MODELLING CONSUMER'S INTENTION TO USE IOT DEVICES: ROLE OF TECHNOPHILIA*

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APPROVAL

This thesis titled on "**Modelling consumer's intention to use IoT devices: Role of Technophilia**", submitted by **Md. Abu Hosen Shawon**, **ID: 161-35-1420** to the Department of Software Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science in Software Engineering and approval as to its style and contents.

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ABSTRACT

Despite the potential benefits of Internet-of-Things (IoT) devices, Bangladesh is still behind in terms of using full potential of IoT systems compare to others technological devices like laptop or smartphone. Therefore, this study aims to explore the factors that influence users' intention to use IoT systems. Our proposed model is tested in a field survey among 352 respondents. The results indicated significant relationships between generic view of technology and IoT skills with Technophilia. Further, our result also showed significant positive impact of Technophilia on Intention to use IoT devices. That is if people have fascination for new technologies then they are willing to use IoT. The findings of this study suggest theoretical and practical implications for not only academics but also practitioners like IoT system manufactures and stakeholders from the telecommunication sector and engineering sectors.

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Keywords: IoT, IoT adoption, IoT in Bangladesh, Technophilia.

CHAPTER 1

INTRODUCTION

CHAPTER 1

INTRODUCTION

1.1 Introduction

To use in intelligent system as a collection and process of big data Internet of Things (IoT) plays a vital. IoT creates added value by using an automated system than the previous smart devices. In the era of IR4.0, IoT is an essential part where Bangladesh, a country located in south Asia is still behind. Therefore, the aim of this study to identify the factors behind individual's intention to adopt IoT device [12]. IoT is a combination of software, hardware, sensor and cloud technologies. IoT plays a crucial role by adding new product and services to create a smart networked world. To gather real time data, IoT acts as a network of different devices which use internet protocol (IP) based communication. Various researchers investigated on different domain of IoT systems usage like in supply chain and academic libraries [15], [16]. Despite, many recent literature identified various factors to investigate IoT adoption, but few researchers paid attention on the role of technophilia. The term 'Smart Home' is used to describe a house, which contains interact with network that connect different devices and allows them to be remotely controlled, monitored and accessed services [3]. Smart devices are connected with the internet and Smartphone applications (remote) for the allowance to access. In this rapid developing society, Bangladesh Govt. emphasize on the development of the country with the help of modern technology in a dream to improve the current state of the country to a next level. Government establishes procurement plans on the basis of ICT to work accordingly for the improvement of the country [48]. Emphasizing on the plans of government, IoT and Technophilia plays a significant role in the field of skill development, employment generation, Social equality, digital government, digital security etc. [49]. In 2021, Bangladesh Govt. nominal targets a task for the establishment of Digital Bangladesh (Modern country). Bangladesh govt. is trying to make it by the effective use of ICT (Information and communication technologies). The company DataSoft Launches their first IoT Lab in Bangladesh. Bangladesh govt. is also trying on increasing number internet users. Bangladesh govt. also build HiTech Park and provide some free IT related free course for interested people of Bangladesh [50]. IoT adoption mostly depend on Intension to Use (IU) and Technoplilia. IU depends on Perceived Risks, Trust, Awareness, IoT Skills [3], [1]. Technoplilia depends on social norm towards ICT, general technology related value [3]. Three aspects of technophilia: behavioral, emotional and cognitive were never been directly tested in IoT settings [2]. Similartly, the role of generic view of information and communication technology (ICT) [2] and the role of IoT skills [13] are also not tested with technophilia.

1.2 Research Questions

RQ1: Does IoT skill and general technology related value moderate the relationship between Technophilia and IoT adoption behavior?

Second, this study investigates whether there is any impact of technophilia on IoT adoption that is, technophilia's influence on intention to use IoT is measured.

RQ2: Is Technophilia a driver for IoT adoption of the users?

1.3 Research Objectives

RO1. To test the relationship between Technophilia and Intention to use of any user.

RO2. To investigate the moderating effect of IoT skills on the relationship between technophilia and Intention to Use.

RO3. To predict users' intention to use IoT device based on their demographic information.

1.4 Organization of the Thesis

Chapter 1: Chapter one represent introduction of thesis. Here also represent research objective and our research questions.

Chapter 2: This Chapter represent about background, literature review and presented previous work which are related with my work.

Chapter 3: Chapter three represent whole proposed model and study design.

Chapter 4: In this chapter show the experiment result.

