, and nutrition, allowing individuals to make informed decisions about their health [30]. Smart home devices can also assist with managing chronic conditions and provide alerts for emergencies, allowing caregivers to remotely monitor the wellbeing of loved ones [31]. In addition, air and water quality monitors can alert homeowners to any potential health hazards in their home environment [32]. Smart home technology can greatly enhance health and wellbeing by providing individuals with the tools and information necessary for them to decide on their health in an informed manner, as well as assistance with managing chronic conditions and aging in place [33]. We hypothesize that:

H2a. "Smart home health/wellbeing has significant positive influence on performance expectancy."

H2b. "Smart home health/wellbeing has significant positive impact on social influence."

Privacy (PR) refers to individuals' ability to control the collection, use, and disclosure of their personal information and to maintain seclusion. It involves protecting sensitive information from unauthorized access or use by manufacturers, service providers, and third-party entities. Smart home devices may pose privacy concerns due to the collection and storage of data, as well as the potential for hacking or unauthorized disclosure of personal information. Smart home devices collect and transmit data on home environments and activities, raising privacy concerns [34]. To address this, smart home companies should implement strong privacy policies and secure data storage practices, such as encryption and secure protocols [35, 36]. Smart home tech can also allow individuals to manage their privacy, such as disabling data collection or deleting collected data [37]. To protect privacy, individuals should select devices with strong privacy policies and be mindful of data shared [38]. We propose the following hypotheses:

H3a. "Smart home privacy has significant positive influence on performance expectancy."

H3b. "Smart home privacy has significant positive influence on facilitating conditions."

Safety and security (SS) can be defined as the protection of individuals and property against potential risks or harm, facilitated by the use of advanced technologies and systems. Smart home security systems can include door and window sensors, video cameras, and alarms that can alert homeowners to any potential threats and allow them to monitor their home remotely [39, 40]. Smart locks can also provide an extra layer of security by allowing homeowners to remotely lock and unlock their doors and track who has access to their homes [41]. Smart home technology can also provide safety features such as smoke and carbon monoxide detectors, which can alert homeowners to potential hazards in their home environment [42]. Additionally, smart home technology can assist with emergency situations by providing alerts for fires or other emergencies and allowing individuals to call for help through the use of voice assistants or other devices [43]. These are the hypotheses that we postulate:

H4a. "Smart home safety and security has significant positive influence on hedonic motivation."

H4b. "Smart home safety and security has significant positive influence on habit."

Sustainable development (SD) refers to the use of technology to minimize negative environmental impacts, while maximizing the efficient use of resources and energy [44]. Smart thermostats, for example, can be programmed to adjust the temperature of a home based on the time of day or the presence of people in the home, reducing energy usage and potentially saving money on utility bills [45]. Smart appliances, such as refrigerators and washing machines, can also be more energy efficient and have the ability to be controlled and monitored remotely, allowing homeowners to optimize their energy usage [46]. Smart lighting systems can also be programmed to turn off when a room is unoccupied, further reducing energy consumption [47]. Additionally, smart home technology can assist with the management of renewable energy sources, such as solar panels, by providing real-time monitoring and data on energy production and usage [48]. The following hypotheses are proposed:

H5a. "Smart home sustainable development has significant positive influence on hedonic motivation."

H5b. "Smart home sustainable development variable has significant positive influence on habit."

Performance expectancy (PE): Numerous studies show PE has a positive and significant impact on the adoption of accessing electronic health records [49], learning in computer-supported classrooms [50], mobile app usage for digital wellness [51], mobile social network sites usage by consumers [52], accessing social media by consumers [53] and adoption and use of intermodal travel system [54]. We suggest that:

H6. "Performance expectancy has significant positive influence on Intention to live in a smart home."

Effort expectancy (EE): Several researchers have found that the adoption of various technologies, including electronic health records [49], computer-supported learning [50], digital wellness apps [51], consumer use of mobile social networks [52], consumer access to social media [53], and the adoption and use of intermodal travel systems [54], are significantly influenced by EE. Our postulate is that EE has direct effect on "Performance expectancy" and indirect on" Intention to use":

H7. "Effort expectancy has significant positive influence on Performance expectancy."

Social influence (SI): SI has a positive and significant impact on the adoption of technologies including electronic health records [49], computer-supported learning [50], digital wellness apps [51], consumer use of mobile social networks [52], consumer access to social media [53], and the adoption and use of intermodal travel

systems [54], according to various researchers. As a result, we postulate the following hypothesis:

H8. "Social influence has significant positive influence on Intention to live in a smart home."

