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The Perception of Smart Home Technology: A Determinant of the Transition Toward the Smart City in Casablanca

La perception des technologies de la maison intelligente : un déterminant de la transition vers la ville intelligente à Casablanca

Hiba RAISSI[1], Driss EL ZANATI[2]

[1] PHD candidate in Management Sciences, Faculty of Legal, Economic and Social Sciences–Agdal, *University Mohamed V Rabat, Morocco*, hiba_raissi@um5.ac.ma
[2] Professor, Faculty of Legal, Economic and Social Sciences–Agdal, *University Mohamed V Rabat, Morocco*, elzanatidriss@gmail.com

ABSTRACT. Over the past three decades, humanity has achieved considerable progress in terms of technological innovations. This transformation has reshaped the urban landscape, offering territorial decision-makers variety of tools to design new public policies and innovative strategies and benefit from these new solutions.
Emerging from the opportunities created by the use of Information and Communication Technologies, the concept of the "Smart City" appeared in the early 21st century, with the primary objective of ensuring the sustainable and efficient management of resources while improving the quality of urban life.
To achieve these goals, the concept relies on six essential pillars: smart governance, smart citizens, smart mobility, smart economy, smart environment, and smart living. This paper indeed, focuses on smart living, particularly the Smart Home, and explores how new technologies are perceived by the residents of Casablanca, given that the city has been engaged since 2015 in its *smartization* project known as *Casablanca Smart City*.
The main objective of this study is to examine the perception of home automation, adopting a mixed-method approach based on the exploratory sequential design and taking into account the personal, social, and environmental challenges that influence the way individuals perceive these complex systems.
RÉSUMÉ. Durant ces dernières décennies, l’humanité a fait des pas énormes à ce qui a trait à l’innovation et aux progrès technologiques, dont le but ultime est l’amélioration de la qualité de vie de l’être humain. Cette mutation a profondément redessiné le paysage urbain, mettant à la disposition des décideurs territoriaux un éventail d'outils permettant de concevoir de nouvelles politiques publiques et des stratégies novatrices, tout en tirant parti de ces nouvelles solutions.
Émergeant des opportunités offertes par le recours aux technologies de l'information et de la communication, le concept de « ville intelligente » a vu le jour au début du XXIe siècle, avec pour ambition première d'assurer une gestion durable et efficiente des ressources, tout en améliorant la qualité de vie en milieu urbain.
Pour atteindre ces objectifs, ce concept s'appuie sur six piliers fondamentaux : la gouvernance intelligente, les citoyens intelligents, la mobilité intelligente, l'économie intelligente, l'environnement intelligent et l'habitat intelligent. Le présent article s'intéresse précisément à ce dernier pilier — l'habitat intelligent, et plus particulièrement la maison intelligente — en examinant la manière dont les nouvelles technologies sont perçues par les habitants de Casablanca, ville engagée depuis 2015 dans un projet de *smartisation* connu sous le nom de *Casablanca Smart City* .
Cette étude a pour objectif principal d'examiner la perception de la domotique, à travers une approche mixte fondée sur un dispositif exploratoire, en tenant compte des enjeux personnels, sociaux et environnementaux qui influencent la façon dont les individus perçoivent ces systèmes complexes.
KEYWORDS. Smart Home, Perception, Smart City, Casablanca Smart City.
MOTS-CLÉS. Maison intelligente, perception, ville intelligente, Casablanca Smart City.

1. Introduction

At the crossroads of global digitization and growing ecological awareness, the smart home stands as one of the innovations that contributes to this objective. Considered as the technological fusion between housing and computing, the smart home can be defined as a dwelling whose various components (heating, lighting, security, etc.) can be controlled via applications. It is a home that relies primarily on connected devices and home automation systems.

In addition, a smart home is a residence equipped with ambient intelligence technology that anticipates and responds to the needs of its occupants, optimally managing their comfort and safety through actions upon the home and by establishing connections with the outside world [ALD 03]. Its purpose is to provide features related to comfort, security, and energy efficiency. Its rapid expansion has been driven by major advancements in artificial intelligence, the Internet of Things, and task automation. Indeed, the smart home system has been reaching new markets recently due to increased digital resource availability [GUH 20] or the improvement in resident comfort and quality of life [LIU 21].

