

**AN INVESTIGATION INTO THE EFFECT OF NATIONAL  
CULTURE ON THE DIFFUSION OF INNOVATIONS: A CASE  
STUDY ON THE MENA REGION**

**A thesis submitted for the degree of Doctor of Philosophy**

**By**

**Shihanah Mohammed Al Mutairi**

**Brunel Business School, Brunel University of London**

**June 2016**

## **Abstract**

National culture has a significant influence on how innovations are adopted and diffuse throughout society. Existing innovation literature often employ Hofstede's cultural difference dimensions to predict technology diffusion, which is critical to international marketers who are interested in tapping into this region. However, whilst Hofstede initially clustered the Arab nations into one region, past works have failed to compare and predict the diffusion of innovations amongst the Middle East and North African (MENA) nations. To address this research gap and to challenge Hofstede's assumption of the MENA region as one cultural homogenous group, this study proposes to 1) measure the cultural differences of the seven nations, including Kuwait, Kingdom of Saudi Arabia, United Arab Emirates, Egypt, Iraq, Libya, and Lebanon within the MENA region and 2) explore the relationship between national culture and the diffusion of innovations amongst the seven countries. Using Hofstede's latest national culture instrument, the Value Survey Model 2013 (VSM13), 775 survey data is collected from university students based in the seven nations to obtain new national cultural profiles on six dimensions, which are power distance, uncertainty avoidance, individualism, indulgent versus restraint, long-term orientation and masculinity femininity index. Empirical evidence shows that all seven nations differ significantly on each of Hofstede's national culture dimensions, particularly on the power distance, uncertainty avoidance, indulgent versus restraint, and long term orientation dimension.

The Bass Model is employed to estimate each of the seven nation's diffusion patterns based on their mobile subscription data, and then correlated with their national culture ranks along with other variables such as socioeconomic indicators and telecommunication sector specific variables. The findings indicate that out of the six national culture indices, only the power distance index, indulgent versus restraint, long term orientation, and uncertainty avoidance dimensions show significant correlations with the innovation and imitations levels on the national level, suggesting that these particular cultural scales can effect and limit the innovation levels and the speed of the diffusion process of innovations. Results also indicate that literacy

rate and urbanization are significantly correlated with the speed of the diffusion process and imitation levels on the national level.

This research sheds new light on cross national diffusion literature by empirically revealing the innovative and imitative profiles of seven Arab States that were previously underrepresented and untested. The present study also provides fresh insights into the diffusion and national culture relationship by analysing the MENA region, which presents a theoretical contribution to cross cultural diffusion studies by advancing our understanding of the process by which Hofstede's dimensions are associated with innovative and imitative levels. International marketing managers are thus advised to adopt a waterfall strategy when approaching the MENA region, in which innovative countries, such as Kuwait, are first targeted for introducing innovative products and services, through mass media and advertising. Whilst imitative countries, such as Egypt, are targeted for last entry, with a marketing communication plan that utilizes brand ambassadors and influencers, so as to reduce the risk and uncertainty of the innovation in question.

## **Acknowledgments**

I would like to take the opportunity to thank Dr. Dorothy Yen for her constant guidance and non-stop support during my time under her supervision. I would also like to express gratitude to Dr. Michael Heller for his assistance and help. Special thanks to my family and friends for their continued support and for believing in me.

To my mother, Nawal, my inspiration.

This is dedicated to my dad and Jadda.

## Table of Contents

Abstract.....	2
Acknowledgments.....	4
Table of Contents.....	5
List of Tables .....	10
List of Figures .....	11
List of Abbreviations .....	13
Chapter One: Introduction .....	15
1.0 Introduction.....	15
1.1 Research Problem and Research Gaps.....	15
1.2 Research Aim and Objectives.....	18
1.2.1 Proposed Methods .....	21
1.3 Research Questions .....	21
1.4 Research Scope .....	22
1.5 Dissertation Outline .....	26
1.6 Summary .....	28
Chapter Two: Literature Review .....	32
2.0 Introduction.....	32
2.1 Innovations Research.....	33
2.1.1 What is innovation?.....	33
2.1.2 What is innovativeness?.....	34
2.1.3 What is innovation adoption?.....	35
2.2 Diffusion of Innovations .....	38
2.2.1 Diffusion of Innovation Theory (DOI).....	39
2.2.2 The Bass Model.....	40
2.2.3 Perceived Characteristics of Innovating (PCI).....	41
2.2.4 Theory of Reasoned Action (TRA).....	43
2.2.5 Theory of Planned Behaviour (TPB) .....	43
2.2.6 Technology Acceptance Model (TAM).....	44
2.2.7 Technology of Acceptance Model 2 (TAM2).....	46
2.2.8 Technology of Acceptance Model 3 (TAM3).....	46

2.2.9 Unified Theory of Acceptance and Use of Technology (UTAUT) .....	48
2.2.10 The Choice of the Bass Model .....	51
2.3 Cross National Diffusion .....	52
2.3.1 National Culture in Cross National Diffusion.....	54
2.3.2 National Culture Models .....	56
2.3.3 Criticism of National Culture.....	66
2.3.3.1 Nations as Units .....	66
2.3.3.2 Ecological Fallacy.....	66
2.3.3.3 Stereotyping .....	67
2.3.3.4 Construct Conceptualization .....	68
2.3.3.5 Complexity of Culture .....	69
2.3.4 The choice of Hofstede .....	70
2.4 Hofstede’s National Culture and Cross National Diffusion .....	71
2.4.1 National culture and Consumer Innovativeness.....	71
2.4.2 National Culture and Social Interactions .....	72
2.4.3 National Culture and socioeconomic factors .....	73
2.4.4 National Culture and Economic wealth .....	74
2.4.5 National Culture and the Bass Model .....	75
2.4.5.1 The p/q Ratio.....	76
2.4.5.2 Coefficient of innovation (p) and coefficient of imitation (q) .....	76
2.4.5.3 Conceptualization of the (p) and (q) coefficients.....	77
2.4.6 National Culture and National Rates of Innovations .....	78
2.4.7 National Culture and New Product Ownership.....	79
2.4.8 National Culture and Cross National Product Diffusion.....	79
2.4.9 National Culture and the Adoption of Information Technology (IT) .....	81
2.5 National Culture and the Arab States.....	85
2.6 Innovation and the Arab States .....	87
2.6.1 Disparities in Arab States’ Rates of Diffusion.....	88
2.8 Summary .....	90
Chapter Three: Research Design and Methodology .....	92
3.0 Introduction.....	92
3.1 Research Design.....	92
3.2 Research Methods vs. Methodology.....	93

3.3 Research Purpose .....	94
3.4 Research Philosophy .....	95
3.4.1 Ontology .....	95
3.4.2 Epistemology .....	96
3.4.3 Axiology .....	97
3.4.4 The Present Study's Research Philosophy .....	97
3.5 Research Methods .....	98
3.5.1 Quantitative and Qualitative Techniques .....	99
3.5.2 The Qualitative and Quantitative Debate .....	100
3.5.3 The Present Study's Research Methods .....	101
3.5.4 Primary vs Secondary Data .....	103
3.6 Research Approach .....	104
3.7 Research Strategy .....	105
3.7.1 The Research Instrument: the VSM13 .....	106
3.8 Validity of the VSM13 .....	107
3.9 Reliability of the VSM13 .....	109
3.10 Data Collection Method .....	110
3.11 Sampling .....	111
3.12 Summary .....	114
Chapter Four: The Hofstedian Model .....	116
4.0 Introduction .....	116
4.1 Reliability .....	116
4.2 Construct Validation .....	119
4.2.1 Convergent validity .....	120
4.2.2 Discriminant validity .....	120
4.3 Demographic data .....	121
4.4 Discussion .....	122
4.5 VSM Calculations .....	122
4.6 Findings and discussion .....	127
4.6.1 Power Distance Index (PDI): .....	127
4.6.2 Individualism Index (IDV): .....	129
4.6.3 Masculinity Index (MAS): .....	130

4.6.4 Uncertainty Avoidant Index (UAI): .....	131
4.6.5 Long Term Orientation Index (LTO): .....	132
4.6.6 Indulgent Versus Restraint Index (IVR): .....	134
4.7 Summary .....	135
Chapter Five: The Bass Model .....	137
5.0 Introduction .....	137
5.1 The Bass Model Parameters .....	137
5.2 Discussion .....	147
5.3 The Arab States' Diffusion Patterns .....	148
5.4 Mobile Telecommunication Sector Overview in the Arab States .....	150
5.5 Arab States' Diffusion Patterns versus Diffusion Literature .....	159
5.6 Determinants in Mobile Diffusion Telephony Literature .....	160
5.7 Summary .....	162
Chapter Six: Cross National Diffusion .....	164
6.0 Introduction .....	164
6.1 Hypothesis development .....	165
6.1.1 Wealth .....	165
6.1.2 Literacy rate .....	166
6.1.3 Urbanization .....	166
6.1.4 Infrastructure .....	167
6.1.5 Competition .....	167
6.1.6 PDI .....	167
6.1.7 IDV .....	168
6.1.8 MAS .....	169
6.1.9 LTO .....	169
6.1.10 IVR .....	170
6.1.11 UAI .....	170
6.2 Correlational Analysis .....	173
6.2.1 Wealth .....	174
6.2.2 Literacy rate .....	174
6.2.3 Urbanization .....	175
6.2.4 Infrastructure .....	175

6.2.5 Competition.....	176
6.2.6 PDI .....	176
6.2.7 IDV.....	176
6.2.8 MAS .....	177
6.2.9 LTO .....	177
6.2.10 IVR.....	178
6.2.11 UAI.....	178
6.3 Discussion.....	179
6.3.1 Socioeconomic indicators .....	182
6.3.2 Sector specific indicators .....	183
6.3.3 National culture indicators .....	184
PDI .....	185
LTO .....	186
IVR.....	187
UAI.....	188
6.4 Arab States cross national diffusion data.....	189
6.5 Summary.....	192
Chapter Seven: Conclusion, Implications, and Limitations.....	194
7.0 Introduction.....	194
7.1 Thesis overview and summary.....	194
7.2 Research findings.....	196
7.3 Contributions.....	197
7.4 Managerial implications.....	204
7.5 Limitations .....	210
7.6 Recommendations and conclusion.....	214
References.....	216
Appendix 1.....	231

## List of Tables

Table 3.1 Positivism philosophy .....	98
Table 4.1 Reliability results .....	118
Table 4.2 Country and Overall Frequency.....	121
Table 4.3 Example as used in the VSM 13 Manual (2013) .....	123
Table 4.4 VSM 13 Item formula.....	125
Table 4.5 New dimension scores for the Arab States based on the VSM 13 .....	127
Table 5.1 Estimation of the Bass Model.....	139
Table 5.2 Ranking of innovative to least innovative country based on $p$ parameter .....	148
Table 5.3 Averages of $p$ and $q$ based on diffusion literature versus Arab States' sample.....	159
Table 6.1 Hypothesis path and estimates .....	173
Table 6.2 Hypotheses results .....	180
Table 7.1 Literature review findings versus present study findings .....	202

## List of Figures

Figure 1.1 Research problem and gaps .....	18
Figure 1.2 Flow diagram of the thesis .....	29
Figure 2.2 Rogers (2003) Diffusion of Innovations Theory .....	39
Figure 2.3 Bass Model (1969) .....	40
Figure 2.4 Moore and Benbasat (1991) PCI Model.....	42
Figure 2.5 TRA Model by Fishbein and Ajzen (1975).....	43
Figure 2.6 TPB by Ajzen (1991).....	44
Figure 2.7 TAM by Davis (1989) .....	45
Figure 2.8 TAM2 by Venkatesh and Davis (2000).....	46
Figure 2.9 TAM3 by Venkatesh and Bala (2008).....	47
Figure 2.10 UTAUT by venkatesh et al., (2003) .....	48
Figure 3.1 Research Onion adapted for this study from Saunders et al.,2012.....	93
Figure 3.2 Triangulation Process .....	102
Figure 3.3 Deductive reasoning .....	105
Figure 3.4 Probability method selection .....	114
Figure 3.5 MENA region courtesy of UNICEF.....	26
Figure 4.1 PDI rank for the Arab States .....	128
Figure 4.2 IDV rank for the Arab States.....	129
Figure 4.3 MAS rank for the Arab States .....	130
Figure 4.4 UAI rank for the Arab States.....	131
Figure 4.5 LTO rank for the Arab States .....	132
Figure 4.6 IVR rank for the Arab States .....	134
Figure 5.1 Plot of the penetration data.....	140
Figure 5.2 Plot of the fitted values together with the observed data.....	140
Figure 5.3 Plot of the penetration data.....	141
Figure 5.4 Plot of the fitted values together with the observed data.....	142
Figure 5.5 Plot of the penetration data.....	143
Figure 5.6 Plot of the fitted values together with the observed data.....	143

Figure 5.7 Plot of the penetration data.....	143
Figure 5.8 Plot of the fitted values together with the observed data.....	144
Figure 5.9 Plot of the penetration data.....	144
Figure 5.10 Plot of the fitted values together with the observed data.....	145
Figure 5.11 Plot of the penetration data.....	145
Figure 5.12 Plot of the fitted values together with the observed data.....	146
Figure 5.13 Plot of the penetration data.....	146
Figure 5.14 Plot of the fitted values together with the observed data.....	147
Figure 5.15 ITU Mobile telecommunication penetration rates.....	149
Figure 5.16 Arab States' starting date for mobile subscriber data.....	151
Figure 5.17 Subscription penetration levels in Libya by age of the system .....	152
Figure 5.18 Subscription penetration levels in Egypt by age of the system .....	153
Figure 5.19 Subscription penetration levels in Lebanon by age of the system.....	154
Figure 5.20 Subscription penetration levels in KSA by age of the system.....	155
Figure 5.21 Subscription penetration levels in UAE by age of the system .....	156
Figure 5.22 Subscription penetration levels in Kuwait by age of the system.....	157
Figure 5.23 Subscription penetration levels in Iraq by age of the system .....	158
Figure 6.1 Structural Model of Hypotheses .....	172
Figure 6.2 Literacy rate and imitation levels .....	182
Figure 6.3 Urbanization and imitation levels.....	183
Figure 6.4 PDI and imitation levels .....	185
Figure 6.5 UAI and innovation levels.....	188
Figure 6.6 LTO and innovation levels .....	186
Figure 6.7 IVR and innovation levels .....	187

## List of Abbreviations

DOI	Diffusion of Innovations
NC	National Culture
PDI	Power Distance Index
IDV	Individualism and Collectivism Index
MAS	Masculinity and Femininity Index
LTO	Long Term versus Short Term Orientation
IVR	Indulgence versus restraint
UAI	Uncertainty avoidance Index
MENA	Middle East and North Africa Region
UAE	United Arab of Emirates
KSA	Kingdom of Saudi Arabia

# **Chapter 1**

## **Introduction**

# Chapter 1 Introduction

## **1.0 Introduction**

This chapter begins by identifying the research problem and research gaps, followed by the research's aims, objectives, and research questions. The next section outlines the scope of the research and then an overview of the entire thesis is described according to chapter content. It is then followed by a summary of the material covered in chapter one and an illustrated diagram of the thesis's structure.

## **1.1 Research Problem and Research Gaps**

Cross national diffusion research, which is the literature that discusses the effect of various variables on the spread of innovations, and which will be discussed further in Chapter two, is considered imperative to the international marketing field, because understanding the decisions facing countries and individuals when adopting a certain technology, product, or innovation enables the success of new product introductions and international expansion strategies (Rogers, 1993; Midgley and Dowling, 1978). As such, the relevant literature is filled with studies that aim to uncover certain variables related to innovation in order to better predict innovators, or innovation related variables, so as to better profile and target them (Lee, 1990). A number of studies have stressed the importance of culture in profiling innovative markets. Culture plays a crucial role in cross national diffusion literature, simply because the spread of innovations travels through society, and ultimately into the hands of diverse consumers and markets. As such, the impact of cross national diversity should be considered and managed so that the effectiveness of international strategies is maximized, seeing as better understanding will lead to better informed international expansion decisions.

However, international firms may sometimes deal with intense competition, and as such their international decisions may be time constrained and so must be made swiftly (Punnett and Clemens, 1999). Therefore, developing effective strategies to deal with intense competition in world markets is one of the most critical challenges facing international firms at this time. In order to sustain a competitive advantage, international firms should be in a constant learning

process, collecting information regarding the international markets and developing ways to connect and understand them better (Craig and Douglas, 1996). Dealing with different markets implies integrating multifaceted information such as identifying the needs of consumers, distribution channels, and the nature of competition. International firms would need to build their knowledge base of different markets and how to operate in different environments, so as to lessen the complexity of dealing with expansion in unfamiliar and foreign territories (Cuervo-Cazurra, 2010).

As such, existing culture paradigms are often utilized to synthesize what is otherwise a complex and time consuming effort required in understanding the cultures of the targeted markets. Particularly, the concept of national culture is often employed in cross national diffusion studies to explain aggregate national consumer behaviour towards different phenomena (Singh, 2006). Hofstede's national culture theory, especially, allows practitioners and researchers to cluster a large number of countries according to their national cultural profiles and thus provides a useful way to summarise intercultural similarities and differences across the world. This is imperative to international firms since it is more profitable and less risky to expand into similar cultures and regions (Gupta et al., 2002). Therefore, Hofstede's theory plays a pivotal role in studies relating innovation and innovators with culture. Mainly, the literature rationalizes that countries with a certain national culture profile would be considered innovative and more attractive to international expansion and the introduction of new products and services.

However, the present study encountered a problem when trying to associate cross national diffusion literature's findings with the MENA region's national cultural profiles on Hofstede's theory. The problem was that in Hofstede's original survey, seven Arab States from the MENA region: Kuwait, KSA, UAE, Iraq, Lebanon, Egypt, and Libya, were treated as one homogenous cluster with the same national cultural profile. Hofstede reasons that at the time of his survey, in 1967, the region was more or less homogeneous (Hofstede, 2001). The impact of geopolitical forces, religion and similar history backgrounds may have had an impact on the cultural profiles of the MENA region, but that does not imply that geographic proximity is synonymous with cultural proximity (Kabasakal et al., 2012). Although MENA countries have commonalities in their social norms, they also differ on the socioeconomic, ethnic, and demographic profile. Overtime, countries within the region have also developed at different speeds and as such the

previous homogeneity of the region is challenged due to the region's many ethnicities and diverse range of economies and political systems (Mellahi et al., 2010). Therefore, establishing the Arab States with different national culture profiles on Hofstede's dimensions will allow the present study to investigate the relationship between national culture in cross national diffusion research as pertaining to the MENA region. If we mistook the Arab world as one cluster, then according to the literature, the MENA region should have similar diffusion and adoption patterns. This logical line of reasoning would lead us to at least question this rational in this time and era.

The present study also encountered another issue, particular to the diffusion literature utilizing the Bass Model, in which, further investigation revealed that the MENA region currently had no studies mapping its diffusion patterns, or referencing its innovative and imitative levels. At a theoretical level, we don't know if western based diffusion literature could be used to explain innovation in the MENA region. Specifically, none of the sampled Arab States were included in diffusion related studies, and thus had no representation in diffusion literature. This research gap would have to be filled by the present study in order to measure the effect of national culture on diffusion and innovation patterns. As such, further investigation of the Arab State's diffusion patterns is crucial to be able to find how generalizable the findings of cross national diffusion literature are to the MENA region.

The fact that the MENA region had one national cultural profile, and was also not represented in diffusion literature, may have led to its exclusion from cross national diffusion literature. One could not distinguish whether Hofstede's national culture theory has had any role in diffusion and adoption patterns within each respective Arab State, since the Arab States were not treated as separate entities then and not until this present study's attempt. As such, most of the literature's findings and implications are more or less confined to industrialized countries, thus reducing the generalizability of the results. A substantial amount of the studies reviewed were mainly sampling European countries. As such, the majority of their findings reflected what is essentially considered a western perspective. This has led the present study to question whether their findings can be applied to the Arab States, and incidentally their generalizability. As such, an answer would require an investigation into the matter. Unfortunately, as stated previously, there has been little to no studies detailing national level diffusion and adoption research on the

MENA region. Nor were there any studies that sought to negate Hofstede’s assumption of the homogeneous national culture of the Arab States. It is such gaps in the research that the present study intends to fill.

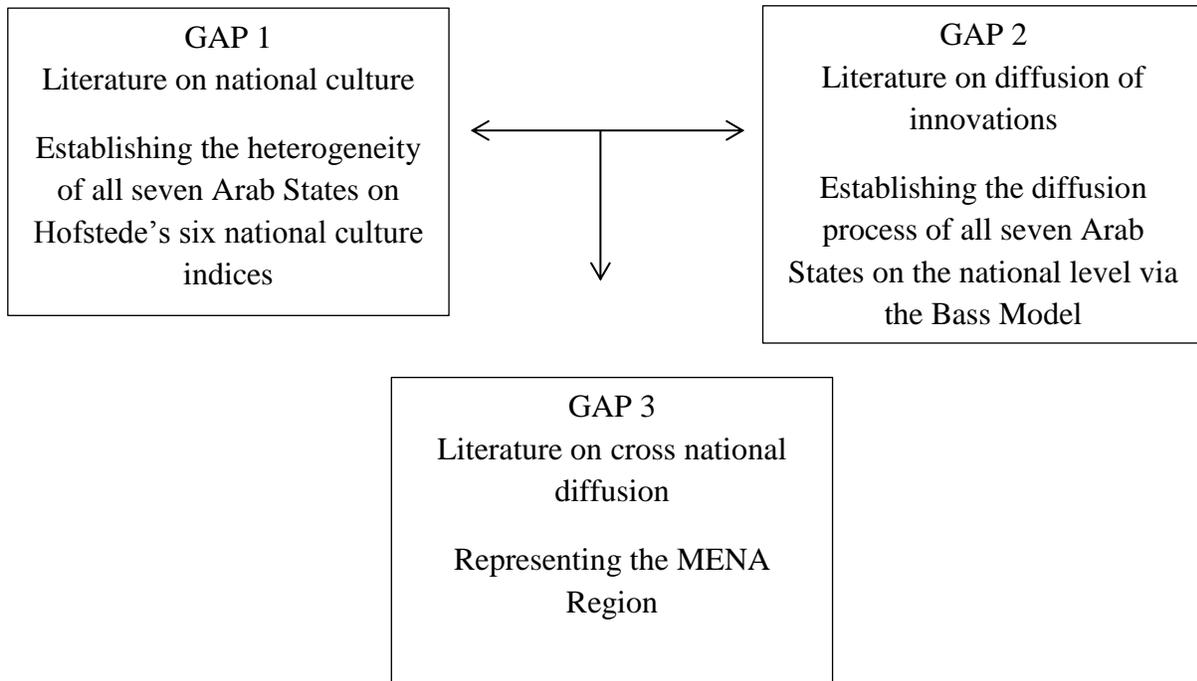


Figure 1.1 Research problem and gaps

## 1.2 Research Aim and Objectives

The aim of the present study is to investigate the relationship between diffusion patterns and national culture in relation to the MENA region, and whether there are variations between each Arab State, in addition to re-examining the cross national diffusion literature’s various conclusions when based on the MENA region’s landscape. One of the main driving forces underlying diffusion research is that innovations are spread through society and as such it is effected by culture specific variables. As such, diffusion in marketing literature is defined as the process by which innovations are communicated through channels over a period of time among

members of society (Rogers, 2003). The marketing literature is often addressing the characteristics of the innovative social system and how an innovative product or service is adopted throughout society. This is in direct contrast with a different stream of innovations research which adopts the resource based view theory. The literature on the resource based view theory contains studies that contend with analysing the innovative capabilities of the organization or firm and how it can exploit its competitive advantage against competition and within the industry (Harmancioglu, 2009). These contrasting views on innovations research within the marketing field provide us with two levels of analysis, national versus consumer level, as well as two different views on the diffusion process.

The first view, which depicts the diffusion of innovations as a culture specific phenomenon, views the diffusion process from the national level and is more concerned with the characteristics of the society and the targeted market than it is with the innovative features of the product or service. Whereas the second view, often views the diffusion process from an organizational perspective, and is concentrated more on the characteristics and aspects of the firm's innovative capabilities. The present study's diffusion concentration is centred on the first view, and all literature reviewed in Chapter two is concerned with the society's and respective market's diffusion process and the impact of culture on its diffusion levels. As such, the present study is linking marketing literature that believes that sometimes an innovative product or service is not necessarily an indicator for high levels of adoption, but what is key is how innovative and receptive the targeted market is, which is usually an indicator for accelerated adoption and diffusion processes.

Consequently, culture and socioeconomic variables are used extensively in marketing diffusion literature to understand their influences on adoption levels (Tellis et al., 2003; Yalcinkaya, 2008; Shane, 1993; and Gong, 2009). Several findings have implied that international marketers should target innovative countries first and that certain cultural traits can be used as identifiers of innovative markets such as low power distance and low uncertainty avoidance. However, to international marketers and international firms entering the MENA region, the previous literature's recommendations don't shed much light into the region, seeing as they wouldn't have distinct national cultural profiles to help segment the region nor measurable diffusion level data to ascertain their innovative and imitative profiles. As such, the present study's findings are of

importance to interested international marketers as they can now utilize and distinguish the region upon their national cultural profiles in addition to their innovative and imitative profiles.