Chapter 5: Chapter five represent the conclusion.

CHAPTER 2

LITERATURE REVIEW

CHAPTER 2

LITERATURE REVIEW

2.1 Related Work

In this research article [1] authors use expanded technology acceptance model(TAM) (Technical Acceptance Model) [14] that goes into the importance of IoT(Internet of Things) [11], [21], [22] skills for the adoption of IoT technology. They also produced some requirements for increasing IoT adoption internet skills like Mobile, informatio n navigation, social, and skills etc.

The authors [2] shows that technophilia [23] plays an important role in expanding the use of Advance Traveler Information System (ATIS). They surveyed on 1300 Austri an people to find out their attraction towards the information and communication tech nology (ICT) through technophilia.

The critic [3] investigate for the acceptance of smart homes and explore some factors like risk, trust, awareness, and enjoyment that influence on the acceptance. They sur veyed on 258 people and showed that people's sentiment or objective to use smart homes.

2.2 Summary of Related Work

There are some related work on this area of Intension to use IoT. Those work short description are given below:

Table 2.2.1: Summary of Related Work

Publishing Year	Limitation	Findings Variables/Keyword
18 Dec, 2018		Internet of Things, Internet skills, IoT skills, technology acceptance,
12 Oct, 2015	How ATIS can induce behavioral change, Like: the interrelation of technophilia, not just with the expected and	Technophilia, Techno-B, Techno-E, Techno-C

	perceived quality of traffic information but also with the willingness to comply with recommended routes and transport modes, needs to be investigated.	
4 March, 2018	This research was prone to the inherent limitation of measurement errors. Specifically, the limitation concerns the type of questionnaire used in this research. Recording the opinions, observations and perceptions of a subset of Jordan population at a defined time means that the causality of consumer in smart homes in Jordan can only be inferred but cannot be proven.	Smart homes, Personal factors, Perceived risk, Trust, Awareness
12 Apr, 2017.	The limitation of this study lies first in whether the idea of IoT-based smart home service in the market was conveyed accurately to the survey respondents.	IoT-based smart home service, Intention to use
1 March, 2017		Internet of Things (IOT), RFID, Behavioral Intention
19 Dec, 2016		IoT, Technology acceptance, Retail industry, Trust, Subjective norm.
28 Aug, 2008		Teachers' acceptance of technology, Technology acceptance,
9th Nov, 2014		Technology, Technophilia, Technofobia.
Spring 4-11-2011		Technology adoption; digital literacy; experience; communication
22 December 2014	Did not incorporate actual usage behavior into the proposed model.	Information systems, Innovation adoption behaviour, RFID
14 May 2010		IoT, RFID, Smart Items.

2.3 Defining Technophilia

Technophilia refers generally to a strong pathos for technology, especially new techn ologies such as: Personal computers, The Internet, Mobile phones, Smart home etc. T he term is used in sociology to examine individuals interactions with society and is o pposite with technophobia. Previous research covers hierarchically nested perspective s on technophilia: At the top level, values relating to technology in general, including all modern industrialscale and consumerlevel technologies such as airplanes, power plants, medical equipment, or household appliances; at the intermediate level the con cept applied in this paper attitudes referring more specifically to ICT as a part of mod ern technologies: and at the lowest level, even more specifically, interest in and use o f IOT devices as a subcategory of ICT. Another important distinction is whether a de finition of technophilia covers behavioral, emotional, and cognitive aspects, the three attitudinal components posited by [23]. Next, we review studies that employed these particular perspectives, narrowing down from general technology to electronics, com puters, and finally IOT devices. Following a general perspective on technologyrelate d values, [18] show that cognitive and emotional aspects interest in, level of informat ion about, and enthusiasm for technology constitute a common factor. However, emo tional preferences can strongly differ between specific devices: A person who is very keen on the mechanism of old clockworks is not necessarily equally enthusiastic abo ut mobile phones. That is, generaltechnology related values are not equally relevant f or specific technologies.

2.4 Internet of Things (IoT)

The Internet of Things (IOT) may be a network of good and connected devices, una mbiguously available, that communicate within the real time through the quality IP p rimarily based communication protocols. Connected things will vary from one thing as little as good crystal rectifier lighting and good locks, to one thing as innovative as good care observation and good supply management sensors, biometrics, RFID, actu ators, and metering devices ar plugging of by the “IOT” and “smart” for grouping, ob servation and dominant knowledge of the important World into the knowledge techn ology (IT) framework. Extending the net and communication a technology by linking

it with currently we will see that “smart” sensing devices and physical objects may b e a growing it's trend. Sensors ar embedded on the objects or “things”, that ar joined through networks (wired or wireless) through the employment of an analogous addre ssing theme as that used for the net. Additionally “Smart “is the approaching with co mbination of package, hardware, cloud and sensing technologies. So, on be ready to capture and communicate real time detector knowledge of the physical world, which may be used for advanced analytics and intelligent higher cognitive process [13].