However, beyond technical its functionalities, the success of implementing such systems and its full use tends to present high complexity [FET 20],[FUR 20]. The literature mentions various factors impacting the acceptance of smart home technology [GUH 20], [DON 17], [GUM 21], [GUM 22], [MAR 19]. Just as for other products, for the smart home market to fully develop, it is relevant to understand the interplay between humans and technology [CAM 21], [ECH 17], [FET 17], [PEN 20]. This raises relevant questions concerning perceptions and expectations toward these automated domestic environments.

In this context, this study aims to deeply explore the perception of smart home technology, considering the personal, social and environmental factors that shape how individuals view these complex systems. Through an analysis of existing research and emerging trends, we seek to sort out the determinants that influence how home automation is perceived by residents of Casablanca, addressing the following central research question: How can households in the city of Casablanca be encouraged to adopt smart technology?

To model the relationships among these various factors, we first conducted an exploratory factor analysis to construct a conceptual model and propose the hypotheses. These hypotheses were verified through confirmatory factor analysis, and the relationships between variables were measured using a multiple linear regression model.

2. Factors affecting the perception of smart home technology

Smart homes are generally understood through three perspectives: functional, instrumental, and sociotechnical [WIL 15]. The functional perspective focuses on simplifying and automating everyday household tasks. The instrumental perspective emphasizes practical capabilities such as managing energy consumption and ensuring security. Finally, the sociotechnical perspective aims at integrating digital technology into daily life, laying the groundwork for a new era of interaction between humans and built environments [ALA 16].

Before analyzing the adoption of smart home systems, it is essential to understand the different factors that shape how individuals perceive and evaluate these technologies. These factors can be categorized into personal, social, and environmental dimensions.

2.1. *Personal Factors*

At the individual level, perceptions of home automation are influenced by personal expectations, emotional comfort, and the relationship between humans and technology in everyday life.

2.1.1. *Enhancement of comfort and well-being*

One of the first benefits highlighted when discussing smart home technology is the notion of well-being. Individuals are increasingly seeking home automation for a simple reason: to feel better in their own homes [DUS 05]. It is often assumed that smart home systems generate « an expert comfort that combines both the anticipatory or memory capabilities of any expert system and the possibilities of immediate feedback of a self-regulated system » [AMP 89].

However, the notion of comfort is not perceived in the same way by all authors. According to [AMP 89] « comfort cannot be reduced to the management of equipment ». [DUS 05] emphasize that well-being depends on each individual and is sometimes completely independent of technical comfort.

Consequently, discourse regarding "domotic comfort" is not limited to the production or regulation of heat, cold, and lighting [AMP 90]. Its argumentation has diversified by presenting applications affecting three different types of comfort:

– Material comfort, which ensures novel amenities capable of programming and automating the remote control of traditional household functions (lighting, doors, windows, irrigation). It also enables absolute mobility of all household objects thanks to their interconnection on a single network.

– Psychological comfort, which refers to activities situated between play and entertainment and revolves around the possibilities introduced by immersive technologies.

– Intellectual comfort, situated between learning and information, relying on access to various types of data banks and the interactive possibilities provided by *tele-services*.

The ambiguous notion of comfort may constitute one of the major arguments for home automation. It encompasses multiple meanings, and by leveraging the diversity of these connotations, the industry seeks to attract its clientele.

2.1.2. *Time saving*

Another widely cited advantage is the ability of smart systems to simplify daily tasks and reduce time spent on domestic management. A frequently encountered argument in literature or online sources regarding smart home technology is time savings. According to [AMP 89], « the ideology of technological progress presumes that it is measured by its ability to save time. Through the effects of ubiquity and immediacy produced by new means of communication - and which domotic interactivity will generate - such an ideology remains largely dominant in the social imaginary and serves as a common promotional argument for the sale of many technological devices ».