As can be discerned throughout the literature reviewed, a significant number of studies find strong correlations between national culture and its importance in innovation literature. Most importantly, the literature reviewed emphasizes the role that Hofstede's national culture theory attained in most diffusion and adoption studies. The general consensus gleaned from the literature reviewed was that Hofstede's national culture dimensions positively correlated with innovation and diffusion patterns across and within countries. Moreover, some studies advocated the idea that Hofstede's indices can be used as indicators on the rate of diffusion a product can have in a particular country, and whether that country can be labelled as innovative or lacking of such a trait. The scarcity of diffusion and adoption studies focusing on the MENA region has led the existing study to question the literature review's unanimous conclusion on the positive correlation between Hofstede's national culture theory and innovation literature.

Therefore, further investigation into the influence of the Arab State's respective national cultures on their diffusion patterns seemed necessary. Moreover, it would provide a deeper understanding of national culture's influence on national innovation and imitation levels. Doing so would establish a number of objectives.

- The present study would be able to provide the literature with different national culture profiles for the seven Arab States, seeing as it has not been attempted previously in cross national diffusion literature.
- Since there has been no national level diffusion or adoption studies taken on all seven Arab States, diffusion researchers could not make any logical inferences towards their adoptive behaviour or innovation levels for comparison's sake. In providing diffusion data for the MENA region, the present study would be able to contribute to the diffusion literature and subsequently infer whether diffusion findings are also applicable to the region.
- Correlating the findings of the present study pertaining to both theories would be able to provide the cross national diffusion literature with a new untested region. Hence, the

study would also be able to test the determinants of national innovativeness gleaned from cross national diffusion on the Arab States and also corroborate or negate the generalizability of the findings.

### 1.2.1 Proposed Methods

As this study is investigating the effect of national culture on adoption and diffusion patterns of the Arab States, the context of the study would be focusing on Hofstede's national culture as opposed to other theories on culture. The theory of diffusion of innovations is also measured using one diffusion model, which is the Bass Model. As such, other innovation and diffusion models are reviewed in the literature but not utilized by the present study. Moreover, only variables available to all the Arab States could be used in the correlational analysis, and because of the reliability and availability of time series data pertaining to the MENA region as whole, only a limited number of variables were analysed.

To achieve the previously defined aims and overcome the research's obstacles, the present study will attempt to replicate the latest survey from Hofstede (the VSM13 survey) and disseminate it to the original seven Arab States. The present study will reanalyse the scores according to Hofstede's original algorithm and divide the countries accordingly on the dimensions. Such a practice will be able to establish that in the present era, the Arab States are their own unique entities and as such should have their own separate scores on Hofstede's national culture dimensions. Likewise, the present study would gather public online national level data and utilize a diffusion model, the Bass Model, in particular, to capture the diffusion patterns of each Arab State. Other reputable sources used in adoption and diffusion research, such as the World Bank Statistics, will also be used to garner information on the Arab States socioeconomic and other country level characteristics to supplement the findings from Hofstede's VSM13 survey. This will allow a more thorough investigation into the relationship between national culture theory and diffusion and adoption research in regards to the MENA region.

### 1.3 Research Questions

It can be said that the literature review has fuelled much of the present study. The correlation

between Hofstede's theory and diffusion and adoption research has led to the formation of the study's research questions:

1. Are the findings of cross national diffusion literature applicable to the MENA region?
2. Do Arab States share a similar national culture, as implied by Hofstede's 1967 study?
3. Do Arab States share similar diffusion and adoption patterns?

According to the literature review, if question two can be answered with a definite no, then it can serve as an indicator that question three will also be answered negatively. The literature review has also served as a blueprint for the framework and research design of the present study. To be able to answer question two, it was considered critical that Hofstede's own research survey, the VSM13, be used on the Arab States on which he first conducted his survey. Such a choice was necessary for comparison's sake. Only in doing so, can the present study understand and answer its first question regarding the relationship between his national culture theory and diffusion and adoption research as it stands in regards to the Arab States. Devising a new instrument to measure national culture could have been an option, but that wouldn't have answered the research's questions. Nor would it serve the objectives of the present study, which is to understand the role that Hofstede's national culture dimensions play in diffusion and adoption research.

#### **1.4 Research Scope**

After clarifying the proposed methods to be applied to the present study, it is necessary to identify the locations of where the questionnaires will be disseminated. To reiterate, the surveys will be disseminated in seven Arab States: Lebanon, Egypt, Libya, Iraq, Kuwait, KSA, and UAE. Specifying the aforementioned locations is fundamental for comparison's sake, since these locations are those that Hofstede sampled in his original study. It was, according to Hofstede, only due to lost data that the Arab States were clustered (Hofstede, 2001). In surveying each state independently, the present study aims to provide an updated and an un-clustered national culture profile for each respective state so that they can be seen as separate entities in the relevant literature discourse.

Geography wise, the region is in fact home to several distinctive sub-regions, which can be further classified into North African countries (which includes Libya), the Levant countries (which includes Lebanon), the Middle East (which includes Egypt), and the Gulf States (which includes KSA, UAE, and Kuwait). The four distinct regions have their roots linked to historical division, geopolitics, and confederate alliances (Mahajan, 2012). From a political view point, most of the seven Arab States have undergone some sort of civil unrest. Some countries such as Lebanon, have never fully recovered from ongoing internal civil unrest, neighbouring wars, and the constant influx of Syrian and Palestinian refugees into its borders. Another country that is very reminiscent of Lebanon's turmoil is Iraq. Kurdish revolts, the Iraqi-Iran war, the invasion of Kuwait, the 2003 US invasion, and most recently an organized militant group called the Islamic State of Iraq and Syria (ISIS) has seized control of several Iraqi cities, instigating a new wave of turmoil and unrest. The MENA region has also come under the spotlight for the Arab Spring riots that sprung in most of its countries, which included countries such as Egypt and Libya. However, both countries have recently toppled their own corrupted regimes and presumably have elected a more representative government since late 2014.

Economically, the Gulf States, Kuwait, UAE, and KSA, are classified as the richer counterpart to their neighbouring countries. The value of the MENA region's GDP is approximately 2.8 trillion dollars, with the three Gulf States accounting for 4% of the GDP alone, with an average of one trillion and 300 billion dollars in GDP as of 2014 (World Bank Indicators, 2016). As such, they enjoy better economies thanks to their oil reserves and higher living standards than the remaining Arab States. However, it should be noted that the seven Arab States discussed above do differ in more than their geography, political, and economical history. Culturally, the MENA culture is very much like European culture, in which it may appear to have a unified homogenous culture on the surface, but looking deeper, it showcases a multitude of distinctive subcultures (Patai, 1952). Dialects within the region differ, as do clothing, and common customs, such as music and literature. Such differences can affect how marketing efforts are employed in targeting and segmenting the region.

For example, out of the sampled MENA countries, Saudi Arabia has the highest market restrictions due to its strict adherence to the Islamic Law and Shari'a (Melewar et al., 2000). Even though all the countries sampled have a high percentage of Muslims, Saudi Arabia is the

only country that prohibits women from driving, requires all women regardless of their religion to wear the veil, enforces segregation of the genders in all public places including the working environment, and have banned movie theatres in all its provinces. This has affected all brands and advertising targeting the country, in which images of women have been regularly blurred such as in the case of IKEA's catalogue, or erased such as in the case of Starbucks, in which the logo of the mermaid has been replaced with a crown. However, this is not the case with the other MENA countries, most notably the UAE, Iraq, Lebanon, and Egypt, in which public beaches are allowed, the selling and buying of alcohol is permitted, and discos and public dance clubs are the norm.

Hofstede has recently acknowledged that the region 'is less homogenous than would be desirable' (Hofstede, 2001). This particular admission has shaped the objective of the present study, which is to further examine the Arab States and investigate their differences or similarities on Hofstede's dimensions and their relevance to the international marketing field. In order to do so, Hofstede's latest instrument, the Value Survey Module 2013 (VSM13), was used. The instrument will help achieve the present study's objective which is to re-examine the Arab States according to Hofstede's theory and establish their individual ranking on his dimensions. Understanding the cultural differences evident in the Arab States is critical for international marketers interested in targeting the MENA region. Cultural differences have been confirmed by marketing literature, and particularly diffusion related studies, to be centric to the diffusion process. As such, certain cultural traits are conducive to quick adoption and innovative behaviour whilst others are limited towards only imitative tendencies. For example, international marketers were advised by Van den Bulte and Stremersch (2004) to target highly individualistic and low power distance countries, which were found to be more innovative. Yalcinkaya (2008) ascertained that product adoption will be quicker in low uncertainty avoidant and collective countries, and as such, international marketers should target these countries that exhibit such cultural traits for initial market entry. In regards to the Arab States, a similar and homogenous cultural ranking on Hofstede's scale will only limit the opportunities afforded to international firms targeting this huge consumer base. Painting them all as unified, can actually constrain the relationship and acceptance of products between the targeted Arab consumer and international firm.

Such an example can be seen from a case study undertaken by the company Unilever on one of their products Life Buoy, an antibacterial body wash. The international company was investigating why its penetration levels were lower than estimated in Lebanon compared to their KSA market. After speaking with several retailers and distributors in the Lebanese market, it appeared that consumers were averse to the image imposed on the bottle. The image was of a family composed of a father, mother, and son playing in the field. The aversion came from the image of the woman, who was clothed in a veil, an Islamic cloth for women to cover their hair. Unilever admitted that because of its standardization strategy, it unified all the images to comply with their biggest market, KSA, and expected all other markets to follow the same beliefs and values. Mahajan (2012) utilized Unilever's case study to warn international marketers against standardizing their strategies under the assumption that the MENA region was culturally similar. Lebanon is vastly different to KSA, in so much that its market is very liberal and secular and not constrained by any law that dictates that products and services should be Islamic compliant, as in KSA's market. Moreover, Lebanon is the most religiously diverse country out of the sample, with Christianity representing 40% of its population (CIA Fact book, 2016). This may explain why Life Buoy's image of a Muslim family was not as well received by Lebanese consumers as Unilever expected. It is such discrepancies evident between national cultures within the MENA region that the present study wishes to confirm by means of de-clustering them on Hofstede's dimensions.

**MENA REGION**  
(MIDDLE EAST & NORTH AFRICA REGION)



**Figure 1.2 MENA region courtesy of UNICEF**

## **1.5 Dissertation Outline**

Having outlined the introductory aspects of the present study, this section provides an overview of the seven chapters that comprises this dissertation. A brief description of each chapter is outlined below followed by an illustrated structure of the thesis in Figure 1.3 flow diagram.

### *Chapter one*

Chapter one introduces the research problem of the present study as well as gaps in the literature that led to the aims and objectives of the present study. The research questions are then outlined along with the research scope. The chapter concludes with an overview of the entire thesis and presents an illustration of its research process.

### *Chapter two*

The chapter begins with an overview of the diffusion of innovations theory and the diffusion models related to the present research. A review of the concept of national culture follows along with the relevant national culture theories. A critical appraisal of the relevant studies investigating the effect of Hofstede's national culture on diffusion of innovations concludes the chapter.

### *Chapter three*

The chapter addresses the research methodology, research methods, and design. The philosophy behind the research is also outlined along with the selection of data analysis and validation techniques employed.

### *Chapter four*

Chapter four describes the analysis and findings from the dissemination of Hofstede's national culture's latest survey on the seven Arab States. The first section of Chapter four pertains to the analysis of the data gleaned from the dissemination. The latter sections are dedicated to the theoretical implications of the new ranking of the Arab States on all of national culture's dimensions.

### *Chapter five*

This chapter revolves around the diffusion of innovations theory, particularly the Bass Model. Chapter five refers to the analysis of the data gleaned from the Bass Model's estimation of the Arab State's respective yearly telecommunication data. Telecommunication data was chosen to be the innovation under study, because it was the only indicator with enough available data on all Arab States. The chapter also outlines the theoretical implications of the new ranking of the Arab States according to their innovation levels. Their telecommunication sector history is also discussed in relation to their innovation levels.

### *Chapter six*

Chapter six discusses the correlations between national culture with diffusion data, along with other selected country characteristics. Chapter six's first sections are dedicated to the analysis of the data gleaned from the correlational test, while later segments are concerned with the theoretical implications of the findings in relation to cross national diffusion literature.

### *Chapter seven*

This chapter summarises the research findings, contributions, and managerial implications in the international marketing field. It also details the limitations of the present study along with future research recommendations in the area of cross national diffusion.

## **1.6 Summary**

This chapter provided an introduction to the research through identifying the research problem, research gaps, aims, objectives, and research questions. The scope of the present study was also outlined followed by a brief description of the entire thesis to provide a better understanding of the dissertation's structure. Having introduced the main research and its objectives, the next chapter will be dedicated to reviewing the literature along with the existing theories and models relevant to the research problem and which can enable it to answer the research questions.

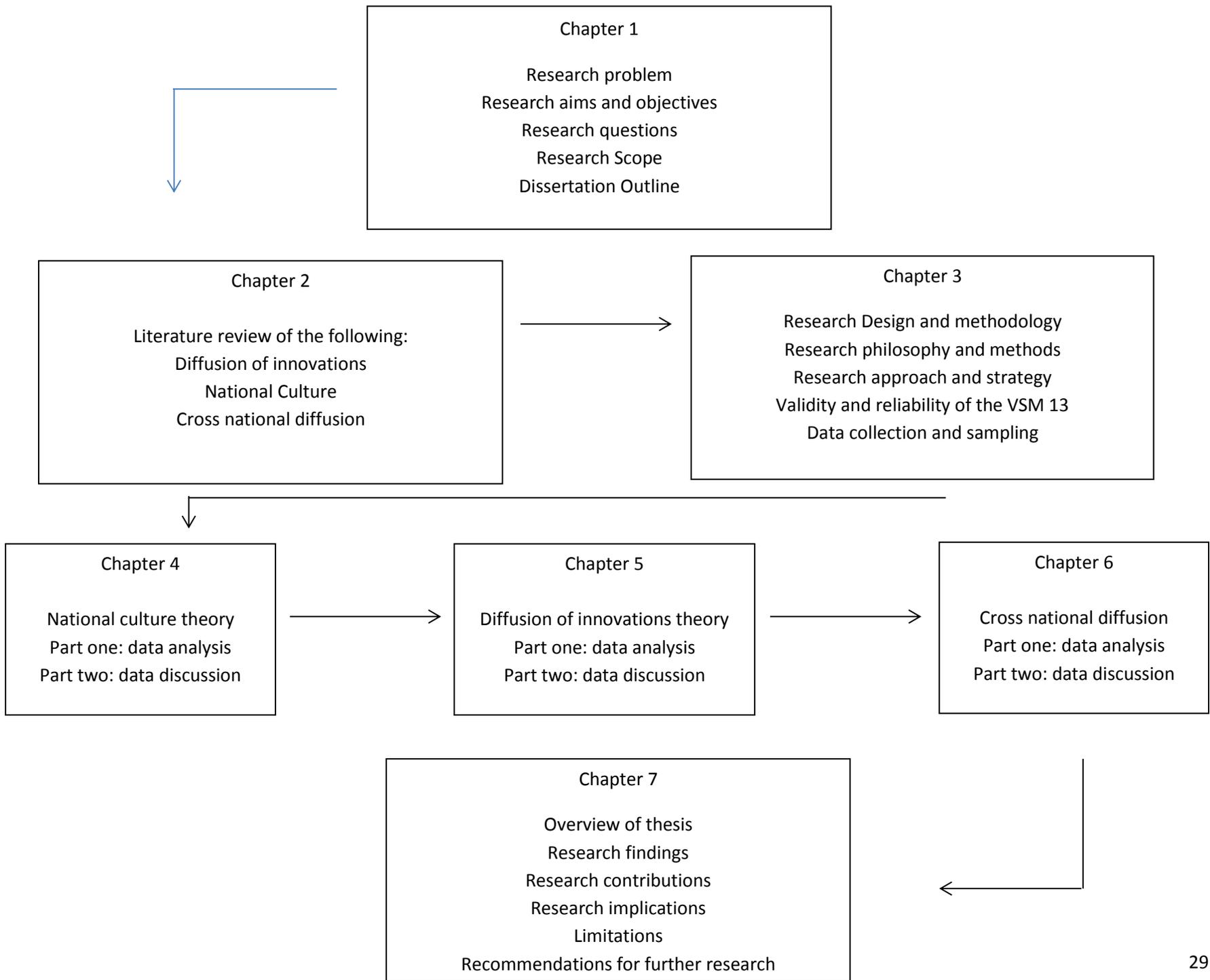
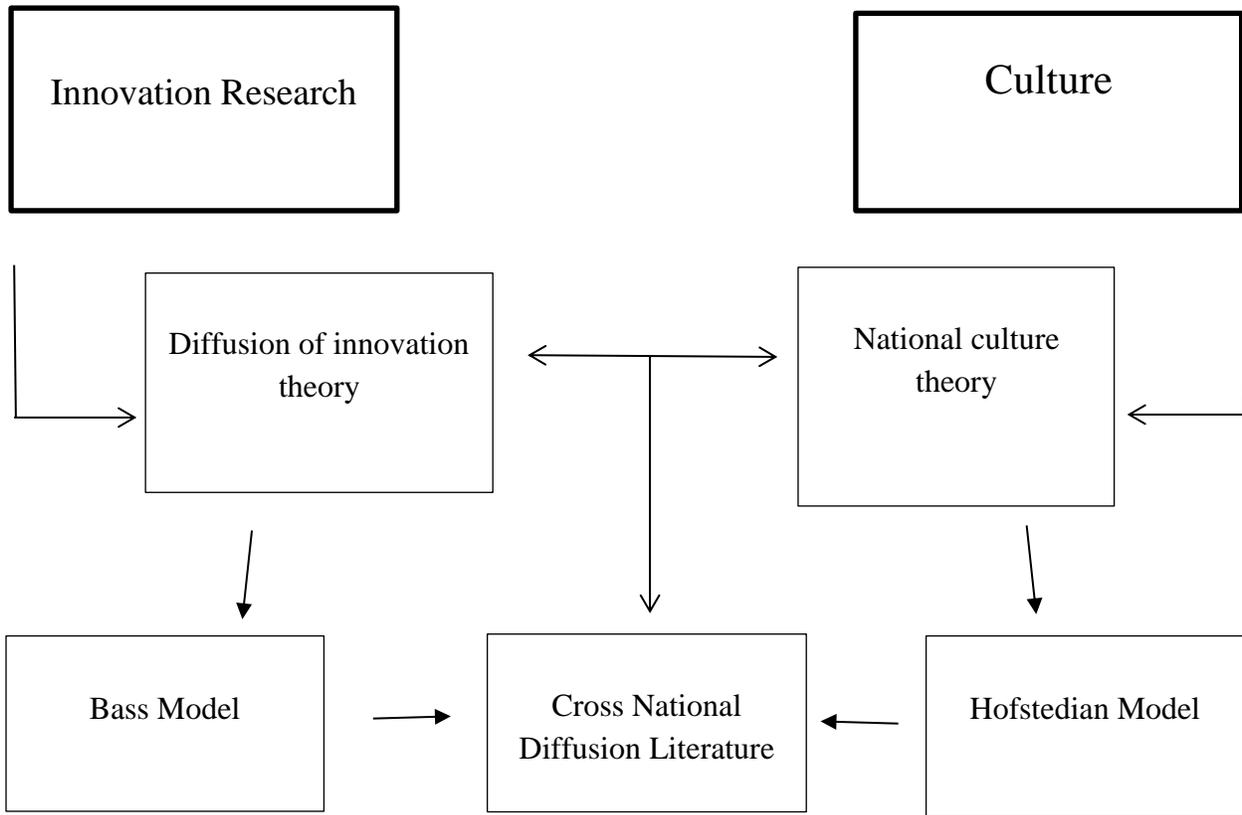


Figure 1.3 Flow diagram of the thesis

**Chapter 2**  
**Literature Review**



The aforementioned literature review focuses on studies that were based on cross national diffusion and of which utilized Hofstede's national culture dimensions and the Bass Model.

**Figure 2.1** Structural module of the literature review

## Chapter 2 Literature Review

### 2.0 Introduction

International marketing managers are often introducing new products within their own domestic market as well as across foreign markets. Globalization is a major contributor in the adoption and diffusion of new products and technologies. Therefore, the diffusion process across countries is becoming more important because of its implications on the success of these new products and technologies (Yalcinkaya, 2008). Some may view globalization to mean the homogenization of culture and on that premise consumers are being treated in a similar fashion. They are given the same products with little attention to the cultural differences and their impact on the acceptance of new products and new technology. However, there have been studies that argued that cultural values and differences do in fact have an impact on adoptive behaviour and on consumption habits in particular (Suh and Kwon, 2002; Yeniyurt and Townsend, 2003).

Several researchers have already emphasized the importance of culture and innovation as well as their combined effect on each other (Takada and Jain, 1991; Yaveroglu and Donthu, 2002; Steenkamp et al, 1999; Van den Bulte and Stremersch, 2004). Two imperative theories have been used in conjunction to explain how cultural differences can affect the level of innovativeness: national culture and diffusion of innovations theory. Primarily, the following review focuses on the literature within cross national diffusion that specifically uses Hofstede's national culture dimensions to represent culture's effect on the diffusion of innovations.

The first half of the literature review will go through the different meanings and concepts as well as frameworks within innovation literature. The latter half will investigate the importance of culture in adoption and diffusion research, as well as detail the criticism aimed at the concept of national culture. An appraisal of other national culture theories present in the literature will be followed along with a synthesizing table in addition to the present study's reason for choosing Hofstede's particular theory. His dimensions and its relationship with Arab States, will also be elaborated on; in addition to Arab States relationship with innovation literature. A summary will follow and will signify the final section in this chapter.

## 2.1 Innovations Research

### 2.1.1 What is innovation?

The meaning of innovation has come to represent a set of diverse conceptualization in the existing literature, making it very difficult to limit its meaning to one definition. A multitude of disciplines have studied the phenomena of innovation and each has added to its meaning, according to their perspective (Damanpour and Schneider, 2009; Harmancioglu et al., 2009). Rogers (2003) defines an innovation as an idea, product, or a technology that is new to the adopting unit. Research on the diffusion of innovations mainly addresses technological innovations and as such technology and innovations can be seen as synonyms in the literature (Rogers, 2003). Rogers identified five perceived attributes of innovations which he believed are significant predictors of how fast the innovations will become adopted. The attributes are: 1) relative advantage 2) compatibility 3) complexity 4) trialability 5) observability.

Rogers (2003) also defines the relative advantage of an innovation as being better than the idea prior to it. The nature of the innovation can determine its relative advantage, be it economic or social. However, characteristics of adopters can influence which relative advantage they find to be more important. For example, cost of the innovation and social status could be considered elements of relative advantage from the point of view of the consumer. Moreover, compatibility is defined as the degree in which the innovation does not negate the adopter's beliefs, values, and needs. Complexity is the perceived difficulty of the innovation and how much effort should be put in by the adopter in understanding and using it. Trialability is the ability of the adopter to experiment with the innovation and clear away any uncertainty regarding its usage. The last attribute is observability which describes the visibility of the results gleaned from adopting the innovation.

Rogers (2003) indicates that innovations that offer more relative advantage, compatibility, trialability, and observability will be adopted faster than other innovations. However, he implies that attributes of innovation are not the only important factor in accepting or rejecting an innovation. Rogers cites the *innovativeness* of consumers as another crucial variable in the acceptance or rejection of innovations.

### 2.1.2 What is innovativeness?

*Innovativeness* is considered an important variable in innovations research and is defined as ‘the degree to which a responding unit is relatively earlier in adopting an innovation than other units in the system’ (Rogers, 2003). *Consumer innovativeness* is when the responding unit refers to individuals, whereas *national innovativeness* pertains to countries as the responding unit (Lee, 1990). Rogers believes that innovators can make innovation related decisions independently without the outside influence of other consumers. His conceptualization is considered to be a measure of one’s innovativeness. It deals with product adoption, which is a tool that can be measured. On the other hand, Midgley and Dowling (1978) express innovativeness as the ‘degree to which an individual is receptive to new ideas’. They believe it deals with one’s predisposition to adopt (adoptive behaviour), which is considered to be very hard to measure if the unit of adoption is a country and not an individual (Lee, 1990). That is why Rogers’ definition is considered most appropriate when studying innovativeness on a national level, while Midgley and Dowling’s (1978) definition is popular among consumer adoptive behavioural studies.

Detailing the characteristics of the adopters and their varying inclination to innovate can help determine the probability of them adopting an innovation at various stages. The objective is to have a simplified construct to understand the influence of an otherwise complex combination of communication, social structure, demographics, and culture (Daghfous et al., 1999). Rogers (2003) classifies the categories of the adopters according to their innovativeness. The categories are: innovators, early adopters, early majority, late majority, and laggards. Rogers proposes attributes, or ideal types, to represent each adopter category. Innovators are characterized as individuals who are willing to experience new ideas, wealthy, and are able to deal with a high degree of uncertainty regarding the innovation he or she adopts. Early adopters are individuals who are more integrated into the society, and are considered leaders by their peers. Their leadership qualities decrease uncertainty about the innovation and so if they adopt the innovation then it is proposed that the rest will readily follow.