We can see that [38], outline good objects (or “things”) as entities that have a physic al embodiment, communication functionalities, may be unambiguously known, have a reputation and address, have some computing capabilities, sense world natural phen omenon, and trigger actions that have an impact on physical reality. The idea of web of Things (IOT) consists of sensing device, a routing and act device, and a cloud pri marily based application. The idea of web of Things (IOT) consists of a spread of ob servation and management applications supported a network of sensing and causative devices which may be self-configured and controlled remotely through the net [39].

According to Gartner, the quantity of good devices utilized in good homes can reach N1 billion units in 2017, with additional and additional residential voters investment in IOT primarily based SmartHome solutions (source: Gartner, March 2015). The lon ger term good homes, good community, good town etc. are going to be a network of a large number of “things”, mobile terminals, good embedded devices, sensors and u se of good computing technologies [13]. IOT, a brand new revolution of the net is ap ace gaining ground as a priority multidisciplinary analysis topic in care business. Wit h the appearance of multiple wearable devices and smartphones, the assorted IOT pri marily based devices ar dynamic and evolving the everyday previous care system int o a better and additional customized one. Thanks to that, the care system of nowaday s is additionally referred to as as customized care System (PHS).IOT devices in bicyc lebuiltfortwo with cloud computing can change improvement in patient-centered apply and reduction in overall prices thanks to increased property. In recent years, for health observation, tons of efforts are created within the analysis and devel opment of ‘Smart wearable Devices (SWH)’ [40]. it's essentially thanks to skyrocketi ng care prices and up to date advancement in small and nanotechnologies, the sensor s that ar getting used in SWH are miniaturized that is more and more dynamic the lan

dscape of care by providing individual management and continuous observation if pa tient's health standing.

2.5 General Technology related value

Application of information to the sensible aims of human life or to ever-changing and manipulating the human surroundings. Technology includes the emplo yment of materials, tools, techniques, and sources of power to form life easier or addi tional pleasant and work additional productive.

Whereas science is bothered with however and why things happen,technology focus on creating things happen."Perhaps the simplest thanks to investigate technology is i n terms of progress. In some ways, the globe merely gets higher as a result of technol ogy has the power to form a better normal of living. An immunizing agent eliminated poliomyelitis. The net breaks down social, racial and sexual barriers. Computers offe r higher access to education. However is it invariably true that additional technical sc hoolnology is that the answer to the world's problems? Not in line with tech legend e nterpriser. Gates say that whereas the dream of providing web access to the billions o f individuals UN agency don't have it's a noble one, is isn't even near to being as vita l as making certain that additional individuals have correct plumbing, or access to va ccinations against infectious diseases. "Innovation may be a smart issue," Gates told t he money Times recently. "The human condition –
omitted biological terrorism and a number of footnotes –
is rising attributable to innovation," he says. however whereas ¬"technology's supeb, it doesn't get all the way down to the individuals most in would like in something clo se to the timeframe we should always wish it to".

2.6 IoT Skills

Unlike earlier technologies, operational IoT devices doesn't involve continuous intera ctions between users and devices. These devices operate rather autonomously mistrea tment input from the setting via sensors (e.g., the good thermostat). Therefore, indivi duals ought to be able to acquaint themselves with the large quantity of information g athered (without their interference). This might involve scrutinizing device settings, a dditionally to information mental image, interpretation, and sharing a transparent me ntal image facilitates interpretation. Information sharing is needed to, for instance, co mpare information from alternative users, be of their comments and opinions, and dis cuss information with each other on-
line or offline. This experience would alter strategic higher cognitive process on what information square measure collected by the IoT and the way to deal with these info rmation (e.g., selection of research, application, and communication) [41]. Next to th e number of information, the complexness of the info is increasing [41]. This could b e image for the power of IoT systems to form experimental selections while not inter ference from the user. This autonomous higher cognitive process, alongside the prope rty between users and alternative devices, may result in issues distinguishing United Nations agency owns the info and process system boundaries [42]. Therefore, it'll be onerous perceiveto comprehend|to appreciate} or understand the exchange of knowle dge within the IOT system involving interactions with individuals and devices situate d in several contexts.