2.1.3. *Dependence on machines and freedom*

Many authors agree that while new technologies may provide more well-being and freedom, this freedom may amount to a kind of alienation, as we transfer our capabilities to machines. The issue here is central, and many debates have addressed it. Indeed, humans may become mere extensions of machines, experience a strong sense of dispossession and enter a dependency relationship with digital technologies. In short, we lose control over them and with it, our freedom.

However, opponents of this view argue that technology exists thanks to human agency, the homo faber who extracts from his environment and creates. Modernity would represent a movement toward liberation from natural constraints, where humans retain power [DUS 05]. [RIG 01] highlights that humans delegate to computerized systems decisions and actions that relieve them in their daily lives.

2.1.4. *Reinforcement of control and security*

Certainly, technological progress has enabled significant savings in time and energy, but we are increasingly monitored and manipulated. According to [AMP 89], « surveillance traditionally implied control exercised by a recognized and easily locatable authority, whereas the development of technological networks potentially opens the door to its reappropriation by hidden and non-localizable powers ». Some technical devices may serve as tools of indirect control. Thus, according to these authors, home automation might facilitate the return of direct control, given its potential for collecting data regarding the intensity and nature of consumption flows.

Beyond providing optimal comfort, smart home technology offers real benefits in terms of safety. With systems such as voice-recognition door locks, motion sensors, cameras, intrusion-alert notifications, remote home monitoring, etc., users can keep an eye on their home both inside and through effective alarm and video surveillance systems controllable through a smartphone or tablet.

This total connectivity allows homeowners to customize and manage their safety remotely. For example, electric shutters or gates can be programmed to close automatically at a given time, reducing risks of oversight or burglary.

2.2. *Social Factors*

No one can deny that the ultimate goal of new technologies is to bring individuals closer together and facilitate communication and social connections through their democratization of access and communication channels. Moreover, quality of life is expected to improve, as people will be able to manage their social relationships more effectively.

According to [BER 02], « the individual would be able to weave his or her social universe according to personal preferences, optimize social contacts, and choose the moments to engage with the community ». However, a *vulnerable* person might become trapped within their home, risking a loss of physical social interaction. Moreover, even family members sharing the same household may remain isolated from one another if, for instance, each individual engages separately with his/her own screen (multiple TVs, computers, etc.).

2.3. *Environmental Factors*

Smart home solutions enable more effective energy management, leading to substantial energy savings. Electricity consumption can be reduced especially in heating and cooling systems, lighting, and operation of appliances (computers, televisions, home appliances, Internet routers…).

With smart heating systems, temperature can be programmed according to occupancy and time of day, preventing energy waste and enabling more efficient use of natural heat sources (e.g., in summer, blinds may automatically lower to maintain indoor coolness).

Home automation also provides total control over the use of electrical devices, enabling significant energy savings. For instance, lighting accounts for 19% of global electricity consumption and about 6% of greenhouse gas emissions [SYN 23]. Improved control over lighting systems allows for meaningful reduction in electrical usage.

Electrical appliances on standby also consume energy, contrary to common myth. According to the French Environment and Energy Management Agency (ADEME), standby mode consumes between 300 and 500 kWh per year, amounting to around 11% of a household’s electricity bill (excluding heating) in France [EKW 23]. Smart home technology proves to be an optimal solution for reducing electrical consumption and achieving energy savings that lower household expenses.

3. Methods

This study adopts a methodological approach designed to rigorously investigate the research hypotheses and ensure the reliability and consistency of the data collected. The following explains the steps taken to gather, process, and analyze the data.

3.1. *Exploratory Qualitative Study*

This study was conducted to complement the list of variables previously identified through the literature review. We chose to carry out semi-structured individual interviews with professionals operating in various sectors involved in the “Casablanca Smart City” project, in order to obtain a global perspective, collect as much information as possible, and clearly understand the subject.

A total of nine interviews were conducted and each interview lasted on average between 20 and 45 minutes. The interviews were subsequently transcribed and subjected to thematic analysis.