Early majority constitute of individuals who adopt the innovation just before the average member of a society. They may be deliberate in their adoption decision, but most often their

interpersonal networks will pressure them to follow the rest of the members of their society. Late majority are considered to be the sceptics; rarely adopting an innovation until everyone has already done so. Their decision into finally adopting may come from necessity or social pressure. The final category is that of the laggards, and they are thought of as individuals who possess no leadership qualities. They are considered traditional and detached from the interpersonal networks in their society (Rogers, 2003).

Rogers' adopter categories were criticized for lacking empirical evidence towards the existence of the 'trait innovativeness' with other personality traits (Steenkamp et al., 1999; Wright and Charlett, 1995). Moreover, the adopter categories may vary according to the innovation under study and therefore an adopter of one innovation may be a laggard for another (Rogers, 2001). Additionally, Rogers provides no justification as to why innovators represent just 2.5% of adopters of a given innovation. The size of the adopter categories of any innovation is believed to be different and therefore a flexible variable (Mahajan et al., 1990).

Other scholars believe demographic characteristics such as youth, wealth, and high education to be better predictors of consumer innovativeness (Gatignon and Robertson, 1985). Some believe that innovativeness is affected by psychographic characteristics like innovative predisposition, risk taking, and leadership (Midgley and Dowling, 1978), while others believe it's a mixture of both as well as consumption attitude (Wang et al., 2008). Nonetheless, innovativeness is very relevant to marketing theory, as well as marketing practice. It is central to the theory of the diffusion and adoption of innovations, in which markets and consumers can be segmented according to their innovativeness (Lee, 1990). That is why innovativeness is a factor in the success of new product introductions in new markets. To recap, identifying key attributes of innovations and segmenting your markets according to their innovativeness will allow marketing researchers a greater chance of predicting if their innovations will be adopted or which segments to target first.

### 2.1.3 What is innovation adoption?

According to Rogers (2003), the process of *adoption* is to fully exploit and make use of the innovation. The *rate of adoption* is the relative speed in which the innovation is adopted by individuals in a society. Rogers states that the first act of adopting a particular innovation is to

fully accept the innovation. He describes the process of innovation adoption as a five sequential stage beginning with knowledge, persuasion, decision to adopt or reject, implementation, and finally confirmation.

In the first step, the potential adopter learns about the existence of the innovation. Instinctively, the individual will either form a positive or negative attitude towards the innovation. The next stage is the persuasion stage, in which the individual's attitude is reinforced by his or her peers and their own subjective evaluations of the innovation. This process decreases the uncertainty regarding the adoption of the innovation, making it easier to adopt or reject.

The third stage is the decision stage, in which either the innovation is adopted or rejected. The implementation stage is when the innovation is put to use and where reinvention may occur. Reinvention occurs when an innovation is changed or modified by the adopter. Reinvention can help speed the adoption process if the innovation is seen as flexible (Rogers, 2003). In the final stage, confirmation, the adopter looks for outside sources to support his choice in adopting a particular innovation. Rogers included other factors that can speed the rate of adoption such as type of innovation decision, the communication channels, the social system, and the promotion efforts of change agents.

*Innovation decision type* can be either an optional (decision made by an individual), collective (decision made as a group) or authority (decision made for a group by a few individuals) type decision. Rogers indicates that optional and personal innovations are adopted faster than collective or organizational innovations. The importance of *communication channels* in the spread and adoption of innovations is mainly seen through the influence of mass media and word of mouth (Bass, 1969). Mass media can represent the effect of TV, radio, or advertising on spreading the awareness of the innovation. Word of mouth, on the other hand, explains the interpersonal communications between consumers and their effect on spreading a given innovation to other members of society.

Segments of consumers that are affected by media were thought to be innovators, mostly influenced by external factors. They were susceptible to advertising and were interested in the latest and greatest products in the market. In contrast, consumers most affected by interpersonal communications are considered to be imitators; individuals who are only influenced by their

peers and societal pressures (Mahajan et al., 1990; Bass, 1969). Early research placed much of the weight on the adopter and his role in spreading the innovation (Rogers and Shoemaker, 1971). While others cite mass media effects as well as interpersonal communications as influencing factors on consumers' propensity to adopt (Tellefsen and Takada, 1999; Bass, 1969). Nonetheless, both internal and external influences are integral parts of the communication channels and are considered important factors in innovations research.

The *social system* affecting the rate of adoption is identified by Rogers (2003) as a representation of the norms within a society. Norms are the established patterns for members of a society. If the innovation is perceived as congruent with the norms of a society, then the rate of adoption will be quicker and higher than if the innovation was seen as incompatible. In some cases, the social system is seen as a representation of the culture of the society under study. The *change agents* are seen as promoters that can influence others to adopt the innovation faster, thus speeding the rate of adoption in their social system. They are considered to be individuals assigned to influence consumers' decisions in adopting a particular innovation. Change agents can be teachers, salespersons, and public health speakers, for example.

They can be seen as a link between the *resource system* (responsible for the innovation) and the *client system* (the consumers). Their job is to promote the innovation and help speed its acceptance and adoption through the social system. Therefore, their promotion effort is an important variable in the adoption of innovations by consumers (Rogers, 2003). Both the perceived attributes of an innovation and the additional four variables (type of innovation decision, communication channels, social system, and change agents) are considered factors that influence the rate of adoption of innovations. However, the literature includes other varied models that explain the adoption process and what a potential adopter may experience.

For example, Zaltman et al., (1973) concluded that the adopter goes through a six stage process that includes: knowledge, awareness, attitudes formation, adoption decision, initial implementation, and sustained implementation. Additionally, Kwon and Zmud (1987) describe a set of five activities that the adopter experiences when adopting a set of innovations: initiation and progression through to adoption, adaptation, acceptance, routinization, and infusion. Likewise, Darmawan (2001) describes the adopter as going through four stages beginning with initiation, followed by adoption, implementation, and evaluation. Understanding the varied

models and factors involved in the adoption of innovations will help aid multi-national companies in many decisions such as picking the right expansion strategy, market entry decisions, as well as aid them in improving forecasting of demand and sales of newly introduced products (Yaveroglu and Donthu, 2002).

To recap, innovations, innovativeness, and innovation adoption are all terms used in innovations research. Innovations can represent the “*what?*”, innovativeness the “*who?*”, and adoption rates the “*how?*”. The only missing question is “*why?*” Why do innovations matter, why are consumer innovativeness measured, and the adoption rates predicated? The ability to answer those questions is the sole objective of the *diffusion of innovations research*. The “whats”, “hows”, “whos”, and most importantly “whys”, are the focal point in diffusion of innovations research. Diffusion of innovations research attempts to combine the importance of innovations, consumers’ ability to innovate, and their adoption rates to understand the diffusion process inherent in the study of innovations.

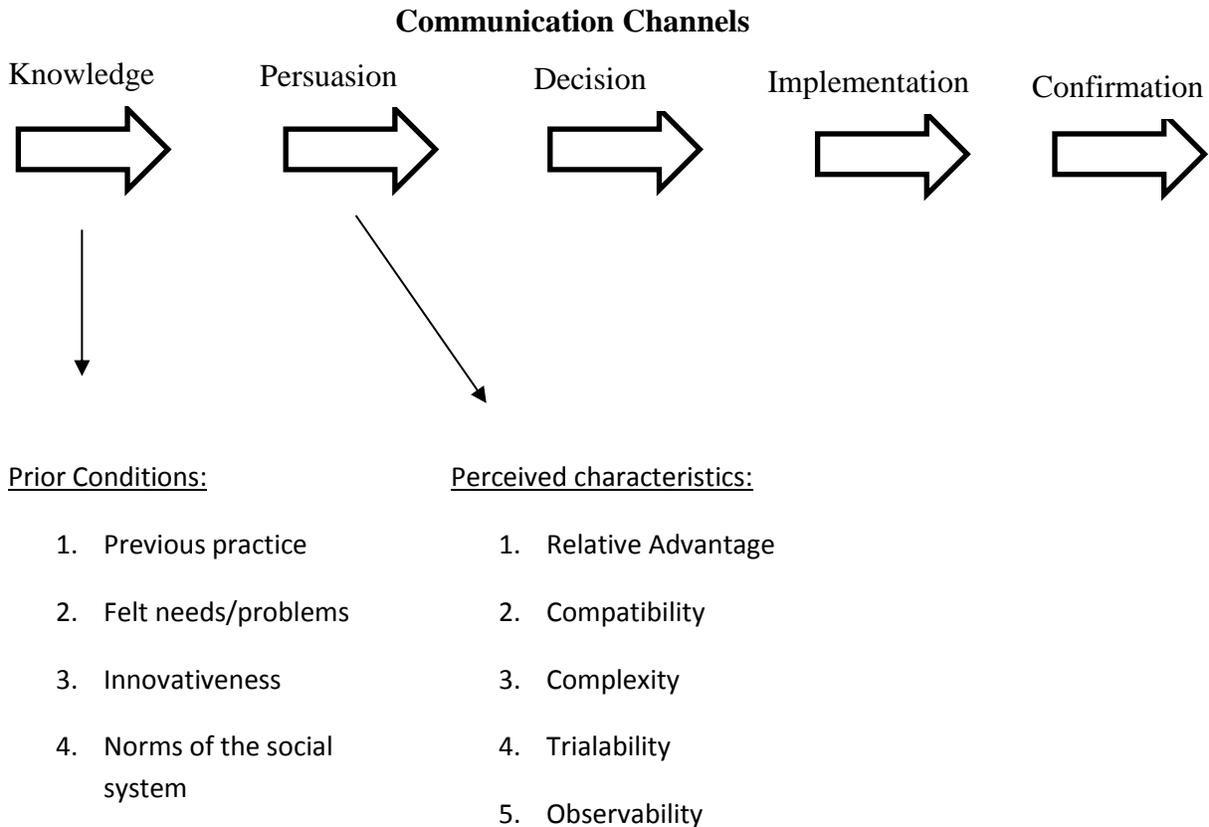
## **2.2 Diffusion of Innovations**

According to Rogers (2003), diffusion is the *process* in which the innovation is communicated through certain channels over time among the members of a social system. There are four elements to the diffusion process and they are: the innovation itself, the communication channels, time, and the social system. Both elements of innovation and communication channels were discussed previously in section 2.1.3. The third element measures the time a consumer takes to adopt an innovation and the rate of adoption. The fourth element, as discussed previously, pertains to how the social system influences the adoption and diffusion of innovations.

No single theory can fully define the diffusion of innovations, due to the varied fields and theories that measure it (Harmancioglu et al., 2009). The term innovation itself can come to mean and encompass many ideas, products, and processes. A unifying definition, even if useful, will limit and construct an otherwise complex phenomenon (Wolfe, 1994). Therefore, the literature is seen as rich with the varied theoretical models and theories that try to capture the multiple factors involved in the diffusion of innovations research. Following the end of section 2.2.9, Table 2.1 summarises the prevalent theories within diffusion of innovations literature.

## 2.2.1 Diffusion of Innovation Theory (DOI)

The model introduced by Rogers (2003) is viewed as the most cited theoretical model for innovation adoption (Sahin, 2006).



**Figure 2.1** Rogers (2003) Diffusion of Innovations Theory

Rogers' diffusion of innovations theory has been discussed in previous sections. However, to reiterate, his theory defines diffusion as the process at which the innovation is communicated through certain channels by the members of a social system. Rogers includes four elements that are crucial in diffusing the innovation: the innovation itself, the communication channels, time, and the social system. He also categorizes adopters of the innovation into five types: innovators, early adopters, early majority, late majority, and laggards. He believes that adopters will adopt or reject a given innovation based on five attributes: relative advantage, compatibility, complexity, trialability, and observability. The adopter will assess the innovation as he or she goes through a

five stage process beginning with knowledge, persuasion, decision to adopt or reject, implementation and later confirmation.

Most of the diffusion of innovations research has been analysed according to Rogers' theory (Harmancioglu et al., 2009). There has been criticism towards Rogers' diffusion of innovations theory. Most notably, Rogers himself has cited that data gathering over a subsequent amount of time may lead to respondent sensitization. He has said that the measurement procedures of diffusion research have often been stereotyped, which led to the diffusion findings becoming very similar to each other (Rogers, 2001). Moreover, there is a substantial argument that no general linkage can be found between the time a person adopts and their personal characteristics (Midgley and Dowling, 1978). The belief that innovativeness can be discerned from relative time of adoption is seen as problematic not only from the difficulty of establishing a relationship between the two variables, but essentially from having the trait 'innovativeness' related only to the specific type of innovation being measured at the time.

### 2.2.2 The Bass Model

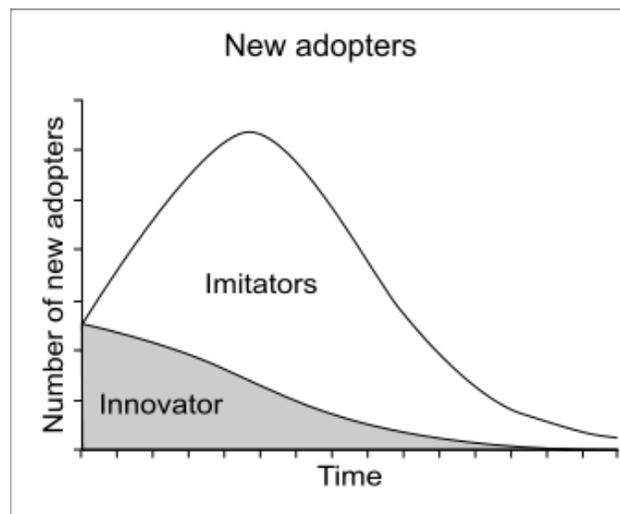


Figure 2.2 Bass Model (1969)

Bass (1969) provided a mathematical formula that can predict the rate of adoption. It is considered to be very important in the marketing field in particular, because it provides a forecasting model on how many adoptions may occur in the future (Bass, 2004). This greatly simplifies the complexity of understanding the diffusion process occurring on a national level,

which has made the model accessible as well as usable for a lot of marketing researchers (Rogers, 2003).

Mathematically the Bass model can be expressed as:

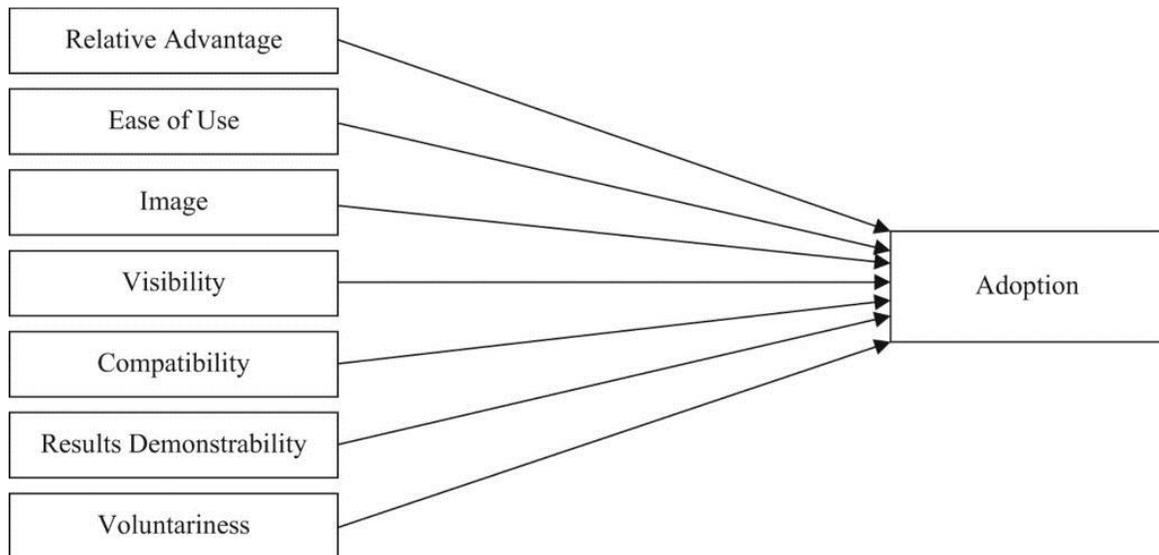
$$P(t) = p + (q/m) Y(t)$$

Where P is the probability of purchase at a certain time denoted by (t). The coefficient p is the initial probability of a trial, which is a reflection of the effect of external influences such as mass media and advertising. This is why the coefficient (p) refers to innovators, since the Bass Model is built on the assumption that innovators will adopt an innovation purely because of mass media influences. The term (q/m) refers to the number of potential adopters (m) and the effect of interpersonal communications (q). The coefficient (q) is also called the coefficient of imitation, in which its representative of adopters are mainly affected by personal interactions and communications. Y(t) is the total number of people who have ever purchased, thus magnifying the effect of social interactions on the adoption rate.

Many researchers sought to understand the effects of mass media and social interaction on consumers. External influences as outlined by the Bass Model were tested in several international settings (Talukdar et al., 2002; Takada and Jain, 1991; Singh, 2006). However, it is necessary to indicate that the Bass Model does not detail the nature of the interpersonal communication that takes place in the adoption phase. Moreover, it does not predict the time of adoption in regards to innovators versus imitators. The only distinction between innovators from imitators is on the effect of external and internal influences on their adoption decision. More discussion of the Bass Model will be detailed in Chapters five and seven.

### 2.2.3 Perceived Characteristics of Innovating (PCI)

PCI is an extension of Rogers' DOI theory. Moore and Benbasat (1991) extended Rogers (1983) five attributes of innovation to include image and voluntariness. Image is described as the equivalent of the status symbol, or the improvement one gleans from adopting the innovation. Voluntariness is the degree in which the innovation is voluntarily adopted.

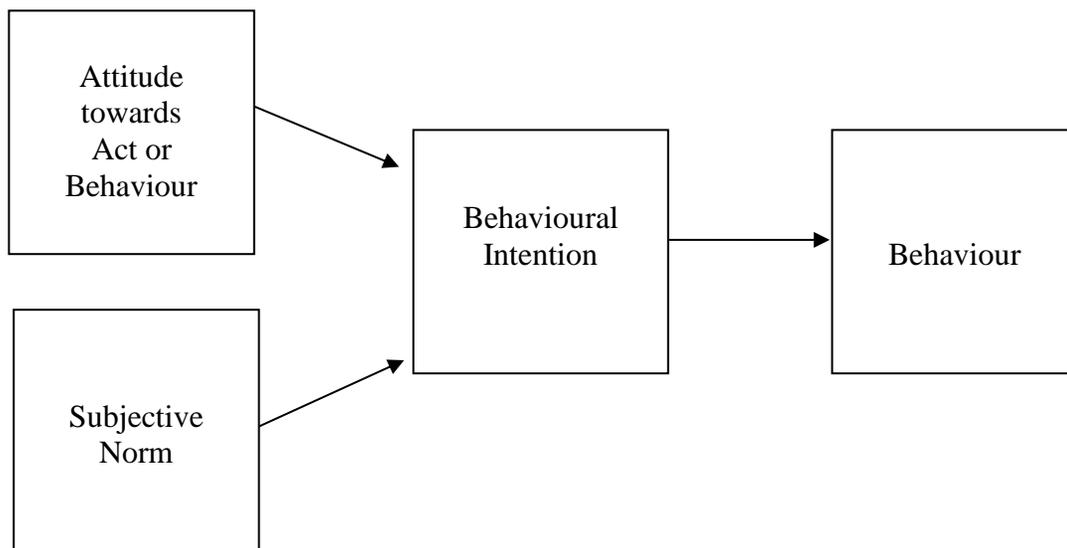


**Figure 2.3** Moore and Benbasat (1991) PCI Model

Moore and Benbasat (1991) further dissected observability into result demonstrability and visibility. Result demonstrability means the direct observation of the innovation's results/benefits on other adopters. Visibility, on the other hand, is the direct observation of the usage of the innovation by other adopters. The scales developed by the authors provide an instrument for other researchers investigating perceptions of innovations. However, it is acknowledged that the particular innovation of which the scales were designed to measure may not be representative for all innovations under investigation. Moore and Benbasat do contend that their scales were derived to measure a particular innovation, the Personal Work Station, and its subsequent context, organizational work. As such, it may be in need of further additional checks for validity and reliability when used for different innovations and contexts. Therefore, caution should be administered when applying these scales to understand the perception of adopters on different types of innovations and contexts.

## 2.2.4 Theory of Reasoned Action (TRA)

TRA model, introduced by Fishbein and Ajzen (1975), is cited as one of the first theories designed to explain any human behaviour. The research concluded that one's behaviour is determined by his/her attitude as well as his/her perceptions of society's pressure towards the performance of the behaviour. The central factor in the theory of reasoned action is the individual's intentions (motivation) towards performing a particular behaviour (ability). The logical conclusion would be that motivation and ability will interact to cause behaviour. However, one limitation to the model was its inability to explain behaviours of which people have incomplete voluntary control. Ajzen later extended the theory to include perceived behavioural control in the theory of planned behaviour.



**Figure 2.4** TRA Model by Fishbein and Ajzen (1975)

## 2.2.5 Theory of Planned Behaviour (TPB)

This theory is introduced by Ajzen (1991) to predict the user's intention to perform a certain behaviour. In essence, TPB is derived from TRA and uses the same constructs. However, the difference lies in the addition of the construct 'perceived behavioural control'. This construct reflects the external and internal factors influencing behaviour. The addition allows the model to

measure both controllable and uncontrollable behaviour. According to the theory of planned behaviour, perceived behavioural control in addition to behavioural intention can be used to predict behaviour. Ajzen provides the example of two individuals who want to learn to ski. Providing they have two equally strong intentions to learn skiing, only the one with a stronger perceived behavioural control (confidence in his ability to learn) will master the skill of skiing. Therefore, accordingly, both constructs in conjunction can successfully predict the probability of behaviour.

It is true that the theory of planned behaviour distinguishes between three different types of beliefs: behavioural, subjective, and perceived behavioural control. However, it should be noted that the distinction and the ability to distinguish between them have been questioned. Moreover, the exact form of relationship between the three types of beliefs is still undefined, and as such the author does believe there is room for improvement.

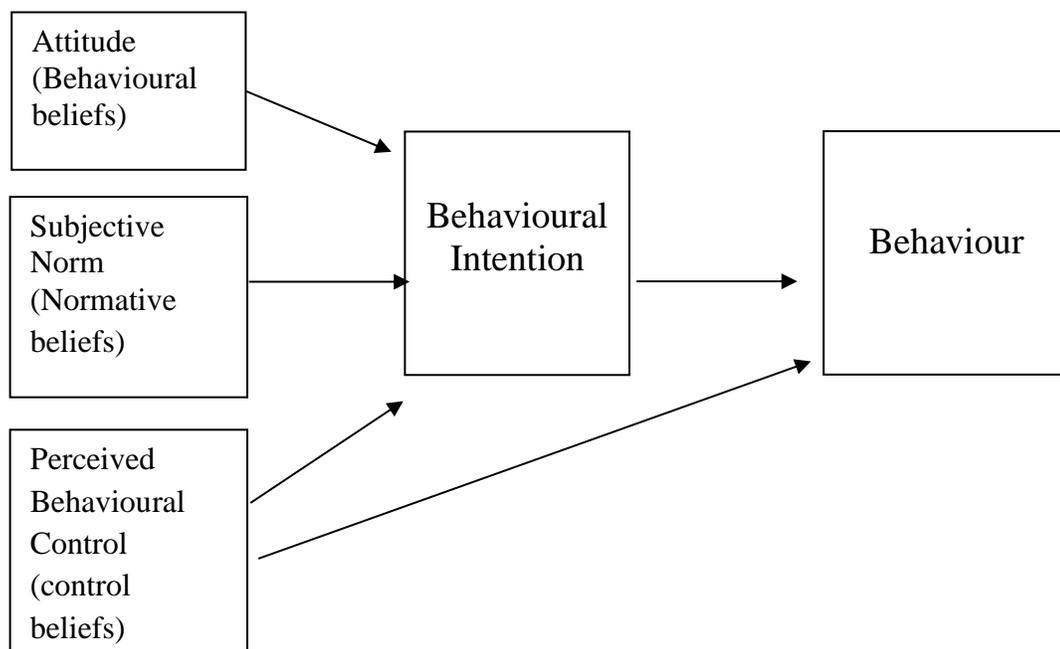


Figure 2.5 TPB by Ajzen (1991)

### 2.2.6 Technology Acceptance Model (TAM)

TAM, introduced by Davis (1989), is another adaptation of the previous model, TRA. Similar to TRA, TAM investigates the attitudes and behaviours of users towards adopting innovations.

However, unlike its predecessor, it's modified to address IT user acceptance and to provide an explanation towards determinants of computer acceptance. Despite the TAM being less general than TRA, it is still deemed useful in diffusion of innovations research, particularly because it can be applied to technological innovations.