Price value (PV): PV has a positive and significant impact on the adoption of technologies including electronic health records [49], computer-supported learning [50], digital wellness apps [51], consumer use of mobile social networks [52], consumer access to social media [53], and the adoption and use of intermodal travel systems [54], according to various researchers. We suggest in our model that PV has direct effect on "Social influence" and indirect on" Intention to use":

H9. "Price value has significant positive influence on Social influence."

Hedonic motivation (HM): HM has a positive and significant impact on the adoption of technologies including electronic health records [49], computer-supported learning [50], digital wellness apps [51], consumer use of mobile social networks [52], consumer access to social media [53], and the adoption and use of intermodal travel systems [54], according to various researchers. We hypothesize that:

H10. "Hedonic motivation has significant positive influence on intention to live in a smart home."

Facilitating conditions (FC): According to various researchers, FC has a positive and substantial effect on the adoption of technologies including electronic health records [49], computer-supported learning [50], digital wellness apps [51], consumer use of mobile social networks [52], consumer access to social media [53], and the adoption and use of intermodal travel systems [54]. We hypothesize that:

H11. "Facilitating conditions has significant positive influence on Habit."

Habit (HT): HT has a positive and substantial effect on the adoption of technologies including electronic health records [49], computer-supported learning [50], digital wellness apps [51], consumer use of mobile social networks [52], consumer access to social media [53], and the adoption and use of intermodal travel systems [54], according to various researchers. These earlier findings lead us to believe that:

H12. "Habit has significant positive influence on Intention to live in a smart home."

Personal innovativeness (PI): By tracking the propensity to use new technology and the degree of acceptance of novel ideas or products can be effectively assessed using PI. The "intention to use" of new technological innovations like remote mobile payments and mobile location-based services, has been shown through research to be significantly impacted by PI [55]. Ahn et al. [56] also discovered a direct relationship between "innovativeness" and the "intention to use" a sustainable home, and Schweitzer and Van den Hende [57] hypothesized that "innovativeness" can moderate the intention to adopt smart products. Given that this study examines the level of adoption of smart homes, we suggest the following:

H13. "Personal innovativeness has significant positive influence on Intention to live in a smart home."

The research model in Fig. 19.1 was based on seven external variables from the widely recognized UTAUT2 scale [22], which measures technology acceptance. During the estimation trial, it was discovered that a suppressor effect existed in the model. As a result, we have decided to re-examine our factor structure and found that three of the original UTAUT variables serve as predictors for the other three variables. We also included the "Intention to use" variable from the TAM [58], which is called "Behavioral intention" in UTAUT2. We used a seven-point Likert scale that ranged from "strongly disagree" to "strongly agree." Additionally, we used a scale that was determined through a literature review to quantify each of the five aspects of the smart home concept [24, 25]. Our model was also inspired by the work of Baudier et al. [14], who used the UTAUT2 scale and four external dimensions.

Between March and May, 2022, data was gathered through a questionnaire available on the SurveyMonkey platform, which was sent to potential respondents via email. The sample group for the study consisted of 795 individuals who were representative of households, with 324 men (40.7%) and 471 women (59.3%). While the sample was not representative of the overall population, it was made up of young people aged 16–30 (36.7%), aged 31–40 (42.3%) and the remaining 21% were aged 41 or older. Of the survey participants, 20.8% lived in rural regions, 27.7% lived in cities with a population of 100 thousand or less, 24.2% lived in towns where there