Interviews	Name	Current Position	Gender
Interview 1	Salma E	Account excutive	F
Interview 2	Youness H	Industrial Engineer	M
Interview 3	Marwa R	Marketing manager	F
Interview 4	Hajar C	Customer Service Officer	F
Interview 5	Hanane C	Product Manager	F
Interview 6	Salma M	Nurse	F
Interview 7	Boubker D	Entrepreneur	M
Interview 8	Amine M	Senior Auditor	M
Interview 9	Mohamed S	Risk and Credit Analyst	M

Table 1. *List of interviewees*

We observed that among the nine participants, only one person did not wish to switch to a smart home, noting that all nine belonged to the same age group (between 25 and 35 years). However, the others appeared somewhat cautious towards new domestic technologies, while not rejecting the idea of change.

The thematic analysis generated a series of items that may influence the perception of the smart home, which are as follows: Socio-professional Category; Infrastructure; Time Saving; Energy Saving; Well-being; Sociability; Dependence; Freedom; Personality; Security; Cost; Health; Age.

3.2. *Research Hypotheses and Conceptual Model*

In light of the results of the qualitative analysis and the literature review, we formulated the following hypotheses, which will be tested through the quantitative study:

– Hypothesis 1: There is a direct and positive relationship between Behavioral Aspects and the perception of smart home.

– Hypothesis 2: There is a direct and positive relationship between Perceived Security and the perception of smart home.

– Hypothesis 3: There is a direct and positive relationship between Usage and the perception of smart home.

– Hypothesis 4: There is a direct and positive relationship between Perceived Control and the perception of smart home.

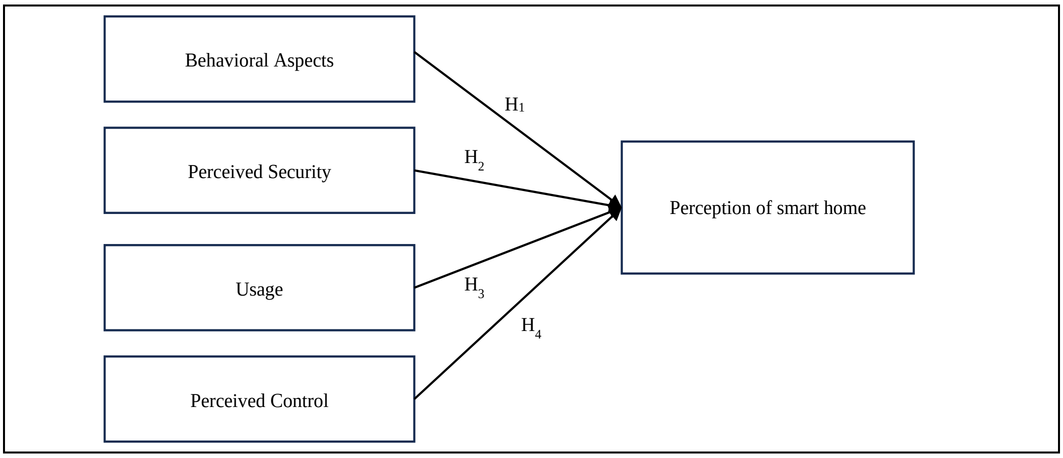

Figure 1. *Conceptual Model*

Our methodological choice is grounded in Churchill's (1979) paradigm. We followed three main steps for the adaptation of our measurement scale: the definition of the construct, the exploratory phase, and the confirmatory phase. Each of these steps involves a set of procedures that we adapted to the objectives of our research.

3.3. *Sampling and Data Collection*

Our study focuses on the factors influencing the perception of home automation among Casablanca residents. Regarding the sample size, (the population is estimated at 3.19 million) we opted for a non-probabilistic approach, specifically convenience sampling combined with voluntary participation. This approach ensures the reliability, honesty, and objectivity of the respondents' perspectives, as they participated willingly in the survey.

A total of 233 responses were collected.

The survey was developed in electronic format in French and shared across various social media platforms. It is composed of four sections:

– The first section helps participants familiarize with the concept and differentiates who have prior experience and knowledge about home automation;

– The second section focuses on the intention to install connected or smart devices;

– The third section addresses behavioral aspects;

– The final section assesses the participants' sociodemographic profile.