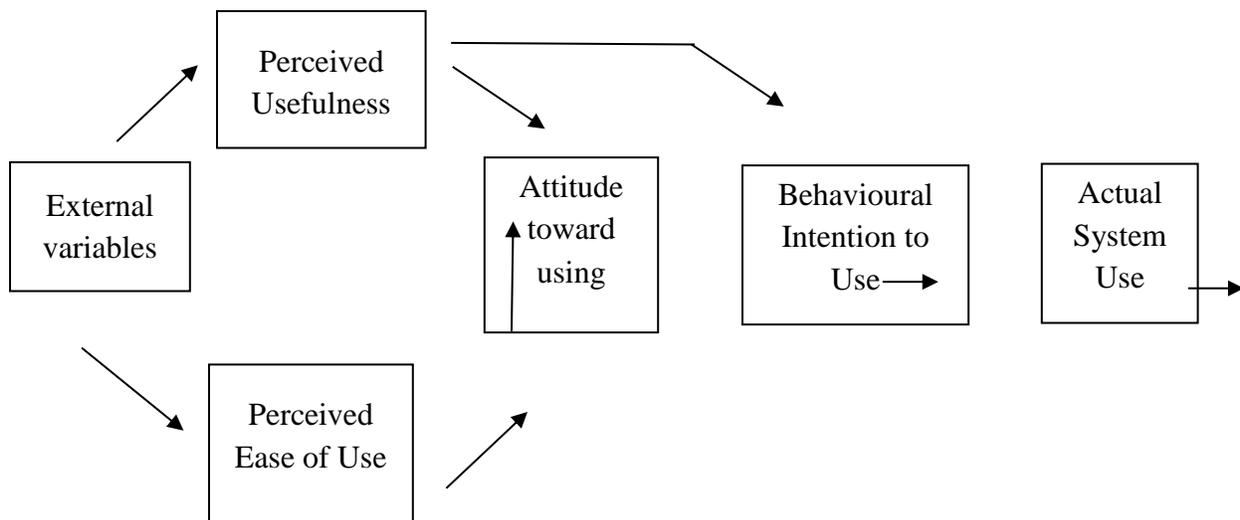


Figure 2.6 TAM by Davis (1989)

What TAM measures are two attributes that Davis (1989) consider influencing agents on the process of adoption: perceived usefulness and perceived ease of use. He believes that the two attributes will affect the user's attitude, which in effect will determine the user's intention and by default the final usage of the system. Davis et al., (1989) believe that external factors (compatibility and technological innovativeness) are key in influencing the user and the usage of the technology, or system studied.

However, because of uncertain theoretical scales, subjective norms were not included in the model. Moreover, the author believes more sophisticated methods are called for when measuring and assessing social influences in the context pertaining to IT acceptance. Therefore, more research is needed to better understand the effect of these influences on usage behaviour. This need has resulted in several extensions and modifications of the TAM, which can be seen in the following sections.

### 2.2.7 Technology of Acceptance Model 2 (TAM2)

Further modification was added to TAM by Venkatesh and Davis (2000) to include the additional constructs of social influence and system characteristics to further explain the determinants of perceived usefulness. Like TRA, subjective norms were added as well as image to represent the social influence that may factor in the adoption process. System characteristics included: job relevance, output quality, and result demonstrability.

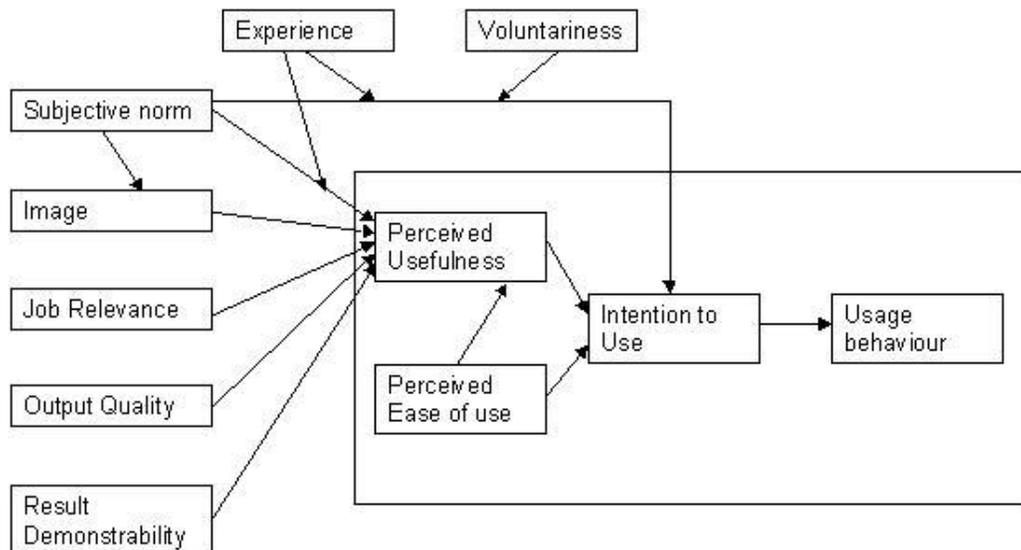


Figure 2.7 TAM2 by Venkatesh and Davis (2000)

Even though the model encompassed the role of social influences on the adoption process, the authors still believe it can be further elaborated beyond the scope of the TAM2. Moreover, the authors call for further research to expand the model to include other constructs, such as training, changes in work content, job goals, or even misperceptions of usefulness or ease of use. Venkatesh has followed his own advice and added several constructs to the TAM2 in order to develop a more comprehensible and integrated model representative of IT acceptance and use. This integrated model has become known as the TAM3.

### 2.2.8 Technology of Acceptance Model 3 (TAM3)

Further extension of the TAM2 is seen in the TAM3, proposed by Venkatesh and Bala (2008). Additional theoretical constructs such as facilitating conditions (computer self-efficacy, perception of external control, computer anxiety, and computer playfulness) and individual differences (perceived enjoyment and objective usability) were added as further determinants of perceived ease of use.

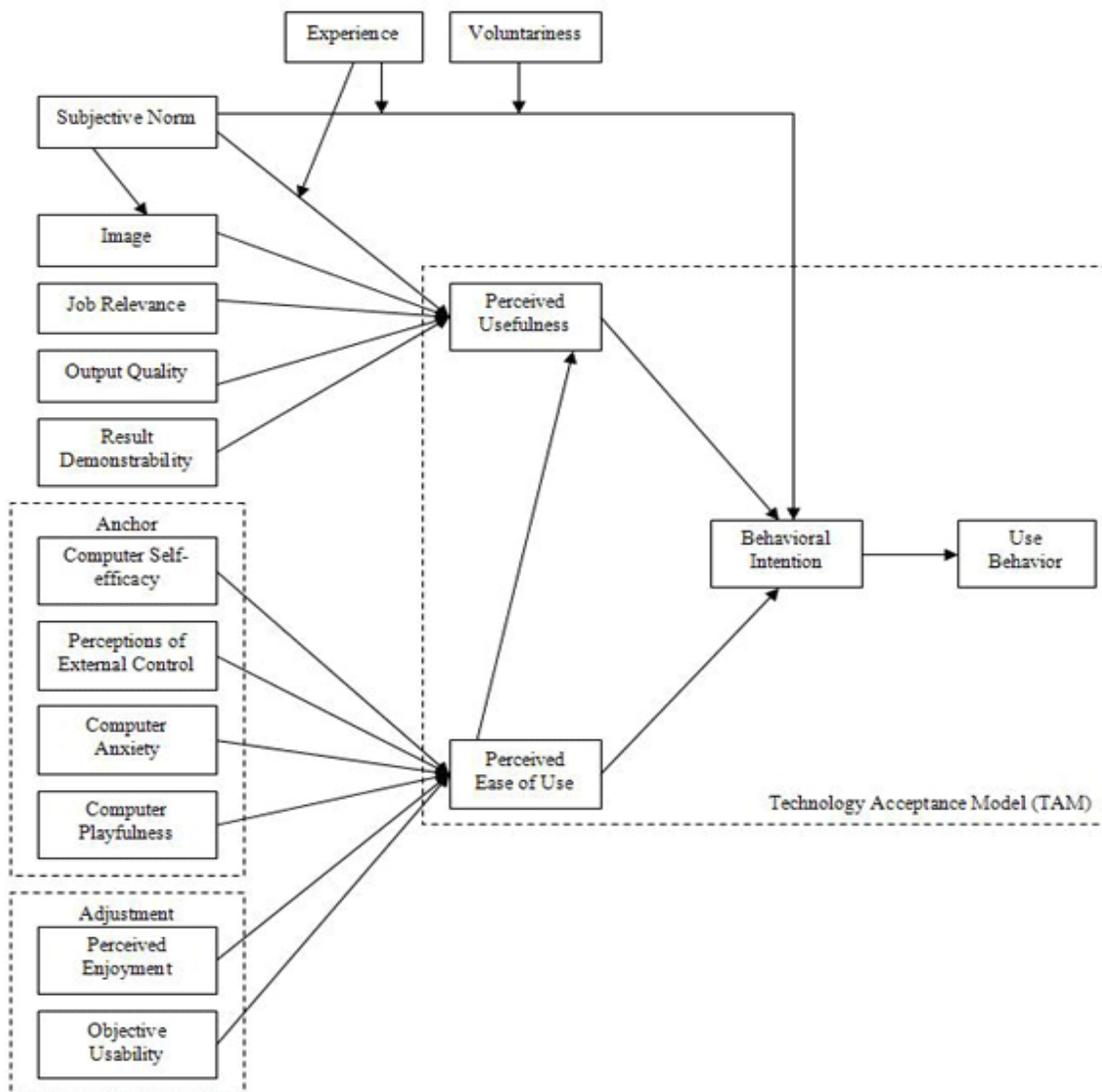


Figure 2.8 TAM3 by Venkatesh and Bala (2008)

The authors believe their most important contribution to be their description and outline of

relationships amongst the determinants of perceived ease of use and perceived usefulness. The TAM3 is thought to emphasize the roles and processes of the determinants to the two constructs perceived ease of use and perceived usefulness. It also showcases that the determinants of each respective construct do not affect or overlap each other.

The general consensus of the study is that if the determinants of IT adoption and acceptance are understood, then resistance to the implementation of new technologies can be minimized as well as allow for it to be effectively utilized. As such, Venkatesh and Bala believe that their new and updated version, the TAM3, is an effective tool for IT acceptance and adoption.

### 2.2.9 Unified Theory of Acceptance and Use of Technology (UTAUT)

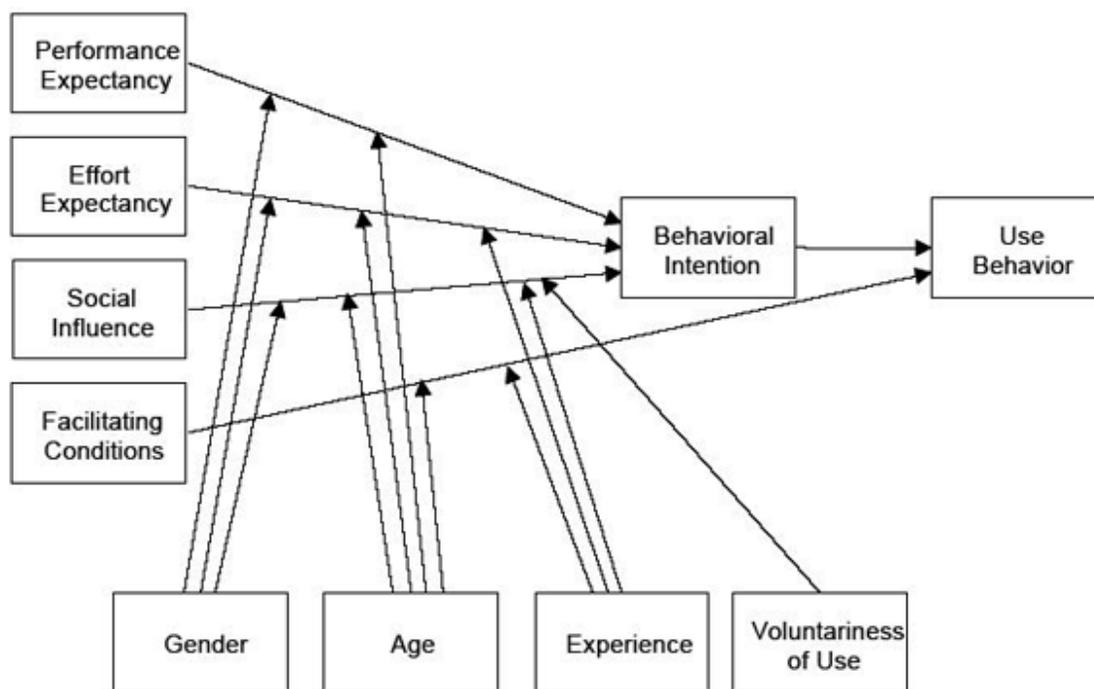


Figure 2.9 UTAUT by Venkatesh et al., (2003)

The theory was first introduced by Venkatesh et al., (2003) to explain user intentions and behaviour towards IT in particular. The model has four determinants of user intention towards the adoption of IT: performance expectancy, effort expectancy, social influence, and facilitating conditions. All four determinants are further mediated through gender, age, experience, and voluntariness of use.

The model is thought to be derived from an amalgam of past models such as the TRA, TPB, TAM, and DOI, amongst others. The UTAUT essentially sought to integrate elements from past models into one unified model that captured the determinants of intention and usage of IT. The authors believe that UTAUT combines the explanatory power of previous models used, but still contains the element of parsimony in how it's structured. However, they advise that more researchers test the validity of the model and identify additional constructs in order to advance the field of technology adoption and usage behaviour.

The diffusion of innovations research is considered complex and multi-faceted, incorporating many variables in its search for the answers to its questions. Adding to its complexity is the fact that diffusion of innovations research can be studied from multiple fields such as accounting, anthropology, and economics. Moreover, the unit of analysis can be based on a national level (countries) or consumers (individuals). In addition, there are a number of variables that are considered very hard to measure such as attitudes, beliefs, values, and social norms.

To make matters more complicated, culture is added to the mix of variables to make what many may consider an already difficult formula even more complex. Diffusion of innovation is about the diffusion process which takes place between people, and as such it is a communication process. The communication process within any society falls under the culture umbrella, making the diffusion process a culture specific phenomenon. However, culture is very pervasive, believed to be a huge force in shaping and affecting people's values, beliefs, and attitudes. Measuring this variable would be crucial to understanding the diffusion process, but that doesn't mean it would be an easy variable to fathom. Further elaboration will be made in the following sections.

<b>Theory</b>	<b>Core construct</b>	<b>Limitations</b>
DOI	Relative advantage Compatibility Complexity Triability Observability	Self-reporting bias Presupposition of linkage between time of innovativeness and time of adoption Innovativeness as a construct limited to innovation in context
Bass Model	p- coefficient of innovation q- coefficient of imitation t- time to adopt	Enough data entries to calibrate Inflection point necessary for better estimation
PCI	Relative advantage Compatibility Complexity Triability Observability Image Voluntariness	Not representative of all innovations Limited to organizational work Further validation needed
TRA	Attitude towards behaviour Subjective norm	Inability to explain involuntary behaviour
TPB	Attitude towards behaviour Subjective norm Perceived behavioural control	No empirical justification for the distinction between the hypothesized constructs No interaction effect between supposed constructs
TAM	External factors Perceived usefulness Perceived ease of use Attitude towards using Behavioural intention to use	Exclusion of subjective norms because of lack of sophisticated methods and measures to assess social influence
TAM2	TAM Subjective norm Image Job relevance Output quality Result demonstrability Experience Voluntariness	Further elaboration on the role of social influence Inclusion for other factors such work content, job goals, and misperceptions
TAM3	TAM2 Facilitating conditions Individual differences	The lack of mediating factors such as gender, age, and experience on the acceptance and adoption process
UTAUT	Performance expectancy Effort expectancy Social influence Facilitating conditions Mediating factors	In need of validity tests Integration of past models may have impacted the parsimony of the model

## 2.2.10 The Choice of the Bass Model

Generally, most of the models and theories outlined previously originate from the information system's field. As such, there exists certain bias with regard to the inclusion of models that might seem particular to a certain field and that may constrict the generalizability of findings. However, the choice of models reviewed stems not only from their relationship with technology, but from their relationship to each other. Thus, the models reviewed were all related to each other, such that the Bass Model and PCI theory, for example, were both based on Roger's theory of the diffusion of innovations. Moreover, the TAM model and its variations, as well as the UTAUT model, were adapted from Ajzen's TRA and TPB theories. Another reason for the inclusion of these particular choices of information system models was their widespread application in cross national diffusion literature, in which the terms technology and innovations are often synonymous terms and used interchangeably (Rogers, 2003). For example, Calantone (2006) used the TAM model to test Chinese business culture and its effect on the innovation and adoption levels of Chinese business men, whereas Alawadhi (2008) used the UTAUT model to explore factors that determined the adoption of E services in the State of Kuwait.

However, out of the choice of models most appropriate to the present study's central investigation, the Bass Model would prove to be the most beneficial. There are several reasons, such as the model's ability to be utilized at the national level as opposed to the other models, in which they were commonly constrained on the consumer level and particularly from the organizational view point. As such, the Bass Model is the most cited diffusion model in the marketing literature regarding the cross nation diffusion research (Chandrasekaran and Tellis, 2007). Moreover, the construction of the Bass Model itself, most notably its p and q parameters, has shaped the present study's choice to analyse the diffusion rates of the seven Arab States. The ability to derive the innovative and imitative behaviour that make up the market structure of each respective State differentiates the Bass Model from most diffusion models (Markovic and Jukic, 2013). Therefore, instead of only providing an estimated diffusion rate, the Bass Model essentially affords the researcher the ability to estimate the respective innovative and imitative forces as well as their corresponding marketing communication methods, mass media and interpersonal methods. Such information can be deemed valuable to international business

managers, marketing managers, and even policy makers. This is perhaps why it is the most utilized diffusion model in the marketing research field (Bass et al., 1994). The next section will delineate the cross national diffusion literature along with Table 2.2 which illustrates the literature that incorporated the Bass Model in their cross national diffusion investigations.

### **2.3 Cross National Diffusion**

It is an irrefutable fact that to be considered competitive in the global market place, managers need to be aware of how their products/technologies get adopted and diffused around the world (Dekimpe et al., 2000). Identification of specific cultural traits is key to help managers predict the diffusion process and how likely their products and technologies are to get adopted. Moreover, these factors can enable them to understand why their products are adopted differently in different countries (Kumar et al., 1998). Understanding cultural differences can enable international marketers to better tap into the target market and speed up the diffusion process. Marketing communications are planned accordingly so as to lessen the impact of cultural barriers (Rogers, 2003). Culture can have a negative impact on how receptive the market is towards innovations in which adoption levels can decrease significantly if the product or service does not reflect the culture of the target market (Mahajan, 2012).

When discussing cross national diffusion literature, it is key to indicate that there are three streams of research in cross national diffusion. Type one focuses on the cultural variables to explain the differences in diffusion rates between countries. Type two focuses on modelling the interaction between the diffusion processes in different countries. Type three mixes both methods and studies the effect of cultural variables on interactions between countries and their diffusion rate (Kumar and Krishnan, 2002). The literature review focused on studies adopting type one and three. Type two was excluded, because most studies reviewed focused on modelling the lead time and lag time, which refers to the difference in the time of introduction of an innovation in the first country and in subsequent countries (Ganesh et al., 1997). As such, national culture was not featured prominently as much as the Bass Model. Nevertheless, they are presented in Table 2.2, along with details regarding their findings and implications. The next section will also detail the different theories of national culture, namely the theories of Inkeles

and Levinson, Hofstede, Inglehart, Schwartz, Trompenaars, Hall, and the GLOBE project. It is then followed by a table summarising their contributions and detailing their limitations.

Table 2.2 The Bass Model in Cross National Diffusion Research

<b>Authors</b>	<b>Dependent Variable</b>	<b>Product</b>	<b>Number of countries</b>	<b>Key results</b>
Gatignon et al., 1989	q and p (Bass model)	6 consumer durables	14	Cosmopolitan, mobility, and sex roles effect diffusion of innovations.
Ganesh et al., 1997	Country level diffusion patterns (Bass model)	4 consumer durables	16	Authors find evidence towards a learning effect in consumer durables diffusion.
Ganesh, 1998	Country level diffusion patterns (Bass model) difference for pre- and post-1970 innovations	Ten innovations	12	Authors found that unification of EU did not lead to faster diffusion rates in the EU countries as initially hypothesized.
Takada and Jain, 1991	q (Bass model)	9 consumer durables	4	q coefficient is positively related to time lag of product introduction between countries. The rate of adoption is higher in high context societies with homophiles communication.
Putsis et al., 1997	Cumulative adopters, sales	4 consumer durables	10	Evidence suggests significant cross country interaction effects.
Talukdar et al., 2002	Bass model	6 consumer durables	31	Ethnic diversity will hinder speed of diffusion. Developing countries will have a slower adoption rate compared to that of developed countries.
Dekimpe et al., 1998	Country level diffusion patterns (Bass model)	Cellular telephone adoption	184	Authors find that crude deaths and ethnic heterogeneity to have a negative influence on diffusion, while income per capita has a generally positive influence on diffusion.

Dekimpe et al., 2000	Technology Adoption	Cellular telephone adoption	184	Innovative countries are wealthier, has a highly concentrated population, and is culturally homogeneous.
Helsen et al., 1993	Bass model	3 consumer durables	12	Macro level variables have no effect on diffusion patterns across countries.
Lee (1990)	National innovativeness	Ownership of black and white, colour TV	73	Wealthier and more industrialized countries are more innovative.
Kumar et al., 1998	Cross national diffusion rates	6 consumer durables	14	Country specific variables and time lag are useful in explaining differences in adoption rates between countries. Richer countries are more innovative, and a homogeneous social system will reach the confirmation stage faster.

### 2.3.1 National Culture in Cross National Diffusion

Research in cross national diffusion is exploring the differences in the diffusion process between countries and attempting to discover whether these differences or similarities can be attributed to cultural and social variables. Some countries that share similar economic and cultural environments are assumed to have similar diffusion patterns (Ganesh et al., 1997; Dekimpe et al., 2000). In such cases, culture plays an important part in helping to determine the rate of diffusion and adoption. Understanding the role of culture, its influences on consumers and their rate of acceptance of new products is paramount to international marketing managers in order to better formulate their marketing strategies (Kumar et al., 1998; Takada and Jain, 1991; Putsis et al., 1997).

Moreover, research indicates that culture incompatibility is a major obstacle to the success of innovation adoption. Existing cultural conditions can determine when, how, and in what form a new innovation will be adopted (Herbing and Dunphy, 1998). Culture is pervasive in all marketing activities such as advertising, promotion, and even packaging. How marketing will interact with culture will determine the success or failure of the endeavour. Marketing researchers must understand that culture can influence the innovative capacity of a society and so may either foster or hinder an innovation or acceptance of a new product (Takada and Jain, 1991; Herbig and Dunphy, 1998). If the company does not adapt its product/process to local conditions than it is possible that it will face lower adoption rates in the future (Calantone et al., 2006).

As was discussed in Section 2.1, diffusion theory occurs within a social system and describes individuals and their adoption behaviour to describe the process of diffusion of innovations. It depends on how a product is communicated through a social system, and how the members of society interact with each other. Therefore, it is safe to conclude that the diffusion of innovations is a process affected by culture (Yaveroglu and Donthu, 2002). As expansions into new markets increase, the need for managers to understand the diffusion and adoption process in international settings has called for more academic insights and research (Craig and Douglas, 1996), particularly the influence of culture specific variables, because it has a key role in determining how consumers react to a new product (Gatignon et al., 1989; Rogers and Shoemaker, 1971).

However, many view culture as a very complex and emic variable. It has to be observed first hand and studied (Jacob, 2005). It is much larger and multi-faceted to be contained by constructed typologies and methodologies. Furthermore, it is very difficult to distinguish culture from other macro level influences, thus exacerbating the ability to give a definitive meaning to the word culture (Soares et al., 2007). Most particularly, when the diffusion of innovations research is done at the national level, the issue of complexity is worsened. Countries will differ in their geographic, socio economic, demographic, and cultural characteristics. This has serious implications on how a product or service gets adopted and is diffused over time (Takada and Jain, 1991). However, time constraints and lack of data regarding certain countries lead many researchers to adopt existing paradigms when dealing with culture and its effect on other phenomena.

Subsequently, it is understandable why so many studies incorporate the concept of national culture in their cross cultural investigations. After all, national culture provides a national level variable which can then be used to explain a variation of phenomena (other aggregate data) at country level as well as across countries (De Mooji and Hofstede, 2010). Therefore, the ability to use national culture to explain aggregate national consumer behaviour towards different phenomena is considered useful by many practitioners (Singh, 2006).

### 2.3.2 National Culture Models

It is believed that the national culture environment exerts influence on individual differences, that it creates social reinforcements of those individual dispositions that match its environment, while restraining those individual dispositions that don't fit well with its environment. This means that national culture will encourage and foster certain types of values and behaviour that are in line with its priorities while discouraging those that run contrary to it (Steenkamp et al., 1999; Triandis, 1989; Schwartz, 1994). This pattern of persistent personality characteristics visible in the populations of nations is what gave rise to the concept of 'national character', which is synonymous with national culture (Baskerville, 2003). According to Clark (1990), national differences do exist and can be observed. Moreover, these differences have bearing on both consumers and decision makers in marketing.