This lack of understanding is after mirrored in difficulties in reasoning concerning de vices' interactions and their effects, which, in turn, cause incomplete specifications a nd misunderstanding. Lacking the talents to properly interpret, analyze, and communi cate information might end in users collection immaterial information, failing to use t he info, or drawing wrong conclusion. Deem example the case of a Dutch insurance underwriter providing privileges once reaching a targeted range of (walking) steps. O nce associate activity hunter isn't graduated properly, it might give misinformation. T his data might end in the insurance underwriter –
that is connected to an equivalent networrevoking privileges you'll have attained onc e reaching the targeted range of steps. Albeit you would possibly have truly taken the targeted range of steps you'd not have the benefit of it, as you probably did not notic e the inaccuracies or failures in information assortment and/or sharing of the info wit

h the consequence of being overcharged. Considering this, we expect of IoT skills be cause the skills to deal with good devices, the questionable “things”, and therefore th e information these devices gather. These skills embrace dynamic settings, decoding i nformation, sharing information with others and making logical information visualiza tions to use good devices to their full potential.

In respect to IoT acceptance, we have a tendency to expect IoT skills to influence eac h atomic number 94 and PEoU, as skills square measure developed through expertise [43]. We all know that, net skills develop through learning from doing, trial and erro r, downside sharing, and comparison to. Moreover, skills square measure developed t hrough experiencing what to concentrate to once issues occur [44]. Some studies spe cializing in the acceptance of the IoT enclosed perceived behavioural management (P BC) (e.g. [10], [45]) or, in alternative words, the users’ assessment of skills (IOT and net skill), abilities, and resources to with success perform IoT-
related tasks and behaviors [45]. Earlier studies showed that have was absolutely rela ted to behavioural intention to use associate system (Jackson et al., 1997) which PBC was absolutely related to the intention of mistreatment the IoT [10], [6]. Enthusiasm depends on Social norm towrds ICT and General Technology connected values [2] al ternative hand connotation of Use (IU) depends on IOT Skills [1].

CHAPTER 3

RESEARCH METHODOLOGY

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RESEARCH METHODOLOGY

3.1 Proposed Model

An integrated research model is proposed here that examine the factors for adopting IoT. This research model covers two things one is, GTV and IOTS contribute to Technophilia whereas Technophilia depends on three factors named Techno-E, Techno-B, and Techno-C. The following Figure 3.1 gives a snapshot of the proposed research model.

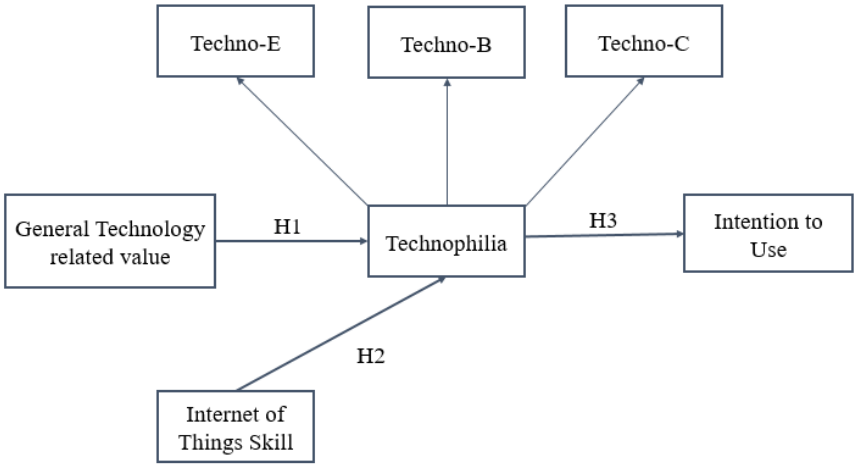

Figure 3.1: Proposed model

3.2 Hypotheses

In this section, the proposed research model has been summarized based on the hypot heses. In this model, technophilia is dependent on GTV and IOTS. That means, the la ck of understanding is subsequently reflected in difficulties in reasoning regarding de vices' interactions and their effects, which, in turn, lead to incomplete specifications and misinterpretation. Lacking the skills to correctly interpret, analyze, and communi cate data could result in users collecting irrelevant data, failing to apply the data, or d rawing wrong conclusion.