The types of questions used include:

– Multiple-choice questions;

– Attitude scales:

Totally disagree 1 2 3 4 5 Strongly agree

not important 1 2 3 4 5 Very important

3.4. *Factor Analysis and Scale Validation*

To ensure the construct validity:

– Data is considered factorable if the KMO measure ranges between 0.3 and 0.7;

– An item is deemed to explain sufficient variance when its communality exceeds 0.5;

– For unidimensional factor analysis, the cumulative variance explained by the factors of a construct is considered sufficient when it exceeds 50%;

– An item is considered strongly correlated with a component when its factor loading exceeds 0.7; items moderately correlated with multiple components and not strongly correlated with any single component are removed (Discriminant Validity).

Regarding reliability: A construct is considered reliable when Cronbach's Alpha exceeds 0.6.

3.5. *Data analysis methods*

To ensure the validity of the proposed hypotheses, we opted for a multiple linear regression model, which allows for a quantifiable assessment of the impact of several independent variables on a dependent variable.

To apply this method, we calculated the mean of each construct in order to include them in the analysis. This resulted in the following explanatory variables: Behavioral_Aspects, Perceived_Security, Usage, and Perceived_Control, which were tested against the dependent variable: Perception_Smart_Home.

All statistical analyses, including descriptive statistics and regression tests, were performed using SPSS software.

4. Results and discussion

The study's findings highlight the factors influencing the perception of smart home technologies. Statistical results, including reliability, validity, and regression analyses, are interpreted in light of existing literature.

4.1. *Sample Characteristics*

The following tables presents the sociodemographic profile of the participants and provides an overview of the sample characteristics.

Age Group	Frequency	Percentage
Under 18	13	6.50%
18–25	189	94.50%
26–39	28	14.00%
40–59	3	1.00%

Table 2. *Age groups*

Category	Frequency	Percentage
Employee	49	24.50%
Teacher	1	0.50%
Student	169	84.00%
Self-employed	3	1.50%
Unemployed	11	5.50%

Table 3. *occupation category*

4.2. *Reliability and Validity Tests Result*

Construct		Behavioral Aspects	Perceived Security	Usage	Perceived Control
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy		0.696	0.735	0.665	0.632
Bartlett's Test of Sphericity	Approx. Chi-Square	251.155	329.880	323.210	184.951
	df	3	3	3	3
	Significance	0.000	0.000	0.000	0.000

Table 4. *KMO index and Bartlett's test*

The KMO indices (0.696; 0.735; 0.665; 0.632) between 0.3 and 0.7, indicating that the data are factorable and supporting the results of this factor analysis.

Construct	Item	Initial	Extraction
Behavioral Aspects	Based on the description of a smart home: [Do you imagine using smart home tools in your daily life at home?]	1.000	0.794
	[Do you imagine using all these features daily?]	1.000	0.738
	[Do you imagine changing your usual habits or behaviors to use all the smart home features efficiently?]	1.000	0.667
Perceived Security	[The smart home has adequate security features.]	1.000	0.765
	[I feel secure using smart home tools.]	1.000	0.808
	[I would feel my privacy is protected in my smart home.]	1.000	0.788
Usage	[Using smart home features this way will allow me to make many decisions independently.]	1.000	0.623
	[Using new technologies will help me better understand what is happening in my living space.]	1.000	0.848
	[I would have more control over the functioning of my home.]	1.000	0.797
Perceived Control	[Regarding smart home technologies, I would feel: powerless]	1.000	0.622
	[helpless]	1.000	0.787
	[aggressive]	1.000	0.606

Table 5. *Representation Quality (Communalities)*

All items have communalities above 0.5, and are therefore retained for the subsequent factor analysis.

Construct	Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
		Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Behavioral Aspects	1	2.198	73.266	73.266	2.198	73.266	73.266
	2	0.491	16.354	89.619			
	3	0.311	10.381	100.000			
Perceived Security	1	2.361	78.702	78.702	2.361	78.702	78.702
	2	0.352	11.720	90.422			
	3	0.287	9.578	100.000			
Usage	1	2.268	75.595	75.595	2.268	75.595	75.595
	2	0.526	17.549	93.145			
	3	0.206	6.855	100.000			
Perceived Control	1	2.015	67.161	67.161	2.015	67.161	67.161
	2	0.636	21.183	88.344			
	3	0.350	11.656	100.000			

Table 6. *Total Variance Explained*

The results indicate that the extracted factors explain more than 50% of the variance (73.266%; 78.702%; 75.595%; 67.161%).