One of the pioneering studies of national character is Inkeles and Levinson (1969), in which they developed an objective approach towards the study of national character. They proposed that commonalties in personalities be derived and aggregated from a representative sample of the population to represent the model national character. Moreover, that the concept of national character be based on universally occurring psychological attributes. These attributes can then be used to dimensionalize the model national character. They proposed three standard analytical items that can be used to dimensionalize the concept of national character: relation to authority, conceptions of self, and primary dilemmas. Although, Inkeles and Levinson are acknowledged as the first proponents of the concept of national culture, it should be mentioned that most of their underlying assumptions towards the model national culture were developed theoretically (Clark, 1990). As such, a cited criticism of their proposed dimensions is that they were constructed

solely from their review of anthropological and psychological research dating as early as the beginning of the 20<sup>th</sup> century, and so had little empirical significance (Peterson, 2007).

However, empirical validation soon came in the appearance of the next pioneer of the concept of national character: Geert Hofstede, who empirically constructed national culture dimensions that were similar to the ones theorized by Inkle and Levinson (1969). Hofstede (1983) collected work related individual item responses from more than 116,000 subjects from 72 countries. The data was collected twice over a period of four years from 1967 to 1973, as part of an IBM survey. Initially, Hofstede conducted a factor analysis of the means of the nationally aggregated responses of which he later analysed into four original culture dimensions: 1) power distance 2) uncertainty avoidance 3) individualism/collectivism 4) masculine/feminine. It is important to clarify that these dimensions represent extreme values which means that most real cultures will fall somewhere in between these extremes (Hofstede, 1994).

#### *Power distance (PD)*

This dimension measures the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally. The dimension is a representation of inequality and how much (or how little) this fact is endorsed by the members of its society. In low PD societies, equality is more or less distributed evenly, whereas in high PD societies, everyone acts according to their place and people in power are not questioned.

#### *Uncertainty Avoidance (UA)*

UA pertains to society's tolerance for ambiguity and uncertainty. High UA societies will try to minimize as much ambiguity as possible by enforcing strict rules, laws, and safety measures. Low UA societies will be more tolerant of radical opinions and are considered less repressive.

#### *Individualism/Collectivism*

Individualism indicates societies where ties are very loose and emphasis is on the achievements by the individual. Everyone is busy making a living for themselves and not much thought is

given to outside the scope of their immediate family. Collective societies are the opposite, in which individuals are taught to think in groups, work as a team, and think in terms of “we”.

### *Masculine/Feminine*

This dimension refers to the distribution of roles in a society between the two genders. A society that values system rewards, relationships, and life quality is considered a feminine society. A masculine society would place value on competition, achievement, and performance.

### *Long term orientation/short term orientation*

Hofstede (2001) derived a fifth dimension initially called ‘Confucian dynamism’ which was later changed to ‘long term versus short term orientation’. The basis of this dimension was constructed from a questionnaire on values designed by Chinese social scientists, the Chinese Culture Connection group. Societies with a long term orientation don’t indulge in trying to explain the complexities of life but rather aim at living a virtuous life instead. They value investing, saving, and achievement of results. Short term oriented societies value stability, traditions, conventions, and have a relatively small inclination to save.

### *Indulgence/restraint*

A sixth dimension called ‘indulgence/restraint’ was introduced by Hofstede et al., (2010) to represent the gratification versus control of basic human desires related to the enjoyment of life. The last two dimensions are not cited as extensively in the literature as much as the previous four dimensions, because they only have scores for a limited number of countries. More in depth discussion of all the dimensions will be forthcoming in Chapter four.

In Hofstede’s framework, each country is *relatively* positioned to other countries through a score of 1 to 100 (Hofstede, 2011). According to Minkov and Hofstede (2011), the dimensions constructed by Hofstede are considered relevant to how people function in societies. The popularity of his framework stems from its coherence and predictive capability. Nonetheless, Hofstede’s framework has faced tremendous criticism in recent years.

Many scholars have criticized Hofstede’s culture dimensions’ framework for being non exhaustive and based on one corporation: IBM (Schwartz, 1994; McSweeney, 2001). Moreover,

Hofstede's survey was designed to measure work related values such as preferred leadership style, job content, and company related questions (Hofstede, 1995). These were questions requested by IBM from IBM employees working in either IBM, or IBM related subsidiaries. As such, it begets the question as to how much of their answers were influenced by the immediate situation and place they were in. As such, it may not be seen as a reliable measure for national culture.

It is also unclear from his survey whether people from different cultures understood the survey questions the same way (Steenkamp, 2001). In fact, many studies conducting face validity on Hofstede's IBM survey came away with very low rates, which proves that the IBM questionnaire was not written to measure Hofstede's dimensions specifically (Schmitz and Weber, 2014). Indeed, the IBM survey was not used as a scientific instrument but as a management tool in order to provide feedback to managers and to rank and file employees (Hofstede, 2001). Moreover, their preparation was subject to a tight business schedule and therefore back translations were rarely used. Translated surveys were checked by bilingual managers and any changes that had to be made were done exclusively by IBM researchers (Hofstede, 2001). The assumption that IBM constitutes a homogenous multinational population (besides nationality) is also disputed (McSweeney, 2001; Baskerville, 2003).

Furthermore, unfavourable results may have influenced respondents to provide biased answers to reflect their department in a good light (McSweeney, 2001). A frequent limitation cited by several researchers regarding Hofstede's framework is that his data is outdated (Steenkamp et al., 1999; McSweeney, 2001). Measures gathered from pre identified dimensions such as those of Hofstede's national culture framework are in risk of anachronism if applied in another study (Bhimani, 1999). This means that social changes over time will undoubtedly occur and alter the cultural profiles of countries within Hofstede's dimensions.

In his defence, Hofstede asserts that his dimension scores are not absolute, and that all they attempt to measure is differences *between* countries, so that countries are ranked accordingly on his dimensions. Therefore, what matters is the difference between one country and another country on his dimension, which he ascertains will not change much, and as such, the original ranking order of countries on his dimensions will not be altered. Hofstede (2011) perceives any changes in national cultures to be very slow. He contends that even if changes do occur, the

changes will be felt around the world and across all nations, thus the relative position that nations have on Hofstede's dimension will also not change. He also believes that even if new technologies influence countries, they won't necessarily change their relative position or rank.

Another similar argument can be found in what Inglehart's (2000) WVS study has set out to prove, which is that values worldwide are changing. Inglehart's study is considered another proponent of the theory of national culture, in which the WVS was carried out in three waves of representative national surveys: 1981-1982, 1990-1991, and 1995-1998, making it the largest investigation to be conducted on attitudes, values, and beliefs at that time. Inglehart's study proposed two universal dimensions, the first being the traditional versus secular rational dimension, which pertains to the relationship between self and authority, such that more traditional societies would place greater importance on religion and family than more secular societies. The second dimension is survival versus self-expression and denotes the relationship between the self and the collective group. Survival societies would place greater importance on their wellbeing as well as the importance of economic security, while self-expression societies would acknowledge the uncertainties in life and that change is inevitable (Inglehart and Bakir, 2000).

Inglehart reports a substantial cultural change, most significantly in agrarian societies which later turned industrialized. These societies which adopted innovative technologies and processes, have become more secular and are regarded as more advanced, industrial, and rational societies. This can be seen as evidence that new technologies do change people's lives and may in fact influence their value sets and principles. Inglehart's findings can be seen in more recent actual events. For instance, it is illustrated in the risings of the Arab Spring, in which information communication technologies (ICT) were seen as effective facilitators of organized revolts throughout the region. Blogs, social media, and other interactive platforms such as Facebook were seen as important players in the events that brought about the toppling of old regimes such as those in Tunisia, Egypt, Libya, Yemen, and Syria (Aman and Jayroe, 2013). The social networks have certainly enabled, informed, and created communities that call for more freedom of speech and transparency from their governments (Ghannam, 2011; Rane and Salem, 2012).

Even though Inglehart (2000) believes the WVS project to be viable proof that value systems do change over periods of time, the author stresses that the WVS doesn't assume either economic or

cultural determinism and that the project proves that relationships between values, economies, and politics are reciprocal in nature (Inglehart et al., 2000). This statement appears to be contradictory, seeing as the theoretical bases for the WVS is that technological and economic advancements have caused changes in values evident worldwide. As such, Inglehart has been criticized for having contrary presuppositions as well as a simplistic interpretation of the relationship between values and modernity (Haller, 2002). The validity of the WVS as a reliable measure of value orientations is also questioned, seeing as the construction of the survey items does not meaningfully reflect the hypothesized underlying dimensions (Davis and Davenport, 1999). The scores of the items measured respondents as either materialists, postmaterialists, or mixed, which fuels the argument that most of the supporting evidence of a value shift may not have come from the technological advancements, but from the closed ended construction of the survey and the influence of the economic context of which it was administered (Clarke et al., 1999).

There are other scholars who have attempted to categorize values that are shared universally. One such notable example is the work of Shalom Schwartz (1992, 1994, 2006). Schwartz identified universal psychological values collected from samples of college students and elementary teachers from 73 countries. He proposed a theory for the universal content and structure of values. Using small space analysis, he identified seven interpretable dimensions along which national cultures differ: *Intellectual Autonomy/ Effective Autonomy/ Embeddedness*, autonomy reflects both intellectual and effective autonomy, which jointly refers to the individual's freedom to pursue his own interests and desires. Embeddedness represents collectivism and social relationships, in which emphasis is made on maintaining the status quo and restricting any actions that may disrupt the traditional order. *Hierarchy/ Egalitarian commitment*, the hierarchy dimension represents the unequal distribution of power, roles, and resources. Whereas egalitarian commitment refers to the value put on the welfare of the group over the pursuit of selfish interests. The last dimension, *Mastery /Harmony*, represents the importance of self-assertiveness, while harmony represents the importance of fitting in.

Though Schwartz's theory has more dimensions than Hofstede's, it has been continuously compared to the latter theory, and there has been a contention by both authors that similarities do exist in some of their respective dimensions (Hofstede, 2011; Smith et al. 1996). Similarly, the

two theories share the same limitation around the usage of outdated data, as well as the apparent lack of sample representation; students and teachers in Schwartz's study and IBM employees in Hofstede's sample (Ng et al., 2006). Moreover, since Schwartz's theory was initially theoretically conceived, the corresponding survey items were criticized for being constructed in way that emphasizes only the hypothesized dimensions, making the survey limited in scope (Steenkamp, 2001).

Other notable work that also includes similar dimensions to Hofstede's theory is the study conducted by Trompenaars (1994). Trompenaars distinguishes several aspects of national culture, building on both Hofstede's model and Schwartz to construct his own seven dimensions: 1) universalism/particularism 2) individualism/communitarianism 3) neutral/affective 4) specific/diffuse 5) achievement/ascription 6) attitude to time 7) attitude to environment. His dimensions are based on a survey drawn from 15,000 managers in 50 countries and were used to measure the differences in national culture in the workplace. Even though the inclusion of seven dimensions, which were a combination of dimensions from different theories, sought to present a more cohesive view of national culture, it however has been criticized in the literature for not providing significantly new contributions in relation to the previous models (Patel, 2013). It should also be noted that Trompenaars' framework was criticized by Hofstede (1996) for having too many dimensions, a poor methodology, no content validity, as well as very poor data collection methods. In reply, Hampden-Turner and Trompenaars (1997) sought to clarify and defend their dimensions by stating that their assumptions were not identical to Hofstede's model even if it was conceptually similar to some of his dimensions. They also diplomatically concluded that both their approach and Hofstede's should be considered valid and that the choice for which model to be used should be left to the intended researcher and the nature of his or her study at hand.

Another national culture model, which incidentally also faced criticism from Hofstede, is the Global Leadership and Organizational Behaviour Effectiveness (GLOBE) study conducted by House et al., (2004) during the period 1994-1997. It is considered a collaborative work of 160 researchers investigating around 825 non multinational organizations. The study sought to measure organizational values and cultures. Their findings were presented in the form of nine dimensions based on responses from around 17,000 managers functioning in 62 societies. The

nine dimensions measured both actual societies (as is) and perceived values (as it should be) in different cultural settings. The nine dimensions are as follows: 1) uncertainty avoidance 2) power distance 3) institutional collectivism 4) in group collectivism 5) gender egalitarianism 6) assertiveness 7) future orientation 8) performance orientation and 9) humane orientation. The nine dimensions are thought to be an amalgam of past research; constructs derived from other work, but mainly seen as an extension of Hofstede's framework (Hofstede, 2011).

This particular belief instigated by Hofstede, has led to an interesting debate with the GLOBE authors in the November 2006 issue of the *Journal of International Business Studies*. Exchanges on use of data, methodology, and validity of constructs were argued and each author seems to think his model is the better version for cross cultural research. Minkov and Hofstede (2011) argue that if two approaches to the measurement of uncertainty exist but produce different measures then simply they measure different things, implying there is a fault in GLOBE's methodology. The authors likewise suggest that the GLOBE authors were amiss when they described socially desirable behaviour as values when the correct term is 'norms'. Moreover, that the GLOBE model dimensions have resulted in unfounded national stereotypes that are not supported by much external evidence. The authors believe the questions in the survey were about issues that the respondents may not necessarily be knowledgeable about (such as about their national character).

After illustrating the various national culture models, it is important to note the classification of culture according to national values is not the only method. For example, Hall (1966, 1976) classifies cultures as either high context or low context. The basis for this classification is obtained from the society's perceived method of communication. The low context dimension represents cultures that use explicit communication, whereas high context cultures use implicit communication. Moreover, high context cultures are thought to have better developed interpersonal networks than low context cultures, of which the extent of normative influences is considerably less (Parthasarathy et al., 1990). Hall's paradigm is still used by many researchers, often in conjunction with Hofstede's framework in cross cultural research, despite its disadvantage of having only two dimensions to convey national culture and universal values (Van Everdingen and Waarts, 2003; Yaveroglu and Donthu, 2008). However, the theory is not without limitations, despite its popularity in cross cultural studies. Hall's dimensions have been

criticized for being too simplistic and limited in scope, as it centred solely on a society's preferred method of communication, and disregarded other variables, such as situational variables like a common profession, which may have biased the theory's assumptions (Patel, 2013). Another critical pitfall of Hall's theory was the author's lack of rigorous methodology in the construction of his dimensions, such that most of his assessments on cultural context seems to only stem from anecdotes and observations (Cardon, 2008).

Table 2.3 summarises the previous national culture models discussed in this section. National culture studies attempt to characterize national behaviour across a broad spectrum of phenomena. Despite criticism, the popularity of national culture models persists which partly stems from its ability to act as an integrating theory that combines the otherwise unrelated comparative studies found in cross cultural research (Clark, 1990). The ability to dimensionalize culture helps in creating a basis for future hypotheses which in international marketing and cross cultural research outweighs its limitations (Smith et al., 1996). There are still numerous scholars who believe national culture to be a model distribution of traits found in individuals of the given nation. Many still believe it is useful in making inferences about consumers' decision making process (Soars et al., 2007). For example, Clark (1990) believes that consumers' decisions will reflect the national culture of the nation they are a part of. Therefore, the concept of national culture has the potential to provide explanations toward aggregate national consumer decision making behaviours. Nevertheless, the next section will attempt to discuss the criticism gleaned from the literature towards the concept of national culture.

**Table 2.3 National culture theories**

<b>Author</b>	<b>Dimensions</b>	<b>Methods</b>	<b>Limitations</b>	<b>Number of countries surveyed</b>
Inkeles and Levinson (1969)	Relation to authority Conceptions of self Primary dilemmas	Meta-analysis of 20 <sup>th</sup> century anthropological and psychological studies	Theoretically conceived with little empirical validation	N/A
Hofstede (1983-2010)	Power distance Uncertainty avoidance Masculinity -femininity Long term orientation Indulgence and restraint Individualism	IBM centric survey	IBM centric sample, Outdated data, presupposition of a shared prevailing national culture	72 countries
Inglehart (1977-2000)	Traditional versus secular rational Survival vs. self-expression	Longitude national survey	Too simplistic, limited scope to post materialism, presupposition of the linear effect of technology on values	65 countries
Schwartz (1992-2006)	Intellectual and effective Autonomy/embeddedness Hierarchy/egalitarian commitment Mastery/harmony	Teachers and student centric survey	Non representative sample, interdependence of dimensions, outdated data	73 countries
Hall (1966)	Low context/high context	Observations, qualitative interviews and anecdotes	No mention of a rigorous methodology and data collection Too simplistic and limited in scope Non empirical	Regions include 12 societies
Trompenaars (1998)	Universalism/particularism Individualism/communitarianism Neutral/affective Specific/diffuse Achievement/ascription Attitude to time Attitude to environment	Survey of middle level managers	Non representative sample, insignificant contributions, poor content validity, and too many dimensions	50 countries
GLOBE (2004)	Uncertainty avoidance Power distance Institutional collectivism In group collectivism Gender egalitarianism	Survey to managers in non-multinational organizations	Too many dimensions, lack of representation in samples, confounding of	62 countries

	Assertiveness Future orientation Performance orientation Human orientation		values with norms, similarity to other national culture models,	
--	---	--	--	--

### 2.3.3 Criticism of National Culture

#### 2.3.3.1 Nations as Units

The underlying theoretical underpinnings of national culture are built upon the assumption that nationality can be a viable proxy for culture, because members of society will share an understanding of the institutional systems within their country (Hofstede, 2001). Individuals within the country will also exhibit similarities in norms and values because of their nationality. However, this is not consistent with anthropological views, in which it is believed that cultures cannot be equated with nations (Myers and Tan, 2002). For example, the MENA region is home to multiple ethnicities and cultures often coexisting within the same nation, as can be seen in Dubai, which can be seen as one of the most diverse cities in the region, housing residents from over 150 nationalities (Stanton et al., 2012). In direct contrast are national culture models such as those of Hall and Hofstede, who claim that the Arab States are homogenous, and as such, are scored identically on all dimensions (Hofstede, 2003). Nevertheless, not all scholars share the same sentiment. In fact, most believe that ethnic self-identification will be a better tool to which shared cultural values can be understood. If nations are used as a proxy for culture, then the subsequent assumption is that that all ethnicity within said culture is homogenous. From an anthropological view, this is seen as a partial and simplistic view of culture (Baskerville, 2005).

#### 2.3.3.2 Ecological Fallacy

Cultural dimensions such as individualism and collectivism can exist at an individual level, meaning it can be similarly conceptualized. Similar labels for constructs used at different levels of analysis can cause others to misuse one to explain the other (Bond, 2002). An individual can be measured for being more collective or individualistic. However, if the researcher is trying to measure whether nations are individualistic or collective, then they cannot ascribe their results to

describe individuals. Even if the dimensions can be applied to both levels, the way in which they are measured prohibits the researcher from using them interchangeably.

For example, the dimension UA can exist at both an individual level as well as a national level. However, the construct UA that is used to denote national culture is meant to describe and measure nations, and therefore it cannot be used to describe and measure individuals within these nations. They cannot be used only because of the manner in which they were empirically constructed, meaning that the characteristics or names given to the dimensions can be ascribed to individuals, but if the manner in which they were constructed is at different levels of analysis then they cannot be used to describe both nations and its inhabitants (Bond, 2002; Yoo et al., 2011; Brewer and Venaik, 2012)

Criticism towards national culture and other such similar constructs built at a national level believes that such theories cannot help others better understand the inhabitants of a said culture. This has serious implications on cross cultural research, because of the abundant studies in the literature confounding the level of analysis in national culture literature (Tellis et al., 2003; Van Bulte and Stremersch, 2004; Yaveroglu and Donthu, 2002; Yenyurt and Townsend, 2003). This pitfall explains the ‘ecological fallacy’, of assuming similar relationships exist across different levels of analysis, individual and national level (Robinson, 1950). The prevailing theories of national culture utilized scores that were constructed from aggregated national responses and as such using them to infer about individual inhabitants of the same country is considered futile and a useless endeavour (Patel, 2013). Also, Fischer, Vauclair, Fontaine, and Schwartz (2010), question this implicit non-isomorph nature of such national level constructs when theoretically aspects of individuals and societies can impact each other interchangeably. For example, both Inglehart and Hofstede have failed to compare the structures of the two levels in a single multi-level analysis, and thus the only significant factor proving the two levels’ independence is based on the assumption of a shared national culture (Haller, 2002; Fischer and Poortinga, 2012).

#### 2.3.3.3 Stereotyping

National culture models stress that the descriptors of dimensions refer to extremes and that actual situations which may occur in these cultures could be anywhere in between the relevant dimensions (Hofstede, 2001; Schwartz, 2006; Craig and Douglas, 2006). However, despite

warnings from authors such as Hofstede, GLOBE, and Schwartz, national culture scores have often inadvertently been used in literature to stereotype individuals (McSweeney, 2009). This problem is sometimes perpetuated by the authors themselves, in which stereotyping expressions are evident in extensive discussions linking their framework with various individual concepts such the concept of self, personality, and consumer behaviour (Patel, 2013). For example, one of Hall's cultural high context related anecdotes refers to his appraisal of Arab family orientation and its effect on the open spaced interiors of most Arab homes, which led him to pepper it with phrases such as "Arabs do not like to be alone", because of the apparent lack of partitions and thus limited privacy (Hall, 1990:158).

Moreover, Hofstede believes his dimensions can explain variance in advertising styles. For example, the Japanese whose culture is considered high on power distance and uncertainty avoidance, tend to judge people by their clothes and appearances, which explains their need for status brands that demonstrate one's role in a hierarchy (De Mooji and Hofstede, 2010). Another noteworthy example is seen in Hofstede's (2011) belief that the 'restraint dimension' prevails in the Muslim world. His analysis of what his dimension represents leads him to infer that people in such cultures are 'less likely to remember positive emotions' and have 'fewer happy people'. Perhaps this explains why, until 1998, *Culture's Consequences* has been cited 540 times in psychology related journals; a science that should be focused on the individual and not national level aggregated indices (Baskerville, 2003).

#### 2.3.3.4 Construct Conceptualization

Most national culture models are conceived from a survey made up of individual level items measuring self-reports which are then aggregated to country level (Schwartz, 1994; Trompenaars, 1993; Hofstede, 2001; Inglehart, 2000; House et al., 2004). According to Chan (1998), computing the group mean will only give you the average tendency and only indicate the individual's perceptions about themselves as individuals and not the group. Only when agreement within groups is assessed can the rationale of a collective construct be applicable to the whole group. McSweeney (2009) criticizes national culture for mistakenly viewing statistics as hard realities, in which the average tendency does not equal a casual force, in so much as it does not have much consequence in real life. Self-reporting items that solely measured

individual's perceptions of themselves without any indication of the collective group has been heavily used in national culture surveys, despite the criticism towards possible bias in the responses (Dorfman et al., 2012).

#### 2.3.3.5 Complexity of Culture

Many researchers feel that culture is too intricate to be treated as a single variable (Harrison and McKinnon, 1999). From an anthropological view point, any construct that attempts to compartmentalize culture should be seen as an inadequate and partial view of how cultures operate. Therefore, utilizing these dimensions as a basis to differentiate between cultures is null and void and should be discarded (Baskerville, 2003). National culture dimensions often fail to capture all the relevant components of culture. Moreover, culture is forever changing and as such emphasizing certain typologies will only give us a 'static snapshot' of the country under study (Jacob, 2005). Cultural diversity can exist within a single country. Generations of individuals are the product of the times and events that shape their lives. There is no such thing as a homogenous culture identity, given the existence of multiple ethnic groups in one country, which in turn can lead to enculturation (learning the value of one's culture) and acculturation (learning the values of host country) processes (Daghfous et al., 1999). Even the individuals within the same ethnic group are themselves forever changing with several identities shaping them as they age in life (McSweeney, 2013).

Many factors such as market fragmentation, cultural contamination (when a culture becomes tainted by other cultures), multiple ethnic groups, and the development of linkage across nations pool to make the concept of 'national culture' very irrelevant (Craig and Douglas, 2006). Actually, some scholars have even begun to question the usefulness of the ecological (national) unit of analysis as a whole (Yoo et al., 2011). If national culture cannot predict or describe individual behaviour, then the meaningfulness of its measure must be questioned in research investigating individual behaviour. More analysis is called for when conducting culture oriented studies. Extensive individual surveys should be followed by other assessment approaches such as case studies, for example (Bhimani, 1999).

Despite the criticism previously mentioned, national culture is still seen as a practical culture construct in the literature. Hofstede (1995) in his metaphor for national level analysis urges us to

see the garden and not the flowers. For followers of the national culture theory, the basis for the variable culture is built on numerous assumptions. Supporters of the theory would have to contend with a value based model of culture, see culture as a stable and observable phenomenon, and which can be identified based on shared attributes of a group (Lenartoweiz and Roth, 1999).