H1. General Technology related value has positive impact on Technophilia.

H2. IOT Skills has positive impact on Technophilia.

Intention to use IoT devices dependent on technophilia whereas technophilia covers b ehavioral, emotional, and cognitive aspects, the three attitudinal components. Cogniti ve and emotional brings enthusiasm and creates emotion to technology.

H3. Technophilia(Behavioral, Emotional, and Cognitive) has positive impact on Intention to Use (IU).

CHAPTER 4

RESULT AND DISCUSSION

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Questionnaire design

Data was collected using a structured questionnaire. The questionnaire consisted of t wo parts: The first part focused on demographic questions like age, gender, level of e ducation, and experience of basic IoT related devices. The second part focused on me asurement items for the dimensions of IoT skill related questionnaire were adopted fr om the research of [1]. Technoplilia, General technology related value, and Intension to Use (IU) were adopted from the research of [2], [47] (See the Appendix). All stat ements were measured through the Likrt Seven-point scale (1 –Strongly disagree; 7 – Strongly agree).

4.2 Sample size and questionnaire distribution

The analysis (proposed) model was tested with the information compiled from 318 su rvey responses. To calculate applied mathematics power of sample size and for desig ning survey distribution [29] [30], G*Power 3.1 package was used for calculation, wi th the following input parameters: medium effect size, probability of Type I error α = 0.05, probability of Type II error β = 0.05, which means (1-
β) = .95 and number of predictors = 2 (GTV and IOTS). Output was estimated mini mum sample size required was 117, with actual power of 95%. Still, distributed quest ionnaires are 352 where 318 (26 online, 292 manually) are respondents. The respond ents' age in between (16 – 30, 31 – 40, 41 – 50, 51 –
60). Received response rate 90.34%. Respondents square measure typically universit y undergrad and master level students, job holder and academics. Knowledge was col lected in Summer-2018, Fall-
2019, and this survey took 5 months to finish. Some survey questions were taken fro m online as it is easy to access people through social networks like Facebook, Twitte r. Finally, a complete of 318 responses (201 males, 117 females) were utilized in kno

wledge analysis. Eighty one proportion of the participants expressed that they're fasc inated by technological developments.

4.3 Demographic information

Out of 318 responding individuals, Almost 210 (66.0%) were 16–29 years old, 59 (18.6%) were 30–39 years old, 34 (10.7%) were 40–49 years old while the remaining 15 (4.7%) were above the age of 49. In regard to gender, 201 (63.2%) were male and 117 (36.8%) were female.

Table 4.3.1: Demographic Information of survey respondents

	Frequency	Percentage (%)
Age		
14 - 29	210	66.0
30 - 39	59	18.6
40 - 49	34	10.7
50 - 59	15	4.7
Gender		
Male	201	63.2
Female	117	36.8

4.4 Data analysis technique

In this paper, Structural equation modelling (SEM) is used to measure the relationshi p among the variables of our proposed model. SEM allows the researcher to compreh ensively and simultaneously analyze a complex model with multiple independent and dependent variables. As a result, Information System (IS), business management, an d social science researchers are used this technique [31] widely. Author [32] describe d that: from 1998 to 2007, 33.3% of journals in the ISR, 34.5% in the JMIS, and 32.2 % papers used SEM techniques. McDonald and Ho said that the partial least squares

(PLS) approach view as the most comprehensive and a broad technique. PLS is descr ibed as a 'Silver bullet' by Hair et al. because of PLS can handle non-normal data. In order to test the proposed hypotheses, Structural equation modelling (SEM) is used to assess a research model and enable to execute various complex statis tical analyses at once. It is a regression based approach that define relationship amon g the observed variables [33] and aims to minimize residual variances of endogenous variables [35]. For measuring our model here SEM with the partial least squares tec hnique [34] and SmartPLS3 software is used to calculate the data.

Table 4.4.1: Data analysis technique

Type	Quantitative
Measurement	Survey questions(Including online form)
Participants Selection	Age range
Minimum sample size	117
Data analysis technique	
• Demographic	Frequency - SPSS
• Hypotheses testing	SEM – SmartPLS3
• Prediction	BigML

4.5 Measurement model

The Critics [34] suggest that after the research model is formed, researchers must test the outer model. Measurement model provide two types of analysis (Reliability and Validity). Reliability analysis provides output about Composite Reliability and validity analysis provide the result for Average variance Extracted (AVE) [36] For evaluation of the outer model, the average variance extracted (AVE), composite reliability (CR), and discriminant validity is measured that is shown in Table 4.5.1 and Table 4.5.2.