Construct	Item	Component 1
Behavioral Aspects	[Do you imagine using smart home tools in your daily life?]	0.891
	[Do you imagine using all these features daily?]	0.859
	[Do you imagine changing your usual habits or behaviors to use all features efficiently?]	0.817
Perceived Security	[The smart home has adequate security features.]	0.875
	[I feel secure using smart home tools.]	0.899
	[I would feel my privacy is protected in my smart home.]	0.888
Usage	[Using smart home features will allow me to make many decisions independently.]	0.789
	[Using new technologies will help me better understand my living space.]	0.921
	[I would have more control over the functioning of my home.]	0.893
Perceived Control	[Regarding smart home technologies. I would feel: powerless]	0.789
	[helpless]	0.887
	[aggressive]	0.779
Extraction method: Principal Component Analysis.		

Table 7. *Component Matrix*[a]

[a]: *One component extracted.*

The component matrix shows that all items have factor loadings ≥ 0.7 and are strongly correlated with a single component.

According to the results of this analysis. all constructs (Behavioral Aspects. Perceived Security. Usage. Perceived Control) are valid.

Construct	Cronbach's Alpha	Number of Items
Behavioral Aspects	0.816	3
Perceived Security	0.863	3
Usage	0.837	3
Perceived Control	0.750	3

Table 8. *Reliability Statistics*

Cronbach's alpha for all constructs exceeds 0.6, indicating acceptable reliability.

Based on these results, all constructs (Behavioral Aspects, Perceived Security, Usage, Perceived Control) are considered reliable.

4.3. *Hypothesis Testing*

4.3.1. *Constructs and Retained Items*

Independent Variables :

Behavioral Aspects (5-point Likert scale)

– Based on the description of a smart home, do you imagine using all these features daily?

– After reading the description, do you imagine changing your usual habits or behaviors to use all the smart home features efficiently?

– Based on the description, do you imagine using smart home tools in your daily life at home?

Perceived Security (5-point Likert scale)

– I would feel that my privacy is protected in my smart home.

– I feel secure using connected tools.

– The smart home has adequate security features.

Usage (5-point Likert scale)

– Using smart home features this way will allow me to make many decisions independently.

– I would have significant input on what happens in my living space.

– I would have more control over the functioning of my home.

Perceived Control (5-point Likert scale)

– Regarding smart home technologies, I would feel: (Powerless; Helpless; Aggressive)

Dependent Variable: Perception of Smart Home

– How would you rate this experience overall? (5-point Likert scale)

4.3.2. *Descriptive Statistics and Correlation Analysis*

Variable	Mean	Standard Deviation	N
Perception of Smart Home	3.6250	1.09516	80
Behavioral Aspects	3.2708	1.14011	80
Perceived Security	3.4000	1.09519	80
Usage	3.5667	1.10414	80
Perceived Control	2.5042	0.81992	80

Table 9. *Descriptive Statistics*

		Smart Home Perception	Behavioral Aspects	Perceived Security	Usage	Perceived Control
Pearson Correlation	Smart Home Perception	1.000	0.403	0.405	0.562	0.147
	Behavioral Aspects	0.403	1.000	0.761	0.675	0.287
	Perceived Security	0.405	0.761	1.000	0.702	0.238
	Usage	0.562	0.675	0.702	1.000	0.261
	Perceived Control	0.147	0.287	0.238	0.261	1.000
Significance	Smart Home Perception	—	0.000	0.000	0.000	0.096
	Behavioral Aspects	0.000	—	0.000	0.000	0.005
	Perceived Security	0.000	0.000	—	0.000	0.017
	Usage	0.000	0.000	0.000	—	0.010
	Perceived Control	0.096	0.005	0.017	0.010	—

Table 10. *Correlations (Pearson)*

All Pearson correlation coefficients are moderate and do not approach ±0.9, indicating no risk of multicollinearity among the explanatory variables. Therefore, the variables measure distinct aspects.