#### 2.3.4 The choice of Hofstede

The choice of Hofstede's framework over the other models stems from the fact that it has analysed the greatest number of countries of any national culture model, and particularly for including the greatest number of Arab countries (Hofstede, 2001). This is why Hofstede's framework, is to a large extent, viewed as a paradigm in which his dimensions and its subsequent country scores are used as a taken-for-granted assumption in many fields to explain the influence of culture (Sondergaard, 1994). This sentiment is appreciated by Soars et al., (2007) who argue that Hofstede's framework for national culture is a simple, practical, and usable shortcut to the integration of culture in cross national diffusion research. His work is considered influential in which roughly 900 references to recent publications were made to his work (Triandis, 2004). Hofstede (2011) believes his cross cultural data that was collected in 1967 to be the largest matched-sample cross-national database available at that time. According to Triandis (2004) 'any publication that deals with cultural differences is likely to reference Hofstede'. His framework is the most cited and widely used national culture framework in various fields, such as marketing, sociology, psychology, accounting and management studies (Sondergaard, 1994; Steenkamp, 2001; Soares et al., 2007). His work has become the corner stone for cross cultural research and the standard against which all new cultural studies are validated (De Mooji and Hofstede, 2011).

Another argument used against critics of Hofstede is that his study is validated by many researchers in vast areas of cross cultural research (Sondergaard, 1994; Triandis, 2004). In his second edition of *Culture's Consequences* (2001), Hofstede includes over 200 replications and comparative studies by other researchers that have supported his dimensions. It also summarises 400 significant correlations that signal validation for his work (Hofstede, 2003). Hofstede also cites this as a reason why his theory is reliable, since an unreliable test wouldn't have produced scores that related meaningfully with outside data (Hofstede, 2001). The next section details the

studies found in cross national diffusion literature that incorporated his theory in their investigation towards the diffusion and adoption patterns across countries.

## **2.4 Hofstede's National Culture and Cross National Diffusion**

Consumers are considered to be a part of a bigger more encompassing environment. A more inclusive investigation of both micro-individual and macro-cultural levels of analysis is needed to fully understand individuals' behaviours and dispositions (Triandis, 2004; Steenkamp et al., 1999). A substantial amount of literature substitutes Hofstede's culture dimensions as a valid variable for a macro cultural level of analysis (Van Everdingen and Waarts, 2003; Sundqvist et al., 2005; Shane, 1992). Figure 2.3 summarises the literature at the end of the section.

### **2.4.1 National Culture and Consumer Innovativeness**

Steenkamp et al., (1999) developed a hypothesis pertaining to the main effects of specific variables such as central disposition and consumer-context-specific values<sup>1</sup> on consumer innovativeness and their interactions with national culture dimensions (UAI, masculinity, and individualism/collectivism). Their findings led them to conclude that Hofstede's national culture dimensions played a role in consumer innovativeness. Individualistic, masculine, and low uncertainty avoidant cultures tended to have more innovative consumers. Moreover, the three dimensions of national culture moderated individual variables, in which the negative effect of resultant conservatism<sup>2</sup> on innovativeness was stronger in high uncertainty avoidant cultures than in low uncertainty avoidant countries. Furthermore, the authors found that the negative effect of ethnocentrism on innovations was far more reinforced in collective cultures.

The authors believed that their study underlined the importance of national cultural variables on not only understanding its effect on individuals, but on countries and their systematic differences in innovativeness. However, the authors did mention the possible ineffectiveness of using Hofstede's national culture dimensions as a viable construct of culture. Steenkamp et al., (1999) recognized that the dimensions used were originally based on work related values, and thus may not overlap with priorities for people's roles as consumers. Moreover, the ratings used were for

---

<sup>1</sup> Consumer context specific dispositions refers to consumer ethnocentrism and attitude towards the past

<sup>2</sup> The more importance a consumer attaches to conservatism relative to openness to change

data that took place in 1967, and as such, the authors posit that some changes in ratings are to be expected, because of the dramatic cultural, economic, and political changes that occurred in the past decade. This is perhaps what led the authors to question the construct of national culture as a feasible indicator of innovativeness. They argued that there might be better national indicators that may construct a better measurement for consumer innovativeness such as socioeconomic indices or historical data.

#### 2.4.2 National Culture and Social Interactions

Yalcinkaya (2008) used Hofstede's national culture to propose a conceptual framework on the impact of social interactions on international innovation adoption. According to the author, the usage of Hofstede's national culture is validated, because it has been accepted as the dominant cultural paradigm. Moreover, it has been associated with consumer innovativeness in innovation adoption literature and has been shown to be a reliable and validated framework in various settings. Yalcinkaya (2008) argues that culture differences can have an effect on social interactions, which in turn can affect the adoption and diffusion of new products. It is a sound argument to make, but from the first glance, it is apparent that it will be a difficult proposition to measure. The author concedes to this particular fact by indicating the gap in literature regarding social interactions and their contributions toward adoption and diffusion of products. Diffusion of innovations literature has failed to incorporate social systems due to its complexity and the large scale interactions that it might generate (Yalcinkaya, 2008; Goldeberg, 2002).

Mainly, the author suggests that social interactions cannot be measured due to their complex nature and the large scale collective behaviour that researchers have to go through before a definitive analysis can be reached, if any. Therefore, it is proposed that Hofstede's framework for national culture is the best tool to better understand cultures and infer from its dimensions how social interactions may process. However, it should be noted that social interactions are part of a complex social system along with other variables that make up one's culture. Even though the author may have used Hofstede's framework for the sake of its parsimonious nature, it may in fact limit the scope of her study and exclude other variables not included in its dimensions. Yalcinkaya (2008) theorizes that new product adoption is slower in high power distance cultures than in low power distance cultures, because people in high power distance societies tend to be

less innovative (Hofstede, 2001). Moreover, large power distance tends to be associated with centralization and more dependent decision making on others (Hofstede, 2001). Therefore, interpersonal communications are limited and as such diffusion rates of new products are likely to be lower (Yalcinkaya, 2008). The author concludes that cultural differences in different markets are large enough to have a significant impact on the reliability and predictions made from research, that companies and international marketers must gather conclusive data and understand it to avoid making erroneous conclusions before entering into new markets (Yalcinkaya, 2008).

#### 2.4.3 National Culture and socioeconomic factors

Yeniyurt and Townsend (2003) sought to investigate the role of cultural differences as moderated by socioeconomic variables to assess its impact on the acceptance of new products. Past studies have already concluded that the adoption process will vary among individuals according to many factors such as socioeconomic, psychographics, demographic, as well as cultural characteristics (Daghfous et al., 1999). However, the authors still believe that there is a gap in the literature tying the variables of culture as well as socioeconomic factors with the diffusion of new products and technologies.

Cultural dimensions represented the independent variables while penetration rates represented the dependent variables and each was moderated by socioeconomic variables, which were taken from secondary data. Multiple regression analysis came away with several findings. The authors concluded that individualism has a positive effect on the diffusion of new products but that power distance and UAI have a negative effect. The study recommends that countries with similar scores in power distance, individualism, and UAI are expected to have similar new product penetration rates. Moreover, companies with new technologies should target countries with higher individualism, but lower power distance and UAI countries (Yeniyurt and Townsend, 2003).

What is interesting about this particular study is that the authors are very much aware of the limitations regarding the use of Hofstede's framework, especially since they used country scores from his 1967 IBM survey, a very old version of his VSM13. They also recognize that Hofstede's dimensions are based on work related values of IBM employees, which may not

represent the entire national population, thus not a good indicator of consumer behaviour. They also cite the level of analysis used by Hofstede in constructing his national framework. Also, they believe it may be inadequate to use his 'national' culture dimensions, because it may disregard other sub cultures or social groups not fully represented by his framework. However, the authors argue that regardless, Hofstede's framework can still be used, because of the large number of countries sampled, thereby providing diffusion research with a feasible macro level construct for culture.

#### 2.4.4 National Culture and Economic wealth

Stremersch and Tellis (2004) sought to understand whether there are country specific differences in the duration and speed of the growth of product acceptance across European countries. Moreover, what factors may explain these inter-country differences. To explain the variation in growth rates across countries, they included two sets of predictors: 1) economics and 2) culture. To simplify the complexity of culture, the authors focused on three dimensions which were found to be related to the construct. They chose the construct religion and two of Hofstede's culture dimensions: uncertainty avoidance and masculinity. The authors hypothesized that new products will grow faster in masculine countries than in feminine countries. Moreover, that new products will either grow slower or faster in countries low in uncertainty avoidance.

The authors' hypothesis related to two dependent variables: duration of the products growth and its growth rate during the growth stage. The independent variables used are Hofstede's dimensions for national culture, economic wealth, religion (mainly protestant), and income inequality. Data was measured using historical data on sales of new consumer durables and secondary databases such as the Statistical Yearbook of the United Nations and The World Bank Statistics. The findings from the study led the authors to conclude that there were strong differences across countries in both growth rate and growth duration. Furthermore, they found that economic wealth was the primary indicator of growth rate and growth duration. Culture had no implications on the growth rate of products nor their growth duration.

Limitations cited by the authors include that they might have missed important variables while employed limited ones. Incidentally, a year ago, Tellis et al., (2003) utilized Hofstede's two culture dimensions (uncertainty avoidance and masculinity/femininity) to represent the variable

culture in their study regarding the take-off<sup>3</sup> of new products in different international settings (mainly in European countries). In this particular study, data was collected through several secondary databases for ten consumer durables over a period of four years. The variables used included: time-varying measures (market penetration, number of prior take-offs, GDP, EU membership, exports, imports, number of TVs, cars, radios, telephones, circulation of newspapers, and education) and time invariant measures (Hofstede's dimensions, product class, introduction year, income inequality, activity rate of women, religion, and climate). In contrast to the previous study, findings proved differently in which culture was found to be the main factor affecting the take-off of new products. In relation to Hofstede's dimensions, the authors found that products take off faster in countries low in uncertainty avoidance in comparison to countries high in uncertainty avoidance.

It is apparent that the two studies are not wholly similar in anything besides the usage of Hofstede's two culture dimensions. Therefore, conflicting findings regarding the importance of culture on product growth and take-off is not surprising. In the end, the objective behind the study was to help guide international marketers in managing their products in different international settings. Nevertheless, the authors do admit that their measure of cultural differences does not directly assess people's readiness to adopt new products; therefore it may not serve as an adequate indicator of their innovativeness.

#### 2.4.5 National Culture and the Bass Model

Many researchers sought to understand the effects of mass media and interpersonal communication on consumers. External influences as outlined by the Bass Model were tested in several international settings (Talukdar et al., 2002; Takada and Jain, 1991; Singh, 2006). As discussed previously in section 2.2.2, the Bass Model does not specify the nature of interpersonal communication being measured. Moreover, the Bass Model does not distinguish the innovators from the imitators on the basis of time to adopt. The only distinction is based on the effect of interpersonal communications on potential adopters. External influence such as mass media is represented by the coefficient  $p$ , whereas internal influence such as word of mouth is represented by the coefficient  $q$  (Mahajan et al., 1990; Bass, 1969).

---

<sup>3</sup> New product breaks into rapid growth, associated with a huge jump in sales

#### 2.4.5.1 The p/q Ratio

The study conducted by Van den Bulte and Stremersch (2004) sought to understand how Hofstede's national culture dimensions can explain variations of the p/q ratio found in the Bass Model. The authors posit that individualistic countries will lead to more innovative individuals, because of the high usage of mass media (thus a high p coefficient) and less conformity to social norms and group behaviour (thus a low q coefficient). On the other hand, high power distance and uncertainty avoidant countries will emphasis more interpersonal communication (thus a high q coefficient) and will have a lower intrinsic tendency to adopt innovations (thus a low p coefficient).

Finally, masculine cultures imply a positive association with the q coefficient and a negative association with the p coefficient. However, the authors concede that their hypothesis for masculine cultures may not comply with past research (Tellis et al., 2003, Steenkamp et al., 1999) as masculine cultures attach great value to wealth and materialistic possessions so as to suggest a higher tendency to innovate. The authors employed a meta-analysis of published p/q ratios of consumer durables from which they comprised their final dataset. The dependent variable was the p/q ratio with Hofstede's national culture dimensions representing the independent culture variable. Other independent variables included competing standards and income heterogeneity. The findings did support the authors' hypotheses regarding Hofstede's culture dimensions and its effect on the interpersonal communication coefficients of the Bass Model. In their concluding remarks, the authors call for more inclusion of Hofstede's culture dimensions, particularly, the power distance dimension, in international diffusion research and theory.

#### 2.4.5.2 Coefficient of innovation (p) and coefficient of imitation (q)

Another study by Yaveroglu and Donthu (2002) came to similar conclusions. The authors used the coefficient p and q in the Bass Model to distinguish between innovative countries and imitative countries. In their study, the effects of external influences, such as mass media and advertising were captured by the coefficient p, and interpersonal communications were captured by the coefficient q. The authors' research methodology consisted of collecting cross country

new product diffusion data from 19 countries. The  $p$  and  $q$  values for these countries were consolidated from previous research data and averaged across several different product categories.

The authors believe that this will uncover the innovators, because they are the ones that are affected by external influences. This is in contrast to the imitators who are captured by the coefficient  $q$ , signalling the consumers who are only affected by word of mouth or more interpersonal communication channels. The authors also utilized Hall's (1966) high and low context culture theory in conjunction with Hofstede's national culture dimensions. Their results indicated that the coefficient of innovation  $p$  is high in countries that are high on individualism, low on uncertainty avoidance, and low on power distance as well as in high context cultures. The authors' study also aimed at finding the relationship of these culture dimensions to the coefficient of imitation  $q$ . They concluded that the coefficient of imitation is high in collectivist countries and in low context cultures. Moreover, they found that countries which are also high on uncertainty avoidance have a high imitation coefficient as well, which is also supported by past findings (Sundqvist et al., 2005).

#### 2.4.5.3 Conceptualization of the ( $p$ ) and ( $q$ ) coefficients

Another similar study is one conducted by Singh (2006). Her research's aim was to investigate the role of national culture in distinguishing between innovative and imitative behaviour in consumers' adoption of new products, ideas, and behaviour. The study used Hofstede's national culture, interpersonal communication, and normative influences as a basis of comparison between the two countries under investigation (France and Germany). Questionnaires were used to measure consumer innovativeness as well as their susceptibility to be influenced by interpersonal communications. Findings led her to conclude that cultures with low power distance, weak uncertainty avoidance, and masculine societies were more likely to engage in innovative behaviour. It is believed that new products would be accepted and adopted in these cultures without any hassle.

Moreover, Singh (2006) posits that the less individualistic the society is, the more likely the individuals would be influenced by interpersonal communications. Introducing new products to these markets would need to employ more normative influences to entice consumers into

adopting the product. Even though the author was not successful in isolating cultural differences in imitative behaviour, it is still posited that imitation would be the dominant trait in collective countries. Singh (2006) believes that the study emphasizes the importance of national culture in explaining innovative behaviour and that the research has significant implications to international marketing and consumer behaviour. This is specifically, for new products being introduced to new countries and the type of communication strategies that can be deployed in their introduction phase.

#### 2.4.6 National Culture and National Rates of Innovations

In Shane's (1993) study, the premise was to investigate the effect of culture on national rates of innovation by comparing national scores on Hofstede's dimensions with per capita rates of innovation for 33 countries in the years 1975 and 1980. The specificity of the dates was the author's objective to collect relevant datasets that were time comparable with Hofstede's original study, which was taken around that time frame. The datasets collected served as the independent variables and they consisted of per capita income and percentage of total value added by industries. Least squares multiple regression was then used to examine the effects of cultural values on national rates of innovation.

The study came away with several findings regarding the relationship between Hofstede's dimensions and innovation rates of countries. Low uncertainty avoidance was found to be the most significant dimension that affected national rates of innovation. This can be seen in uncertainty high avoidant societies, in which people who were averse to risk and less tolerant of change would be less accepting of innovative behaviours and as such have low rates of national innovation. Moreover, Shane (1993) found that the dimension's power distance and individualism were not found to be as significant, but did, however, possess some explanatory power. Societies high on power distance exhibit several characteristics that are seen as discouraging towards innovative behaviours, such as centralization of power, and unequal distribution of power and wealth, in addition to valuing hierarchical relations.

Likewise, individualistic societies would foster innovation, because they would exhibit more freedom of choice, an outward orientation, and a belief in the importance of establishing contact with senior managers. As such, both individualistic and low power distance countries have

higher rates of innovation than their counter parts. The study is not without its problematic areas. The author cites several limitations towards measuring the concept of culture, admitting to the difficulty of measuring the effect of cultural values on other phenomena, such as rates of national innovation. Moreover, the author found that changes in cultural values could not be distinguished, because the usage of Hofstede's dimensions only provided values for a snapshot of time. Shane (1993) urges researchers to develop better measures for cultural values as well as explore society's propensity to imitate.

#### 2.4.7 National Culture and New Product Ownership

Lynn and Gelb's (1996) study sought to find an answer to whether some countries have higher adoption rates for innovative technical consumer products than other countries, and if so, what characteristics did its population possess to exhibit such levels of national innovativeness? To try and find answers to their questions, the authors set out to measure national differences from a number of datasets available for 16 European countries. The countries were measured for national differences in ownership of new products, individualism, uncertainty avoidance, and consumer purchasing power. The datasets were all obtained from secondary data. The study's findings indicated that national innovativeness is related to national levels of individualism, uncertainty avoidance, as well as to purchasing power.

In regards to Hofstede's dimension, Lynn and Gelb (1996) find the indices to be valuable for consumer research, in which findings suggest that the more individualistic a country is, the more it will exhibit hedonistic and materialistic tendencies, as well as inhibit people that are more willing to try new products. In addition, the less uncertainty avoidant the country is, the less adverse it will be to risk and changes. As such, it will be more prone to adopt new products compared to high uncertainty avoidant countries. The authors believe that their theoretical explanations have practical implications for international marketers, in which marketing managers can utilize their findings to better select national markets, evaluate national marketing efforts, control their marketing mix, and most significantly, identify innovative national markets.

#### 2.4.8 National Culture and Cross National Product Diffusion

Dwyer et al., (2005) provided an exploratory examination of the effects of Hofstede's five

dimensions on cross national product diffusion. The study sought to investigate whether national culture can explain the variations seen in diffusion patterns across countries. To accomplish their objective, the authors selected seven technological innovations and measured their diffusion rates across 13 countries from 1971-1990. The study also used socioeconomic factors such as GDP and economic infrastructure as control variables. The study concluded that the cultural dimensions of masculinity and power distance were positively associated with the diffusion of technological innovations. This supports the notion that masculine societies are more accepting of innovations compared to feminine societies. Likewise, the authors found that power distance societies will inhibit more individuals who wish to preserve their status through the acquiring of new products and displaying of their wealth. As such, the powerful 'elite' in high power distance societies may in fact be seen as opinion leaders or change agents thereby influencing other members to purchase new products, consequently influencing the diffusion rates.

The authors have also found individualism and long term orientation to be negatively associated with the diffusion rates of technological innovations. This supports the notion that social ties are rather loose in individualistic societies compared with collective societies, in which word of mouth and social networks are seen as accelerators of the diffusion process. Likewise, as inferred from Hofstede's (1991) description of long term oriented cultures, the authors believe their findings indicate that individuals from such societies will place strong emphasis on savings, are more frugal, and are generally cautious in the face of changes. The authors also found a positive relationship between diffusion rates and short oriented societies.

Even though the authors cite the nature of their study (explanatory) as a limitation unto itself, they do still believe it can provide insight to global marketers regarding the variance in diffusion patterns across countries. Several implications are made regarding product launch strategies, marketing mix solutions, and marketing decisions regarding innovative products. However, the authors indicate that generalizing their research findings to other countries as well as other product categories should be implemented with caution. Further research should be taken to consider a wider set of innovative products, to extend the number of countries under study for better generalizability, and to incorporate the Bass Model to study the effect of word of mouth and mass media on diffusion rates. The present study has followed the recommendations and

incorporated it with its national culture investigations. More will be discussed at length in Chapter six.

#### 2.4.9 National Culture and the Adoption of Information Technology (IT)

According to Liedner and Kayworth (2006), among the 82 IT studies they reviewed, over 60 percent of cross cultural IT studies have utilized Hofstede's national culture dimensions. Most particularly, Hofstede's dimensions were included in studies that addressed the question of whether culture influenced adoption and diffusion patterns of IT related innovations. The most applied dimensions of national culture in IT literature were uncertainty avoidance and power distance. According to Hofstede (2010), of the four dimensions he originally constructed for national culture, power distance and uncertainty avoidance dimensions are the most reflective of how organizations operate in regards to decision making, and risk taking, and how power is distributed.

IT literature seems to point out that individuals who are in high power distance and high uncertainty avoidant countries, will less likely engage or experiment with IT, let alone exhibit innovative behaviour (Thatcher et al., 2003). Likewise, Garfield and Watson (1997) found that the development of national IT infrastructure was constricted by centralized decision making of authorities, compared to low power distance countries, in which it was more decentralized and instinctive. Furthermore, in Png et al., (2001) study, findings suggested that in higher uncertainty avoidance countries, it was less likely that corporations would adopt IT infrastructure. This is similar to Shore and Venkatachalam's (1995) study, in which findings proved that in higher uncertainty avoidant countries, managers are more risk averse and as such introductions of new IT applications would not be accepted easily.

In essence, most cross cultural IT literature emphasizes the fact that cultural differences account for variations in the adoption of IT. It is true that the findings of the previously discussed studies did stress this point, but it is also important to indicate that they concentrated most of their efforts on highlighting the role of national culture in IT adoption and diffusion. Most specifically, the uncertainty avoidant and power distance dimensions. The running sentiment seems to be that countries differ on a number of factors that would affect IT adoption and diffusion, but that an

important factor that needs to be considered in further research is Hofstede's national culture dimensions and their impact on adoption decisions regarding IT related indicators.

Table 2.3 summarises the studies that incorporated Hofstede's national culture in their cross national diffusion investigations

Table 2.3 Hofstede's national culture in cross national diffusion research

<b>Auth</b>	<b>Dependent Variables</b>	<b>Product</b>	<b>Number of countries</b>	<b>Culture Key results</b>
Tellis et al., 2003	Time to take off	10 consumer durables	17	Products take off faster in low uncertainty avoidant cultures
Van den Bulte and Stremersch, 2004	q/p ratio	52 consumer durables	28	Highly individualistic, low power distance, and low uncertainty avoidance will lead to high p and low q coefficients
Yaveroglu and Donthu, 2002	q and p (Bass model)	consumer durables	19	Highly individualistic, low power distance, and low uncertainty avoidance will lead to high p coefficient, high UAI, low IDV will have a high q coefficient
Yeniyurt and Townsend, 2003	Penetration rates for new products	Internet usage, PC and cellular phones ownership	56	Power distance and uncertainty avoidance hinder adoption of new products.

Steenkamp et al., 1999	Consumer innovativeness	n/a	11	Consumers in individualistic and masculine societies proved more innovative than in feminine collective and high uncertainty avoidant societies.
Yalcinkaya, 2008	Adoption and diffusion of new products	n/a	n/a	Conceptual framework. Concludes that new product adoption will be slower in high uncertainty avoidant cultures, high power distance, feminine and individualistic cultures.
Singh, 2006	Consumer innovativeness, propensity to imitate, normative influence, interpersonal communications	n/a	2	Cultures with smaller power distance, weak uncertainty avoidance, masculine tendencies, are likely to participate in innovative behaviour. Large power distance, strong uncertainty avoidance, more feminine societies will be more influenced by norms. Collective societies will be more influenced by interpersonal communication.
Sundqvist et al., 2005	q and p (Bass model)	Wireless communication	25	Adoption year is related to the cultural distance from the innovation centre, and uncertainty avoiding cultures tend to imitate.
Kumar and Krishnan, 2002	Cumulative adopters, sales	Consumer durables and high tech	7	Culture similarity (represented by Hofstede's dimensions) effected cross country interactions.

Shane, 1993	National rates of innovations	Trademarks per capita	33	Low uncertainty avoidant cultures had higher national rates of innovation
Dwyer et al., 2005	Cross national diffusion rates	7 technological innovations	13	Masculinity, high power distance, and collective and short oriented countries will have a positive association with the diffusion of technological innovations.
Lynn and Gelb, 1996	National innovativeness, new product ownership	7 consumer durable products	16	National innovativeness is related to national levels of individualism, and low uncertainty avoidance.
Waarts and Van Everdingen, 2005	Country adoption rates	Enterprise Resource Planning (ERP)	10	High uncertainty avoidance, masculinity, and power distance in a country will negatively influence ERP adoption.
Gong, 2009	Global diffusion	B2C e-commerce	58	High context and high uncertainty avoidant countries will adopt B2C e-commerce.

## 2.5 National Culture and the Arab States

Egypt, Lebanon, Kuwait, Libya, Iraq, Kingdom of Saudi Arabia (KSA), and United Arab Emirates (UAE) were all part of Hofstede's original study. The region had 141 respondents in total; 79 respondents in 1969 and 62 respondents in 1972. However, IBM had wiped the tape with the raw survey data and destroyed all data printouts. The only data left pertained to the entire region as a whole, so Hofstede was in essence forced to treat the region as one cluster. Hofstede has recently confessed that the region 'is less homogenous than would be desirable' (Hofstede, 2013).