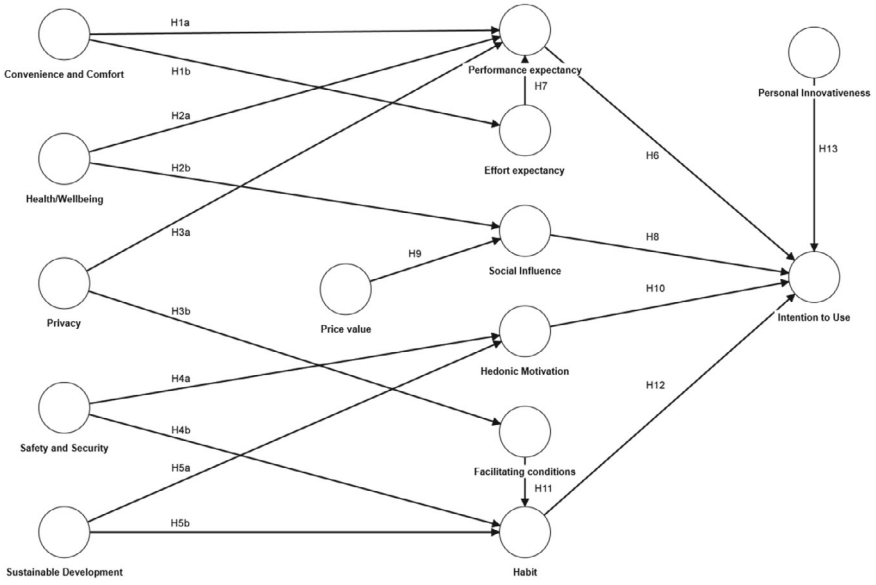

Fig. 19.1 An extended UTAUT2 model for smart home—proposition

were 100 to 200 thousand, and 26.9% inhabited cities with populations of 200 thousand or more. Most respondents reported that their household's financial situation was good (63.2%), with the ability to afford some luxury items. 26.9% reported a sufficient financial situation, requiring careful planning for major expenses, while 9.4% proclaimed to be in very good financial standing. Just 0.5% said that the financial situation in their household was poor. 71.2% of respondents claimed to have very high proficiency with smartphones, while 50% claimed to have the same level of proficiency with tablets, and 61.1% claimed to have the same proficiency with a variety of internet applications. When considering respondents who reported either high or very high skills, the percentage rose to over 90% for all categories except for the tablet, where 76.3% of respondents stated that they were proficient in these areas.

19.3 Results

The software used to create the SEM model was SmartPLS4 v. 4.0.8.7 [59]. The software is based on calculating PLS-SEM algorithms [60]. The default configuration settings were used to calculate the results. When loading is above 0.70, it means that the latent variable being measured explains more than half of the variance in the indicator, which indicates that the indicator is reliable to a satisfactory level [60]. The recorded items HT2 of "Habit" and PR2 of "Privacy" were removed due to low loading.

We received the results for path coefficients listed in Table 19.1. 18 out of 18 tested hypotheses are significant at 5% error level. The value of f^2 for hypothesis H10 is not above the 0.02 criterion, thus hypothesis is significant but there is no effect. Paths for hypotheses H1b and H12 show the highest significance. Our final results are presented in Fig. 19.2.

The initial evaluation of the model variables shows that "habit" has the largest impact (0.470) on "intention to use" (H12), followed by "performance expectancy" (0.223) (H6) and "personal innovativeness" (0.141) (H13). Together with "hedonic motivation" (H10) and "social influence" (H8) these variables explain 76.9% (the R^2 value) of the variance of "intention to use".

Table 19.1 Results of the significance tests and the structural model's path coefficient

Hypothesis	Path	Path coefficient	T statistics	f^2 effect size	Significant ($p < 0.05$)?
H1a	CC - > PE	0.212	4.487	0.044	Yes
H1b	CC- > EE	0.506	13.836	0.345	Yes
H2a	HW- > PE	0.296	6.142	0.093	Yes
H2b	HW - > SI	0.263	6.825	0.076	Yes
H3a	PR - > PE	0.111	3.181	0.023	Yes
H3b	PR - > FC	0.189	3.892	0.037	Yes
H4a	SS - > HM	0.332	7.164	0.116	Yes
H4b	SS - > HT	0.277	6.702	0.089	Yes
H5a	SD- > HM	0.363	8.092	0.139	Yes
H5b	SD - > HT	0.270	6.741	0.084	Yes
H6	PE - > ITU	0.223	6.890	0.090	Yes
H7	EE - > PE	0.304	6.556	0.136	Yes
H8	SI - > ITU	0.109	4.930	0.038	Yes
H9	PV - > SI	0.308	7.345	0.104	Yes
H10	HM - > ITU	0.101	2.779	0.018	Yes
H11	FC - > HT	0.311	8.364	0.149	Yes
H12	HT - > ITU	0.480	13.307	0.391	Yes
H13	PI - > ITU	0.141	4.494	0.049	Yes