4.3.3. *Regression Analysis*

Using the "Enter" method in SPSS, all independent variables were included in the regression model.

Model	R	R^2	Adjusted R^2	Std. Error of Estimate	ΔR^2	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	0.563	0.317	0.280	0.92910	0.317	8.691	4	75	0.000	1.804

Table 11. *Model Summary*

The multiple correlation coefficient (R = 0.563) indicates a moderate relationship between the dependent variable (perception of smart home) and the predictors.

The Durbin-Watson statistic (1.804) is close to the ideal value of 2, suggesting independence of residuals.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30.008	4	7.502	8.691	0.000
	Residual	64.742	75	0.863		
	Total	94.750	79			

Table 12. *Analysis of Variance (ANOVA)*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.619	0.229	-	7.076	0.000
	Behavioral Aspects	0.047	0.030	0.096	1.567	0.121
	Usage	0.531	0.104	0.426	5.106	0.000
	Perceived Control	0.006	0.036	0.014	0.167	0.868
	Perceived Security	-0.007	0.041	-0.015	-0.170	0.866

Table 13. *Coefficients*[a]

[a]: *Dependent Variable: Perception_Smart_Home.*

The ANOVA significance is 0.000, which is below the alpha threshold of 0.05, indicating that the model is statistically significant.

The results suggest that Behavioral Aspects, Usage, Perceived Control, and Perceived Security directly influence residents' perception of smart home technologies. The regression model can be expressed as follows:

Perception of Smart Home = 1.619 + 0.047Behavioral Aspects +0.531Usage + 0.006Perceived Control −0.007Perceived Security

Behavioral Aspects and Usage have the strongest positive influence, while Perceived Control has a minor positive effect, and Perceived Security shows a negligible negative effect on perception.

Following the results of the quantitative study, we draw the following conclusions:

– Hypothesis 1 is confirmed: There exists a direct and positive relationship between Behavioral Aspects and the perception of smart home technology;

– Hypothesis 2 is rejected: There exists a direct and negative relationship between Perceived Security and the perception of smart home technology;

– Hypothesis 3 is confirmed: There exists a direct and positive relationship between Usage and the perception of smart home technology;

– Hypothesis 4 is confirmed: There exists a direct and positive relationship between Perceived Control and the perception of smart home technology.

5. Conclusion

Currently, the city of Casablanca, in partnership with various organizations, is attempting through different initiatives to make the city increasingly intelligent and connected. This technological transformation undoubtedly requires strong infrastructure and substantial investment, but above all, the engagement and adherence of citizens.

The results of this study have enabled us to gain a clearer understanding of the smart home concept. We developed a conceptual model that tests the impact of various factors (independent variables) on the perception of smart homes by the citizens of Casablanca (dependent variables). The established findings confirm the influence of these factors on smart home perception and make it possible to answer the overarching research question: “Which factors influence the perception of smart homes among the citizens of Casablanca?” It is now appropriate to synthesize the contributions as well as the limitations and perspectives of this research.

Regarding the theoretical contributions of our research, it contributes to the enrichment of the existing literature, given the scarcity of studies on this topic. And for the managerial contributions, the findings of this research may be used both by companies, real estate developers, or investors interested in smart home technologies, as well as by those responsible for the Smart City project in Casablanca, with the objective of focusing and investing more in the most essential and impactful factors.

The main nature of barriers encountered in this study is methodological and conceptual. Starting with the methodological limitations which are related to the quantitative survey: the nature of the sample is not representative, a large portion of participants consists of students. We were not able to capture the full diversity of Casablanca’s Internet users. Additionally, respondents may have tended to present themselves in a good way, aligning with responses viewed as socially correct. The conceptual limitation is related to the scope of our model: we restricted our analysis to a limited number of variables. Just as importantly, another limitation is inherent in measuring the dependent variable itself, since we investigated individual perceptions rather than actual behaviors.

The limitations presented allow us to propose future research avenues. It would be interesting to integrate variables related to the degree of technological tool usage. The inclusion of such a component may influence the relationship between the other factors and smart home perception. It would also be interesting to test the model in different contextual settings for instance, according to geographic districts or with other categories of technological products.

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