Fischer and Al-Issa (2012) and Alajmi et al.'s, (2011) studies have both shed light into the problem of assuming the homogeneity of the Arab region. In Alajmi et al.'s, (2011) study, the authors wanted to investigate the role of national culture on service provisions in the Takaful industry<sup>4</sup>. Their choice of countries (Egypt and Kuwait) was used to investigate the claim in regards to the homogeneity of the Arab world. Their findings proved that more differences exist between these countries than similarities, echoing Fischer and Al-Issa's (2012) conclusions. In Fischer and Al-Issa's (2012) study, the authors conducted a replication of Hofstede's survey on 329 students studying in the University of Sharjah in the UAE. These students were from eight Arab speaking countries, of which four countries were found to be from the original study. The authors believed that the only difference, besides the nature of the respondents being tested (students), is that the survey used was an Arabic version of the Value Survey Model questionnaire (VSM08)<sup>5</sup>. The results of the study were found to be very different from Hofstede's original scores for the Arab States. Respondents scored very low on power distance and uncertainty avoidance, but high in individualism and masculinity; a complete reversal of Hofstede's original score for the Arab States. The authors were very surprised by how different the results were from their original scores.

However, Hofstede quickly indicated the fault in their methodology and subsequent findings (Hofstede, 2013). Hofstede et al., (2008) in his VSM08, warns that his published scores are not to be compared with a sample of respondents from another country. Meaning that if the VSM

---

<sup>4</sup> Islamic version of insurance

<sup>5</sup> Hofstede's latest edition of the original 1967 IBM survey at the time of the study

was disseminated on a sample from a given country, then these scores should not be compared with one already published and tested by Hofstede. Hofstede et al., (2008) believe that comparisons of countries should be based on matched samples of respondents. Therefore, it will be impossible to find a matched sample that was identical to his original data, primarily because it was done in 1967 and the point of time of the survey is considered a matching point characteristic.

This argument was used when Hofstede negated the findings of the study by Fischer and Al-Issa (2012). In his rebuttal, Hofstede argues that their results are invalid, because they compared their sample with his original sample (Arab States 2012 vs Arab States 1967), thereby comparing apples with oranges, when they should have compared their sample with another matched sample of students in another country in order to be deemed a valid comparison. Moreover, he included that he did use a translated Arabic version of his survey at the time of the original study. However, this cannot be validated, because, as stated earlier, IBM has erased all raw data regarding the Middle East (Hofstede, 2001). Additionally, Hofstede argues that Fischer and Al-Issa (2012) should have analysed their findings from a different perspective rather than challenge his work. He believes the differences in their scores can be attributed to the events that changed the landscape of the region.

Another related study was undertaken by At-Twajri and Al-Muhaiza (1996), in which again Hofstede's original scores were compared with their replicated survey findings. However, what made their study unique in a sense was that the authors wanted to prove that the Gulf cooperation council (GCC) countries differed from the Arab States included in Hofstede's original study. The authors hypothesized that Gulf countries would score differently on Hofstede's index from Iraq, Egypt, and Lebanon. Reasons for this initial hypothesis were largely based on reported fundamental discrepancies in the economies, population size, political systems, and value systems between the Gulf countries and the rest of the Arab States in the Middle East region. To test this hypothesis, the authors administered a questionnaire that applied Hofstede's four original dimensions to five GCC countries. What should be noted, is that the authors decided to only administer the surveys in GCC countries and no other countries in the region. Perhaps the authors wanted to make a point of the changes that the GCC has undergone since Hofstede's original study and sought to reflect that in the results. On that note, it would have been better if

the authors had included Egypt, Lebanon, and Iraq in their sample, so as to better compare their scores instead of comparing them with Hofstede's 1967 scores. As such, while the general sentiment of their research matches this present study, they should have further examined the GCC from another angle, and investigated their differences or similarities on Hofstede's dimensions with other Arab States.

## **2.6 Innovation and the Arab States**

Arab States are thought to be largely governed by Islam. This religion in particular is seen as pervasive in all aspects of the Muslims' life and everyday dealings. The religion Islam is thought to contain several elements that 'mitigate' against change. If changes are not consistent with Islamic teachings, then this change should be discarded. Change is then seen as a high risk, and should be avoided and as such innovative potential is hindered. Islam and the Arab States are cited as an example where religious and political systems are intertwined. According to Herbig and Dunphy (1998), when this becomes true then culture bias will exist against technology, especially if it defies tradition and religion.

This has serious implications for innovations research concerning the Middle East seeing as its predominately Muslim. Islam is a religion that calls for the elimination of desires and preoccupations with materialistic things, therefore it could be seen as an inhibitor of innovative behaviour. However, there are some findings that prove otherwise. According to Riquelme et al., (2011) Muslim customers are willing to pay for status products even if they are not congruent with their Islamic identity. In particular, the study found that Kuwait's society places extremely high value in status and prestigious products. It has also been hypothesized that Kuwaitis like to impress each other and see status products as a quick way to be accepted by others. In the Gulf countries, in particular, wealth and money are high enablers for materialism and ostentatious consumption, which is the antithesis of what Islam stands for.

Mahajan (2012) was one scholar who, in the past, believed the Middle East would prove to be a land where innovations perished. However, inspired by Ibn Battutta, a famous Moroccan explorer, Mahajan set out to discover the region and the power its 350 million consumers could represent if understood fully. It took him almost three years to write his book 'The Arab World

Unbound' and the author still believes there are still more areas left to be investigated. However, one question was answered through the book regarding the innovativeness of the Arab consumer. Mahajan (2012) reveals "that the signs of a growing high-tech emergence revealed itself almost everywhere in the Arab world, with evidence of an innovative, knowledge based economy percolating up in all the Arab countries" (Mahajan, 2012:255). Throughout his book, he provides many antecedents of innovation, entrepreneurship, and global opportunities in the many Arab countries he travelled through. He cited many innovative Arab start-ups that have become regional and international brands such as Emirates airline and Aramex, a logistics and delivery company. Mahajan's message keeps resonating through his examples, which is to take heed of the opportunities that the consumers of this region can offer. With more than 350 million people and GDP/per capita greater than both India and China, global businesses should exploit the possibilities that the Arab world holds.

Mahajan also indicates that the Arab world should not be treated as one cluster. He cites that the most successful businesses are the ones that research these differences and develop special marketing efforts to address these variations so as to develop a good relationship with each regional consumer segment. Moreover, during his travels, he interviewed many regional representatives of reputable multi-national organizations, such as Procter and Gamble, Unilever, L'Oréal, Coco-Cola, and PepsiCo, amongst many others. Most have cited the diversity within the region, and how important it was to differentiate their products and consumer segments accordingly. One CEO that Mahajan interviewed drew upon similarities between the Middle East and Europe. He indicated that just as Europe consists of countries that are considered very different from each other on many factors, such as England and Greece; the Middle East is also similar in that sense, in which it can also be considered as diverse and complex a region.

### 2.6.1 Disparities in Arab States' Rates of Diffusion

Another point regarding the innovativeness of Arab States, is the fact that not all Arab States share similar levels of diffusion rates. Particularly, there is a huge disparity on a number of indicators such as economic, social, and governance indicators between the GCC countries and Lebanon, Egypt, and Iraq (At-Twajjri and Al-Muhaiza , 1996; Tsang et al., 2011). From an

economic perspective, the Middle East is home to the oil rich Gulf States and the energy poor countries, such as Egypt and Lebanon. The latter countries' economies and exports depend on other sources to shape their economies and as such are seen as poorer than their rich energy neighbours (Crane et al., 2011).

Disparities between the two groups do not stop at the economic level but seeps down to affect the very makeup of their respective societies. While indeed the argument can be made for the similarities in the culture of the GCC countries, it would be very hard to make the same argument work for all the Arab States. However, having gone through the cross national diffusion literature that correlates innovation and diffusion patterns with Hofstede's national culture dimensions, many findings prove otherwise. According to diffusion literature, since the Arab States share one national culture score, then they should in theory have relatively similar diffusion rates and innovation levels.

In retrospect, little to none of the cross national diffusion literature discussed had sampled countries from the MENA region. Therefore, their generalization may not, in fact, extend to Arab States. Moreover, it is imperative to point out that very little research has been done on the differences in diffusion patterns of Arab States. In fact, out of 111 empirical studies on cross national diffusion during 1975-2014, only four studies reported a sample exceeding 50 countries (Gong, 2009; Lee, 1990; Dekimpe et al., 2000; Yeniyurt and Townsend, 2003). Additionally, only Lee (1990), Dekimpe et al., (2000) and Yeniyurt and Townsend (2003)<sup>6</sup> included an Arab State in their cross national diffusion samples.

From a review of the findings, it can be inferred that Arab States do not in fact have similar diffusion rates nor do they exhibit similar innovative behaviour. For example, Lee (1990) believed that national innovativeness can be measured through the adopting country's ownership of a certain innovation, whether it is a technological phenomenon, or a new product class. He chose 70 countries to represent his adopting unit and measured their innovativeness on several socioeconomic variables. His findings led him to conclude that early adopter countries tended to be wealthier, more industrialized, have a high literacy rate, favour science and education, and

---

<sup>6</sup> In this study, Arab States were added as a cluster, and were not sampled as several different countries. Therefore findings were not applied to each Arab State but for the Arab cluster as whole, relative to other countries.

represent less authoritarian societies. Lee (1990) has also classified the countries according to Rogers (1983) adopter categories.

It is interesting to note that Kuwait was part of the original 70 countries chosen for the study. Lee (1990) tested Kuwait for national innovativeness based on his four socioeconomic determinants (GNP per capita, literacy rate, proportion of manufacturing, and number of scientist and engineers per head of population) and found it to be innovative enough to be represented in the Early Majority adopter categories relative to the other countries. As can be inferred, Kuwait is the only Arab country to represent the Early Majority category. Other Arab countries include Sudan and Syria, which can be found in the Laggards category. It is crucial to say that the number of countries from the MENA region was not large enough a sample to provide a comprehensive insight into the Arab world and its innovativeness (or lack thereof). Moreover, the previous study mentioned did not specifically set out to measure differences in the Arab States' innovation and diffusion patterns. However, it did prove differences in the region regarding this phenomenon, unintentionally as it may be; and therefore it does provide a gateway in which other scholars can investigate the subject further. Hence, it does provide the present study the opportunity for further investigation regarding how Arab States may differ in their diffusion and innovative profiles.

## **2.8 Summary**

To reiterate, the literature review recounted the different diffusion and innovation research around adoption/diffusion theories, which investigates the adoption and diffusion of innovations across nations, organizations, and individuals. The literature reviewed also focused on national culture theory, in particular Hofstede's national culture theory and its limitations. Later, the chapter explored the various studies in cross national diffusion literature that correlated the two theories in their findings. During the course of the literature review, it was discovered that a large percentage of the literature on innovation deals with findings related to the innovativeness variables found in certain societies, people, or organizations. Most of the findings aim to discover the characteristics that make up innovators and the sets of indicators that can predict national and consumer innovativeness. At the end of the review, the logical conclusion was to take the next step and to investigate whether the previous findings still hold true when extended

to other countries and foreign markets, particularly the MENA region. What can be accomplished may or may not counter previous studies reviewed in the literature, but because the literature has been so sparse on diffusion patterns and adoption levels, specifically within the Arab world, it would at least contribute to enriching the research on this front.

## **Chapter 3**

### **Research Design and Methodology**

## Chapter 3 Research Design and Methodology

### 3.0 Introduction

This chapter aims to describe and justify the research methods and methodology adopted by this present study. The chapter will attempt to detail the research's purpose, design, and reasoning as well as justify why they were deemed most relevant to solving the present study's research questions. The next section presents the research design as well as a graphical presentation of the linear stages followed in presenting this chapter. The subsequent sections introduce the research's epistemology, and chosen methodology. Latter sections of the chapter will establish the research purpose, methods utilized, research approach, and research strategy. The chapter concludes with an explanation of the survey questionnaire, its validity and reliability, as well as the data collection method used in the dissemination phase.

### 3.1 Research Design

Most often, research design is deemed akin to a general floor plan, in which its very purpose is to stipulate certain steps and guidelines that will ultimately help in answering the research questions. A good research design will involve the research's underlying philosophy, approach, methodological choice, strategy, as well as techniques and tactics that will help reach the research's objective (Bryman, 2012). In reality, the research questions should justify the choices made for the research design. Therefore, it is deemed important that the research design choices show consistency and coherence, such that a chosen philosophy be compatible with the chosen methodology, as well as be able to answer the research question in the end. In Figure 3.1, the present study's research design is outlined along with its chosen elements. Each element will be further discussed in the following sections.

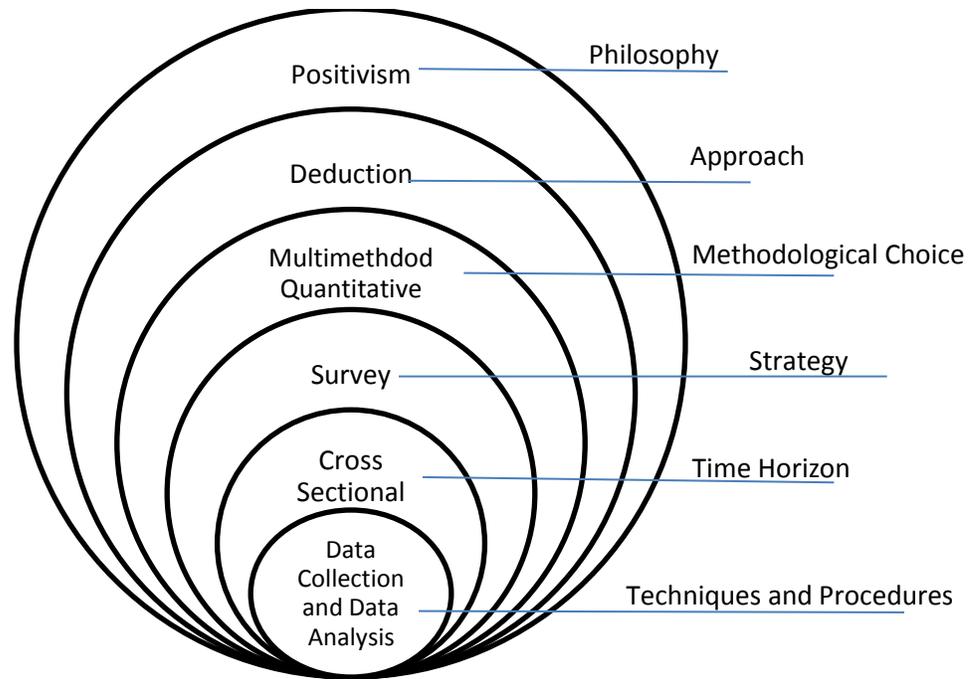


Figure 3.1 Research Onion adapted for this study from Saunders et al.,2012

### 3.2 Research Methods vs. Methodology

In a research project, the researcher has to choose the appropriate research methods that can achieve his research objective in the best optimal way (Harrison, 2013). However, in order to do so, the researcher has to first understand and translate his research choices and reasoning behind his chosen methods. Thus adopting a certain research methodology behind his choice of methods and research design. In other words, the research methodology can represent the house and the research methods the rooms within. Research methodologies have a wider scope than research methods. In a way, a researcher's methodology refers to the researcher's logic and reasoning behind his choice of methods, and even his exclusion of certain methods (Bell, 2010). It is the blueprint in which the researcher will follow in order to solve his research problem, and by adhering to his methodology, he will have at his disposal the methods that are particular to his adopted methodology. Therefore, one of the first steps towards solving the research problem is to identify the nature, or purpose of the study under investigation. This will subsequently help identify a relevant philosophy that will help guide the formation of the researcher's methodology

and later research methods. The following section will provide more insight into the different purposes that can be chosen by researchers for their research studies.

### **3.3 Research Purpose**

The research questions can often shape the research's purpose and in turn affect the choice of the underlying philosophy and research design. As such, it is deemed important that one identifies the purpose or nature of the research project so as to choose the relevant and most compatible elements within the research design. In most instances, the most commonly used research purpose can be classified into either exploratory, descriptive, or explanatory (Saunders et al., 2012)

#### *Exploratory Research*

Exploratory study is most used in research when the research problem needs to be better understood and clarified. The researcher in question has little insight and wishes to acquire more in-depth understanding of the topic of interest. This can be achieved through literature review research and in-depth unstructured interviews/focus groups (Harrison, 2013). As such, exploratory research is considered very flexible and adaptable, seeing as the researcher may be starting with a very broad focus but as more insights are garnered, the study can become narrower.

#### *Descriptive Research*

Descriptive research is concerned with accumulating a clear picture of the research problem. This entails the researcher to amass information so as to provide a detailed profile on the phenomena or research problem under investigation. It can be considered informative research since it is usually concerned with novel and unexplored topics. However, it is often recommended that researchers should not abide with descriptive research alone, but combine it with explanatory research so as to provide a more holistic analysis of their intended study (Bryman and Bell, 2011)

#### *Explanatory Research*

Explanatory research emphasises the relationship between variables and is often used to establish causal relationships or links that may exist in the phenomena or research problem under study. Studies that explain and investigate relationships between variables generally start with a hypothesis of which empirical findings will either refute or support (Creswell, 2014).

#### *The Present Study's Research Purpose*

To achieve its objectives, the present study initially conducted descriptive research. In which, the relevant literature was examined in order to understand the MENA region's stance in regards to both national culture theory and adoption and diffusion research. After evaluating the literature, an exploratory study was further utilized to examine the effects of national culture on adoption and diffusion related indicators in relation to the respective Arab States. The relationship, once explored further through statistical analysis, will help establish or refute the prevalent consensus in the literature indicating the positive existence of such a relationship.

### **3.4 Research Philosophy**

Research philosophy pertains to the development of human knowledge and its nature. There are three main lines of thinking within the realm of research philosophy, which is ontology, epistemology, and axiology (Saunders et al., 2012).

#### 3.4.1 Ontology

Ontology refers to the study of reality, or the world we live in. Ontology raises concerns regarding the way the world works and how it operates. Two divergent aspects within ontology emerge: objectivism and subjectivism. Objectivism advocates the reasoning that social entities function independently from the social actors operating them. In contrast, subjectivism believe that the social actors are the ones that shape social phenomena and that social entities cannot operate externally from their influence.

In regards to culture, the subjectivist view would argue that culture is too complex and that social actors and social interactions play a great role in its conception. On the other hand, the objectivist reasoning would argue that culture could be manipulated and changed, and most often, it is treated as a variable (Bryman, 2012). Nevertheless, it should be noted that most research could

possibly include both points of view. However, for this present study, the most compatible view to Hofstede's dimensionalizing of culture would be the objectivist reasoning. The objectivist ontological position is seen as the most compatible, because the present study will assume that culture is a variable that can be further dimensionalized and analysed through the use of scientific observations and measurements.

### 3.4.2 Epistemology

Epistemology refers to how knowledge is attained and what actually constitutes of acceptable knowledge (Bryman and Bell, 2011). The researcher's questions will dictate what knowledge he deems acceptable and most important to obtaining his answers. Saunders et al., (2012) describes three different main epistemologies: positivism, realism and interpretivism.

#### *Positivism*

Followers of such a philosophy believe greatly in the scientific method and its strength in identifying empirical truths about the world at large. Positivists believe that studies should include quantifiable and measurable variables. They believed that their results should be valid enough to allow the researcher to make generalizable inferences on the whole population (Bell, 2010).

#### *Realism*

Realism is a philosophy that is very similar to positivism, in which it adopts a scientific approach to realising its objectives. However, the slight difference can be found in the realist's regard for the importance of social structures, social actors, and the role of multilevel study in research (Cohen et al., 2011))

#### *Interpretivism*

Perhaps the biggest difference between the interpretivists and positivists, is that the interpretivist philosophy places greater value on the importance of meaning through experiencing the research problem or phenomena under investigation (Bell, 2010). This particular philosophy does not advocate one solution for a research problem, but understands that the world can be viewed and experienced in a multitude of different ways. Therefore, interpretivists don't place as much value

on measurable variables, but seek to understand the sometimes unquantifiable aspects of their chosen phenomenon or research problem.

### 3.4.3 Axiology

Axiology refers to the judgments made based on values. During the process of research, the choices in regards to how the research is conducted can be seen as a direct reflection of the researcher's own values (Saunders et al., 2012). Value judgments can be very pervasive, in which they can affect the chosen topic of research, ethical considerations, and the way research is pursued.

### 3.4.4 The Present Study's Research Philosophy

The present study intends to apply Hofstede's latest edition of his national culture theory survey, the VSM13, on seven different Arab States to gauge their differences in both culture and diffusion/adoption patterns. Thereby, the present study, once choosing Hofstede's survey method, would in essence be adopting his own philosophy, which is a positivist philosophy. Hofstede dimensionalized national culture through his large collection of data from large stratified samples, of which he later objectively analysed using statistical techniques, thereby assuming the positivist philosophy (Williamson, 2002). Much of his opposition reject his theory on culture, because in essence, it does not concur with their own interpretivist philosophy, which is that positivist research is not an appropriate tool to understanding culture (Jacobs, 2005).

The key differentiating feature of the positivist philosophy is its adamant belief that any social behaviour could be measured objectively (Sekaran, 2003). Any social world practices that cannot be measured, does not exist to the positivists. Moreover, the positivist philosophy encourages more scientific methods to be utilized in studies undertaking social behaviours. Its aim is to enable more complex relationships to emerge and be quantified, enabling the operationalization of concepts that once could not be fully understood, concepts such as culture. Which brings us to the debate between positivists and interpretivist on the subject of culture. The subject of culture, in particular, has been argued to be solely entrenched in the interpretivist field. In fact, the field of anthropology, is dedicated to understanding culture and its origins, its meanings as well as its evolution. This is reminiscent to section 2.3.4.6, in which Baskerville (2005) argues that from an

anthropological view point, any construct that dimensionalize culture should be considered null and void. When Baskerville (2005) argues against Hofstede’s national culture theory, she is in essence engaging in an old debate between the two opposing schools of interpretivism and positivism. The two philosophies differ in many ways including different assumptions of ontological, epistemological, and axiological bases (Perry, 2012).

Below is a summary graph outlining the philosophy adopted by the present study and its subsequent research implications. Data collection methods were included so as to introduce the next section, which will discuss the relevant research methods that pertain to the positivist’s philosophical stance.

**Table 3.1 Positivism philosophy adapted for the present study from Saunders et al., 2012**

*Positivism*

<i>Ontology</i>	Objective and independent of social actors
<i>Epistemology</i>	Focus on causality and law like generalizations
<i>Axiology</i>	Researcher is independent of the data and maintains an objective stance
<i>Data collection techniques</i>	Highly structured, large samples, quantitative

**3.5 Research Methods**

At this juncture, it is necessary to pinpoint the most suitable methods to be utilized to fulfil the research’s purpose and philosophy. There are two general categories in conducting research methods: quantitative methods and qualitative methods.

Quantitative methods refer to the collection of data through numerical means such as scales, ratings, and scores (Dolowitz et al., 2008). Researchers who adopt this method are generally

looking at the world and translating their findings through statistical analysis to formulate a solution to their research problem. As such, this type of research method is most associated with positivism, as it can provide generalizable results to populations in the form of statistical sampling of said population (Petre and Rugg, 2010). Qualitative methods are most associated with interpretivists, in which these methods seek to identify data that cannot be necessarily coded into numerical form, such as tape recordings or a researcher's real time observation of a certain phenomenon. This method can include diverse types of non-numerical variables such as images, sound bites, as well as text (Dolowitz et al., 2008).

### 3.5.1 Quantitative and Qualitative Techniques

Quantitative methods, can be classified according to three broad categories: descriptive, experimental, and casual comparative (Williams, 2007). Descriptive research utilizes methods that examine a particular phenomenon as it is. Experimental research utilizes methods that allow the researcher to experiment on a study group and later study the outcomes of the experiment. In the casual comparative, the researcher is trying methods that allow him to understand the cause and effect between independent and dependent variables (Leedy and Ormrod, 2001). Quantitative methods include varied techniques to help serve the purpose of collecting data numerically. Perhaps the most used method, and the one currently used in this present study, is the survey method. The survey method refers to the collection of data directly from respondents through paper based or electronic based questions. Electronic surveys are somewhat considered a new medium since surveys can essentially be disseminated without the researcher and respondent meeting. However, this choice can also eliminate possible participants who may not have access to a computer or internet (Phillips and Pugh, 2010). Paper based surveys are administrated to participants via paper and are also called questionnaires. An advantage of the paper based questionnaire is the large number of participants it can be administrated to, and the time available for participants to think and complete the survey (Dolowitz et al., 2008).

Qualitative methods include oral based surveys such as focus groups and interviews, as well as case studies, observations, and ethnographic studies. Interviews can vary in length, style and number of participants (Matthiesen and Binder, 2009). After conducting the interview, researchers are required to transcribe the process and then analyses it to formulate their

conclusions. Focus groups are similar, but differ in that they are less structured than interviews. The discourse between researcher and participant is more fluid with the process taking a discussion-like atmosphere. Case studies are another method that can provide detailed aspects to the researcher that he otherwise may not be privy to. Case studies can be considered an intensive detailed investigation into an aspect that the researcher believes to be part of his research problem. It is often too detailed and time consuming however, and is mostly used to look at one detailed aspect of a particular phenomenon (Sekaran, 2003). A similar technique is observational research. Such methods require the researcher to observe as well as record behaviours of the participants under study. However, observation research is done without the researcher interfering or interacting with the participants (Creswell, 2014). Qualitative methods can also include an ethnographic study, which is the study of an entire group of people who share similar values and cultural beliefs (Williams, 2007). The researcher employing such a method would have to interact with and be situated within the community and record as well as collect primary observational data about the group (Dolowitz et al., 2008). Recorded data could be the group's norms, beliefs, and behaviours, among other factors. However, such findings may not be as generalizable, a trait found in most qualitative methods.