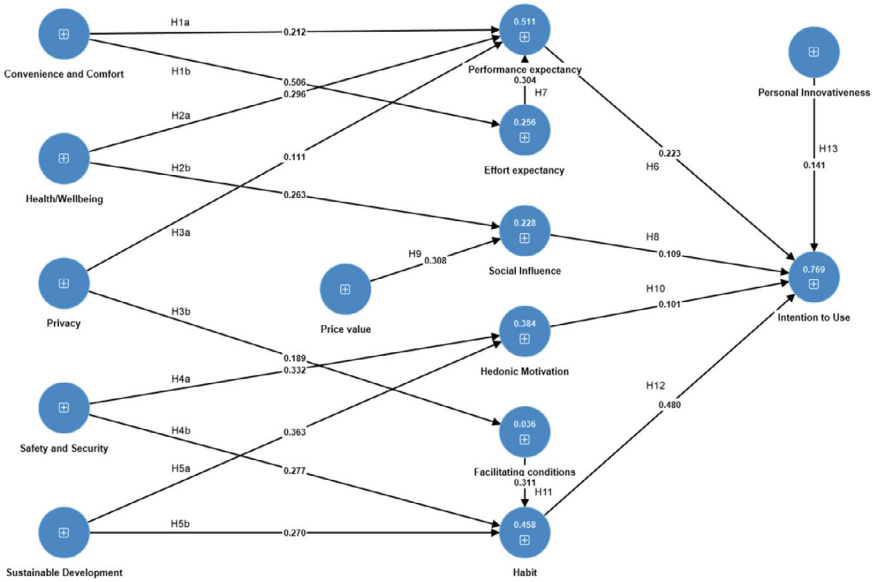

Fig. 19.2 An extended UTAUT2 model for smart home—final results

19.4 Discussion

The UTAUT 2 model was used by Gansser and Reich [16] to investigate the factors influencing the "intention to use" products containing artificial intelligence (AI). The focus was on the study of the intention to use it in three segments: "mobility, household, and health". The authors have extended this basic model to include "health, convenience, comfort, sustainability, safety, security, and personal innovativeness". Their research shows that all added variables, with the exception of safety in the healthcare segment, and price value in all segments affect the intention to use products containing artificial intelligence. Our research confirmed the significance of price value.

Gultom and Asvial [17] for UTAUT2 added three additional variables that may influence the adoption of smart home service technology: risk, trust, just like Gansser and Reich [16], and the attractiveness of alternatives. In their research, the hypotheses regarding price value and facilitating conditions were not confirmed. What is surprising, they did not confirm two more variables as "social influence" and "habit". Our research confirmed that "social influence" and "habit" have significant impact on "intention to use".

An extended UTAUT2 model with risk variables, i.e., security and privacy and trust in technology, to determine the level of consumer acceptance of the Internet of Things in the context of a smart home, was proposed by Aldossari and Sidorova [15]. Their results show that trust and security risks play a significant role in the acceptance of the smart home, just as "security and safety" play a role in our research. With regard to the main variables of the model, both in our research and in their research: "performance expectancy", "social impact", "hedonic motivation", "effort expectancy" and "price value" are indicated as significant in their research, and hypotheses in our research indicating their importance for the use of a smart home have been confirmed. On the other hand, we have significant relationship for "facilitating conditions", whereas it is not confirmed.

The model of Venkatesh et al. [22] also became a reference point for Iqbal and Idrees [18], who conducted research on the Pakistani market. Their study "aims to understand the reasons for IoT adoption for home automation while expanding the ambit of new technology (IoT) by incorporating novel variables of IOTA (cryptocurrency) concatenation with IoT & challenges to understand the reasons behind IoT adoption deeply". Concerning the additional variables, they introduced two hypotheses that were supported. The study revealed that only "performance expectancy" and "facilitating conditions" have significant influence on "intention to use" home automation. Our study is similar here. On the other hand, "price value", "effort expectancy", "hedonic motivation" and "social influence" included in the UTAUT2 model were not confirmed by Iqbal and Idress [18]. Our study differs since we support significant impact of "price value", "effort expectancy", "hedonic motivation", and "social influence".

Our research can complement that of Große-Kreul [19] who examines the variables that affect consumers' intent to adopt smart energy technologies. The study also explores whether the rapidly growing smart home market will encourage the adoption of smart energy technologies and whether consumer-driven diffusion will result in the realization of sustainability potentials. His study suggests "that adjustable green defaults should be introduced, and that a growing smart home market will not increase smart energy technologies adoption". Große-Kreul [19] had two models for smart meters and smart thermostats. His results show that "the intention to adopt the smart thermostat is significantly and positively influenced by performance expectancy and social influence, whereas effort expectancy and hedonic motivation are not significant". We present similar results, except hedonic motivation, which was significantly confirmed by us. However for the use of smart meters, only "hedonic motivation" was significant in his study, same as ours, but "performance expectancy", "effort expectancy" and "social influence" were not confirmed by Große-Kreul [19].

Ferreira et al. [61] in their article observe that "environmental sustainability is gaining importance in various fields including homes and that smart home technologies are increasingly contributing to more efficient energy consumption, but their adoption rate is lower than expected". They propose "a theoretical model based on the UTAUT2 to explore the effects of environmental awareness on individual intentions and behavior toward smart home". Unfortunately, they did not provide detailed results for testing UTAUT2 hypotheses, only for moderating effects of environmental awareness on core UTAUT2 variables.