Table 4.5.1: Construct Reliability and Validity

Variables	Composite Reliability	Average Variance Extracted (AVE)
GTV	1.000	1.000
IOTS	0.913	0.570
IU	0.911	0.720
TF	0.876	0.704

Table **4.5.2** shows that the square root of AVE is greater than the corresponding construct correlation, which indicates that our construct is truly distinct from other constructs [37]. The correlation values should be greater than among other latent variables [36]. Table **4.5.2** shows this values.

Table 4.5.2: Discriminant Validity (Fornell-Larcker Criterion)

Variables	GTV	IOTS	IU	TBQ	TCQ	TEQ
GTV	1.000					
IOTS	0.086	0.755				
IU	0.201	0.174	0.849			
TBQ	0.163	0.391	0.266	0.824		
TCQ	0.160	0.141	0.427	0.424	0.900	
TEQ	0.223	0.171	0.450	0.566	0.700	0.831

Note: The diagonal represents the square root of average variance extracted (AVE) while the other entries represent squared correlation.

4.6 Structural model

After analyzing the AVE as well as the reliability and validity of data, structural mod el is used by using the evaluation coefficient of determination and the significance le vel of each path coefficient. Here, p-
value is also examined to determine the significance level. P-
value is accepted if it can be smaller than 0.5 or larger than 0.95. Support of hypothe sis is determined by the significance level of each path coefficient. This means, with

regard to our model (see Table **4.6.1**), the relationship between GTV and IOTS on T F, TF on IU. GTV (β= 0.196, p < 0.01) and IOTS (β= 0.226, p < 0.01) has significan t influence on TF. Thus, H1 and H2 are supported.

Support of hypothesis is determined by the significance level of each path coefficient. This means, with regard to our model (see Table **4.6.1**), the relationship between TF on IU is TF (β= 0.462, p < 0.01). This also indicates that our hypotheses H3 is significant.

Table **4.6.1** breaks down the significance of each path in the study.

Table 4.6.1: Mean, STDEV, T-Values, P-Values

Relationship	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
GTV -> TF	0.196	0.196	0.047	4.142	0.000
IOTS -> TF	0.226	0.251	0.049	4.651	0.000
TF -> IU	0.462	0.466	0.56	8.233	0.000

Table 4.6.2. Results of Hypothesis Testing

Hypothesis	Relationships	Path coefficient	Result
H1	GTV -> TF	0.196	Supported
H2	IOTS -> TF	0.226	Supported
H3	TF -> IU	0.462	Supported

4.7 Theoretical contribution and practical implication

This research contributes to the structure of work consecrated to serving researchers better understand IoT adoption. It expressed the primarily micro-level investigation of IoT adoption through the lens of technophilia by building on th

e understanding of the phenomenon at the consumer level. This research identifies str engths technophilia in terms of behavioral, cognitive and emotional. Further, this pap er takes the first step to identifying how generic view of ICT value and IoT skills are needed to improve technophilia behavior among consumers. From practitioner's poin t of view, this study shows that, the phenomena of technophilia is real. It can assist th e IoT manufacturing organizations to understand consumers' response to new technol ogies like IoT devices. This research will help with manufacturers to understand their view of IoT design, develop compelling advertisement of technophile adopters and i mprove client section. IoT structure should indicate requirements of technophile user s. Technophiles could be attracted by offering various real time apps based services b y IoT manufacturers.

CHAPTER 5

CONCLUSIONS

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

Compare to other countries, IoT development is progressing slowly in Bangladesh. T his research study proposed an integrated model that reveals the factors of adopting o r finding intention to use IoT technology in Bangladesh. Here, this study established a valid measure and find the factors those impact on adopting IoT. Most of the hypot hesis has been supported by the data that concludes that people's IoT skills play an i mportant factor for technophilia. Technophilia is used for better understanding of ne w technology. Instead of Intention to use, in future we plan to measure actual usage.

5.2 Limitation and future work:

In future, we will integrate security and trust issue within our model. This research is a cross sectional study. Intention of using IoT and IoT skills might change overtime in future, we will conduct a longitudinal study. Short time and lake of data are one of the main limitation we faced. It was really difficult to done this work in short time. A limited number of research was performed about Technophilia. No research tested the moderator relationship of IoT skills. Our questionnaire was in English, it might be a weakness for the respondents.

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