Sequeiros et al. [20] focused on "smart home services, which are a new generation of consumer services supported by IoT technology". They mention that "IoT technology delivers security, comfort, entertainment, assisted living, and efficient management of the home to improve the quality of life of consumers". Authors used original UTAUT2 model to test smart home adoption. They have a significant impact on "price value", "facilitating condition", "hedonic motivations" and "habit" on "intention to use". Our study confirms the same. On the other hand, they do not support "performance expectancy" and "social influence" on "intention to use", when our study confirms both variables have significant impact.

The presented research results fit within the research review conducted by Hussin et al. [62] who emphasize IoT technology is developing and has many advantages for both the environment and human life. IoT technology is therefore widely used in smart homes. Despite predictions of rising demand for IoT smart homes in the years to come, there is currently very little acceptance of these smart homes.

Another unique complement to the presented results is the meta-analysis done by Nascimento et al. [63]. They emphasize increasing affordability of smart home technologies and the lack of understanding of the factors that drive their continued use, and the impact that the adoption of smart appliances and services in the domestic setting has on users. We describe the use of advanced technologies in smart homes, but Nascimento et al. [63] reveal a lack of knowledge of the elements influencing user acceptance.

Finally, we would like to discuss our results in view of Baudier et al. [14] work. We tried to advance their model by testing it on different samples, adding one external variable "privacy" to the model, and re-examining the model structure due to the suppressor effect. Baudier et al. [14] supported "security and safety", "health/wellbeing" and "convenience and comfort" as having significant impacts on "performance expectancy" and "habit". We confirmed the same results, but we were also able to support the hypothesis about significance of sustainable development. Perhaps our sample is more aware of long-term development and sustainability since the sample is more diverse in age. Baudier et al. [14] in the core UTAUT2 model confirmed only "performance expectancy" and "habit" as having significant impact on "intention to use". We also confirmed the same results, but we were also able to support the hypothesis about the significance of "social influence" and "hedonic motivation" in the core model. We also confirmed impact of personal innovativeness as being significant, whereas Baudier et al. [14] did not confirm this. The possible difference in the results may come from different samples. Their sample consisted of 89% females, whereas ours was 59%. We not only have students in our sample but people of different ages. We have also used a seven-point Likert scale, when they had five-point scale. The main distinction between a five-point and a seven-point Likert scale is the level of granularity or detail provided by the response options. A seven-point scale can be more precise as it gives more detailed information about the strength of agreement or disagreement than a five-point scale. Due to these differences, we were able to receive better results for our model. Our model explains 76.9% of the variance of "intention to use" smart home, and 51.1% of "performance expectancy" variance and 45.8% of "habit" variance. Baudier et al. [14] had 61.4%, 39.5%, and 37.1%, respectively.

This study presents a novel approach to understanding the adoption of smart home technology by incorporating five external variables into the UTAUT2 model. These variables, convenience and comfort, health and wellbeing, security and safety, sustainability, and privacy, provide a more comprehensive understanding of the factors that influence individuals' decision to adopt smart home technology. The inclusion of these variables is unique in comparison to previous studies which have primarily focused on other theories and variables such as trust, risk, and trialability among others. This study also includes a sample group that is representative of households, different age groups, and levels of urbanization.

19.5 Conclusion

The findings of this study support the extension of UTAUT2 model in understanding the indicators influencing the "intention to use" smart home devices. This study aimed to extend the UTAUT2 model by integrating external variables that may impact the adoption of smart home concept. This study found that all external variables to the original UTAUT2 model have a positively significant effect on core UTAUT2 variables. The results also indicate that "habit" has the strongest effect on "intention to use", followed by "performance expectancy" and "personal innovativeness". Together with "hedonic motivation" and "social influence", these variables explain 76.9% of the variance of "intention to use". This research confirms the findings of previous studies which have also found that factors such as "performance expectancy", "social influence", and "hedonic motivation" are significant predictors of use and acceptance of a smart home.

Limitations include combining multiple concepts into one area and the non-representative sample from only one country, potentially restricting generalizability (e.g., 63.2% reported good financial situation). The study also relied on self-reported data, which is vulnerable to biases such as recall and social desirability bias. Future research could investigate smart home technology adoption and use among different populations, as well as explore the role of variables like price value, effort expectancy, facilitating conditions, and privacy. Further studies could also examine the effects of smart home technology on wellbeing and how adoption factors may change as technology evolves.

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