### 3.5.2 The Qualitative and Quantitative Debate

In regards to the study of culture, distinctions arise between the qualitative and quantitative methods. In one extreme, qualitative methods are more descriptive in nature. They aim to develop themes and patterns that shape and develop theories regarding the culture under investigation. The quantitative methods, on the other hand, aim to quantify culture in order to construct generalizable dimensions, very much like national culture theories explained in Chapter two. Hofstede recommends using both methods in conjunction to provide a broader understanding of the culture being studied. In theory, it is true that Hofstede's dimensions were conceived primarily through the use of quantitative methods, such as surveys. However, Hofstede does provide descriptive data to each dimension through his analysis of country-level available databases, such as the World Bank Atlas. To validate his dimensions, Hofstede uses several indices such as national wealth, population size, density, growth, as well as economic indices. As such, he often makes qualitative inferences in his work, such as the now prevalent assumption that individualistic countries tend to be the wealthier and more developed nations

(Hofstede, 2001). Therefore, it should be noted that should the researcher deem it necessary, a combination of both qualitative and quantitative methods could be used in a single study. Often this is called employing the mixed method (Saunders et al., 2012). Such a method combines the strengths of both methods and is considered complementary, allowing the researcher to adopt both inductive and deductive reasoning (Williams, 2007).

### 3.5.3 The Present Study's Research Methods

Any method, or combination of methods, is employed only after the researcher's assessment of the needs of his research. The present study aims at employing two quantitative methods, which can also be referred to as a multi-method quantitative approach (Polsa, 2013). The quantitative method will be adopted through the use of the VSM13 survey instrument and the deployment of the Bass Model on available diffusion data. Additionally, socioeconomic indices will be used to make inferences regarding the adoption and diffusion of each respective Arab State. Together, the national level diffusion, cultural dimensions' scores, and socioeconomic indicators will be matched to better understand the relationship between innovation levels and national culture. This approach uses the triangulation method, in which more than one method is used to support a hypothesis.

#### *Triangulation*

Triangulation involves viewing the same phenomena but from several points of view. This can entail using several researchers, different methods at once, or different sources of data to look at one research problem (Bell, 2010). The present study involves different triangulation methods. Different sources of data were utilized, such as collection of data at different locations, which satisfies the aspect of *space triangulation*. Moreover, the present study utilizes *theory triangulation*, which is employing more than one theory to fulfil the research objectives. A general consequence of employing different theories is the necessary employment of different data collection methods and data interpretations, which is also called *methodological triangulation* (Perry, 2012). Adopting two theories, such as national culture theory and diffusion of innovations theory, enables the present study to cross-check any findings and data related to the research problem. Moreover, the literature has frequently linked the two theories together;

therefore, it was deemed optimal that the data collection and methods reflect both theories concurrently.

Methodological triangulation is further divided into between-methods and within triangulation (Denscombe, 2010). Between-methods include applying the two different categories of research methods previously discussed: quantitative and qualitative methods. For example, a researcher who wishes to employ the between-methods triangulation would compare quantitative data with qualitative data, in order to provide a more encompassing and richer perspective on his research problem. The within-methods involve using different techniques, but that which belong to the same category. For example, this present study employs two quantitative methods: survey-based questionnaire and employing diffusion data to estimate the diffusion process by fitting it to a diffusion model, such as the Bass Model. Employment of such methods would allow the two different data sources to be compared with each other.

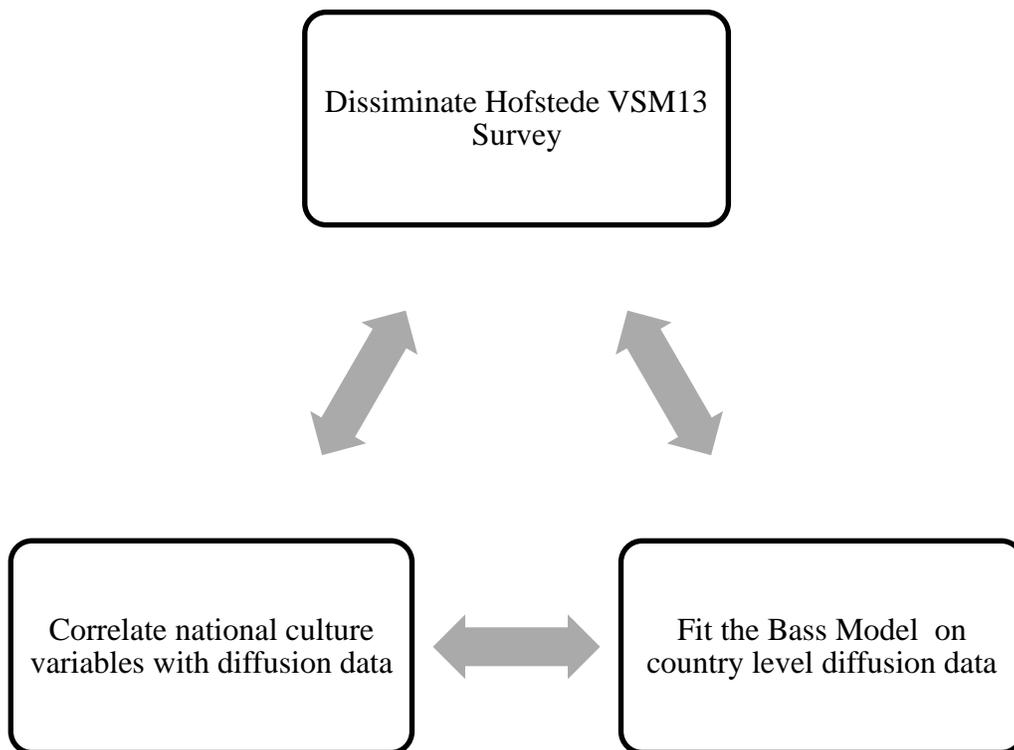


Figure 3.2 Triangulation Process

### 3.5.4 Primary vs Secondary Data

To recap, there are two broad categories towards conducting research: quantitative and qualitative research. However, there are also two different types of research that can be conducted within each category: primary type data and secondary type data.

Primary data refers to the collection of data specifically to serve the research objectives and investigation. Its most defining feature is that the data has never been collected before, and the researcher is the first person to have gathered the data so that he can answer his specific research problem (Sekaran, 2003). Secondary data, on the other hand, refers to data that has been collected for other purposes, but may serve to extend the researcher's knowledge about his research problem or investigation. Secondary data is still deemed valuable, because it can provide other insights and viewpoints that may help support the research objectives (Bryman, 2012). For the purpose of the present study, both primary type data and secondary data will be utilized to help fulfil the researcher's objectives. In accordance with past literary discourse, of which was reviewed in Chapter two, the combination of the two types of data is deemed as the most favourable choice to better resolve the research problem.

#### *Primary and Secondary Data Techniques*

When collecting primary type data, a researcher can do so through a multitude of methods such as interviews, focus groups, surveys, as well as an indirect approach like observation. Secondary type data can be conducted through sources such as databases, journal publications, national archives, industry level studies, as well as governmental reports (Perry, 2012). Gannon and Pillai (2012) state that cultural differences can be discerned indirectly from data about collective behaviours such as a nation's death rates, traffic accidents, or national GDP. Nationwide statistical surveys and data can provide a lot of inferences for culture-related studies. Such an approach for cross cultural studies is used heavily by diffusion and adoption researchers.

#### *Present Study Sources*

To recap, the present study will employ both primary and secondary sources. The primary source will be collected results attained from Hofstede's VSM13's dissemination on the intended sample. Very much like Hofstede, the present study will take direct measures of culture through

the use of questions aimed at identifying a set of values. The study will employ the quantitative method by using surveys and subsequent analysis of such survey. Details of such analysis of said survey will be discussed further in Chapter four.

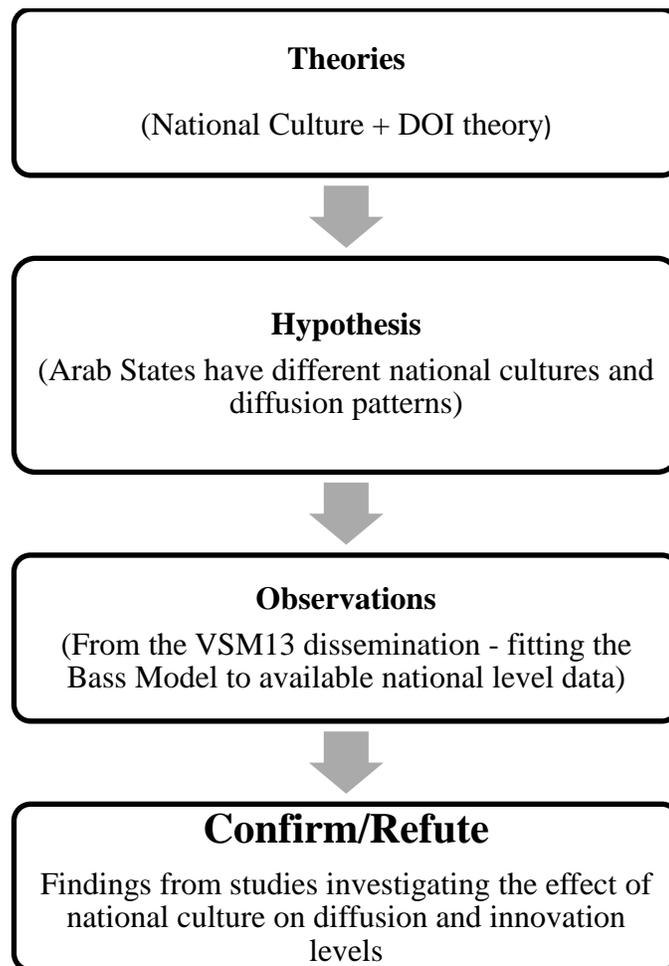
The present study also aims to use secondary national level sources to make inferences about the diffusion and adoption levels of the respective Arab States. Sources for country-level data are numerous such as the World Bank statistical data and the Statistical Year Book of the UN. Valuable country data indices, often employed in adoption/diffusion literature, include mobility (Gatignon et al., 1989), ethnic heterogeneity (Dekimpe et al., 1998), GDP and industry size (Lee, 1990), and population concentration (Dekimpe et al., 2000). The previously listed authors have heavily utilized these national level indices to make inferences on diffusion and adoption patterns, as well as compare countries and rank them accordingly. The present study aims to use such sources to make inferences about the diffusion and adoption levels of the respective Arab States. Greater detail will be discussed and elaborated on in Chapter five, which will include the diffusion data to be used and the utilization of the Bass Model.

### **3.6 Research Approach**

To reiterate, since this present study is seeking to apply Hofstede's VSM13 survey, then it would be safe to conclude that the present study is adopting Hofstede's own philosophy and underlying assumptions. Therefore, by confining with the positivist philosophy and utilizing quantitative methods, such as the survey and secondary data, the present study is assuming a deductive reasoning as its approach for research. Deductive reasoning was the rational choice, since the present study is based on an existing theory (Hofstede's national theory). Deductive reasoning refers to the development of the research hypothesis from an existing theory, which can then be tested through data collection (Bell, 2010). It is more associated with positivist researchers employing quantitative research methods.

As opposed to inductive research, of which the main reasoning reflects the opposite route taken by deductive research. In which the researcher begins first with collecting data, of which later is analysed to form a general explanation or theory to account for the collected data (Polosa, 2013). An example of inductive reasoning-based approach is grounded theory. It is often seen that deductive reasoning and quantitative methods go hand in hand, while inductive reasoning is

matched with more qualitative methods (Bryman, 2013). This present study's research problem started from established theories, and through the empirical field and quantitative methods, will derive answers to its research questions.



**Figure 3.3 Deductive reasoning**

### **3.7 Research Strategy**

In selecting an appropriate strategy, the literature review provided ample examples of existing strategies that were employed pertaining to the present study's existing research questions. As

such, it was apparent that the survey questionnaire method would provide the most optimal solution in generating valid primary quantitative data. The survey approach would also allow for a large amount of data to be collected from a sizable percentage of population with relative ease and in an economical fashion. Moreover, its flexible nature allows for the insertion of several different types of questions to serve different types of hypothesis testing such as exploratory and descriptive testing (Petre and Rugg, 2010).

### 3.7.1 The Research Instrument: the VSM13

The questionnaire is called the Values Survey Module 2013 (VSM13). It is a 24 item paper based questionnaire developed for comparing national differences and culturally influenced values from two or more countries (Hofstede and Minkov, 2013). Its content questions are scored on a five point Likert scale. It computes answers on six different dimensions: power distance, individualism vs collectivism, masculinity vs femininity, uncertainty avoidance, long vs short term orientation, and indulgence vs restraint. The six dimensions have been previously elaborated on in section 2.3.2.

Earlier versions of the VSM13 include the original edition of the instrument, the VSM80, of which sampled the cluster of the seven Arab States, but of which tested them only on four dimensions. That questionnaire was called the Attitude Survey Module and was used solely for IBM HR purposes. It was conceived from several IBM questionnaires and other sources of which Hofstede did not reference outright, but deemed important enough to have influenced his survey. It contained 27 content questions and 6 demographic related questions. Later editions included the VSM81 and VSM82. The next available public questionnaire was the VSM94, which covered the four dimensions and an additional one he called long term vs short term orientation. This dimension did not include the Arab cluster in its sample. Numerous replications of the VSM94, led Hofstede to update the version and rename it as the VSM08. He also constructed the sixth additional dimension, derived from Minkov's analysis of Inglehart's (2007) World Values Survey conducted on 81 countries - indulgence vs restraint.

The most updated version, the VSM13, is the one used in this present study. The VSM08 and the VSM13 have their own different formula calculations. Hofstede has introduced a constant

variable (C) to be utilized so that future scores are kept anchored to his old dataset. More details on Hofstede's method for calculating the (C) variable will be forthcoming in Chapter four.

### *Translating the VSM13*

The questionnaire was originally developed in English, and before the present study's attempt, it had never been translated into Arabic, nor was it administered in any Arab State. Hofstede and Minkov (2013) recommended that the VSM13 be translated by native speakers into their mother language and then employ a back translation as a safety device. As such, the VSM13 was translated by Alaa Translation Co. then retranslated by Ibn Sina Co. into English. The back translation assured for consistent content meaning of the items in both English and Arabic. Moreover, the VSM13 Arabic edition was compared with the previous Arabic edition of the VSM08 to further uncover hidden linguistic inconsistencies. After pretesting the survey, the final version was sent to Hofstede, on his request, and rechecked for quality and accuracy. The Arabic version was deemed an acceptable translation of Hofstede's English version and was submitted by Hofstede to the Institute for Research on Intercultural Cooperation (IRIC) for distribution and to be utilized by other researchers. Furthermore, seven academics from each respective Arab State were asked to look over the translation of the VSM13 for face validity. After thorough examination, all professors remarked on the clear translation of the Arabic version of the VSM13. As for the clarity of the translation, many professors observed that the survey was translated in the official Arabic language, which is a universal language that is taught in all the surveyed Arab States and is still the official language employed in government agencies and in the educational system throughout the region (Kabasakal et al., 2012).

### **3.8 Validity of the VSM13**

It is critical to address the validation of the intended research's instrument, by way of selecting a number of processes that ensure such validation of the research findings. The varied methods towards validating the researcher's instrument will be briefly reviewed in the ensuing sections.

#### *Pretesting*

Pretesting refers to testing the validity of the questionnaire informally and most likely on a concentrated small sample (Bell, 2010). The aim of pretesting is to check if the items on the

questionnaire are clear enough so that the respondent would not need further elaboration from outside sources. The researcher, during pretesting, can go over the questions with the respondent, and improve any questions that may need further clarification. Since the VSM13 was translated from its original English version into an Arabic version, the pretesting was deemed an important stage of the translation process. After translating the VSM13, the Arabic edition was informally tested on a dozen of close colleagues and family members. The participants were asked to voice their confusion if the questions seemed vague, if they understood the questions correctly as well as the concepts they conveyed, and if the chosen Arabic translation fit the English version. The aim of the pretesting was to ensure better translation quality, improve the questionnaire, and ensure that it's understood by participants. In short, the pretesting phase can help ensure the reliability of the chosen instrument and if the researcher should advance with the questionnaire or add further improvements.

### *Pilot Testing*

Pilot testing refers to the administration of the semi-final survey on a number of participants to check for hidden errors, problems in understanding the questions, and even formatting issues such as text or font (Bell, 2010). The difference between pretesting and pilot testing, is that pretesting is often informally disseminated to a rather small group of participants, whereas pilot testing often targets the intended sample of the final survey. Moreover, participants in the pretesting survey phase, are mostly interested in detecting hidden flaws in the questionnaire. Whereas in the piloting phase, the participants are asked to answer the questionnaire, of which the researcher will later analyse and interpret. The piloting phase, in essence, allows the researcher to get a sense of what the final survey data analysis may look like at the final phase.

The VSM13 pilot phase was not deemed feasible for the present study due to a number of reasons. One, being the time constraint for the project which could not accommodate a pilot study of such magnitude. Piloting the survey on seven different countries with sample sizes of no less than fifty was considered too costly and time consuming and so, the present circumstances could only allow for the survey to be administrated once, and that was during the final stage of dissemination.

### *Construct Validity*

Construct validity is a measure of how much the survey instrument being used is actually measuring what it was originally constructed to measure (Sekaran, 2003). It can signify how meaningful the scales within the questionnaire are. For example, if the scales are constructed to mean something which is not reflected in real life, it is therefore deemed invalid and not a true measurement, and as such, of little practical use. Factor analysis can be used to assess the validity of the underlying construct and its relationship with the collected and observed variables (Nunnally, 1978). There are in essence two methods within factor analysis: exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). In both methods, the factor structure of the data is analysed. However, in exploratory analysis, the data is tested in order to build theory, whereas in confirmatory analysis, the data is tested to confirm the underlying theory (Williams et al., 2012). Since EFA is mostly used by researchers to generate new theory, it was the method originally used by Hofstede when conducting his research on possible national culture dimensions. As for the CFA method, it was not initially used by Hofstede himself to confirm his own factor structure (Orr and Hauser, 2008). Since the sample utilized by the present study was too small (seven countries) to conduct further confirmation of the factor structure for both EFA and CFA methods, only an exploratory and descriptive analysis was undertaken to test whether Hofstede's original six indices would match the observed data from the dissemination of the survey. Further elaboration can be found in Chapter four.

### **3.9 Reliability of the VSM13**

Reliability refers to the stability of data when using the survey. It refers to the extent that the content the instrument seeks to measure will reveal the same results however many times it was applied to random samples of respondents (Sekaran, 2003). The survey is considered reliable if it produces the same repeated result, thus exhibiting consistency. It also establishes the fact that the question at hand is actually measuring what it's meant to measure. Cronbach's alpha is considered to be the most frequently used method of estimating the reliability of a construct (Trochim and Donnelly, 2007). Hofstede recommends that a reliability test, such as Cronbach's alpha, to be used on country mean scores rather than individual scores, since the questions in the VSM13 seek to measure country-level dimensions rather than an individual's personality and values (Hofstede and Minkov, 2013). All dimensions produced high Cronbach's alpha's, but further elaboration is delineated in Chapter four.

### 3.10 Data Collection Method

For the present study, the data collection was dependent on the survey paper based questionnaire. The research objective is to choose a matched sample from each Arab State to test for national differences between the countries. Hofstede (2001) often insists that comparisons between countries be based on samples that are matched on all criteria other than nationality so as to not affect the results of the questionnaire. The most optimal solution was to have the questionnaire administered in all IBM branches in the seven Arab States, very much like Hofstede did in his original study. However, as of 2014, the only current IBM offices in the Middle East region are in Qatar, Dubai, Abu Dhabi, and Riyadh, KSA. Seeing as the objective of the study is to have a matched sample in all seven Arab States, this route was therefore deemed inappropriate.

Therefore, it has been decided that universities would be the next rational choice. Seeing as the VSM94's additional fifth dimension was derived from comparisons found in students from 23 countries, it was deemed that universities would provide a closely matched sample that could conveniently be found in any country. However, to allow for a maximum matched sample, further constraints were outlined and followed. For example, only students who were, at the time of survey dissemination, over the legal age were allowed to participate. Furthermore, students who have had part time jobs, or work experience, were automatically excluded, so as to provide the present study with the closest matched sample possible, considering the unavailability of alternate choices.

There is potential bias in regards to limiting the sample choice to students only, such that results of the survey may be generalizable to only the student population. The bias in such a case, would be that students versus other possible sample choices such as middle level managers, for example, may view the survey questions differently and such may result in entirely different answers, which in turn may provide different rankings. A counter argument to this bias, would be to look at the underlying assumption of the Hofstedian model. The theory of national culture considers the component of culture to be preprogramed in the minds of all nations (Hofstede et al., 2010). Meaning, that regardless whether the chosen sample was students or businessmen, the prevalent societal norms of the nation would be significant enough to be shared similarly by all the nationals of the country in question relative to other countries. The theory of national culture

acknowledges the difference and subcultures found within countries, but does not address them, seeing as the theory is based on the differences between countries and not within. As such, the national culture model addresses the variations found between countries and the rankings are used as indicators on how culturally different nations are relative to each other. Moreover, the questions and statements within the questionnaire were phrased in such a way that they can be understood and comprehended similarly across all different samples (Hofstede, 2001).

### *Time Horizon*

It can be said that the time constraint inflicted on the present study can limit the scope of its time frame. Having said that, it seemed that the most plausible option was to conduct a cross sectional study, due not only to the time constraint, but because it would provide an appropriate enough snapshot of what the present study intends to study. Cross sectional studies refer to studies that involve data collection from a population at one specific point in time (Saunders et al., 2012). As such, most studies in the literature review covered in Chapter two have adopted this time horizon.

### **3.11 Sampling**

A sample is a selected part of a population intended to serve as participants for a particular research's objectives (Bryman and Bell, 2011). Data can be collected from a chosen sample, if the researcher deems it impracticable to collect from the whole population, is constrained by budget concerns, or inhibited by time factors (Saunders et al., 2012). Due to previous reasons, the present study has chosen to limit the final survey sample to include only university students above the age of 18 from seven different Arab States: Lebanon, Iraq, Libya, Egypt, Kuwait, KSA, and the UAE. A sample frame refers to the sampling strategy that the researcher undertakes in choosing his sample. In this case, the sampling frame is the populations within each different Arab State. Therefore, the sample is from the students chosen from the above populations. In order to allow for generalizable research findings, the sample size needs be of adequate size. Hofstede recommended to past researchers that an ideal size of 50 respondents as an appropriate measure to be used in studies related to his national culture dimensions' theory

(Hofstede and Minkov, 2013). Any sample size smaller would cause outlying answers to effect overview results.

Case in point is illustrated, seeing as Hofstede had surveyed only 58 respondents for Singapore on his national culture dimensions (Hofstede, 2001). Hofstede, when faced with criticism towards his small sample size preference, counters that for national cultures to be measured, a sample size of 500 would not necessarily be considered more reliable than a sample size of 50. One reason for his belief, was that the sample was being measured for national culture, and as such, the criteria under study (nationality) would allow for only homogenous samples (any sample from the population) to be tested. By his reasoning, it would not matter if 50 Kuwaities were sampled or 500 Kuwaities, since the measure under study is not their individual responses, but their nationally aggregated responses of which will later be assembled according to his dimensions. The shift of factor analysis on to clusters of individual scores, instead of on the individual scores themselves, constitutes to what is called the ecological analysis (Hofstede, 1995). An important difference between the two forms of analysis, is that in ecological analysis, the number of cases does not necessarily need to exceed the number of variables being measured. What is being measured is the clusters, and as such, the number of cases can, on occasion, count fewer than is normally sufficient (Hofstede, 1995). As such, a total of 1400 surveys were disseminated to all the Arab States, 200 for each country. The final number of participants came down to 775 students in total - 119 Libyan students, 130 Egyptian students, 121 Iraqi students, 104 Lebanese students, 90 Emirati students, 98 Saudi Arabian students, and 113 Kuwaiti students – a 55% response rate.

### *Sample methods*

Sampling refers to the plans or strategy employed in order to extract the sample from the sampling frame (Sekaran, 2003). Sampling methods can include both probability and non-probability sampling methods. Probability sampling requires drawing a sample from a population in such a way as to ensure that every unit in the sample has an equal probability of being selected (Cohen et al., 2011). This is opposed to non-probability sampling methods which can refer to any sample in which are entirely chosen non-randomly. Non-probability methods involve several different techniques such as convenience sampling, snow ball sampling, expert sampling, and quota sampling. Convenience sampling refers to choosing the nearest available sample to

participate, thus only for the sake of convenience. Snowball sampling is choosing participants who fit the research's criteria, of whom are then asked to recommend other similar and willing participants (Mathhiesen and Binder, 2009). Expert sampling requires the researcher to contact participants who have specific expertise that is deemed meaningful for the research's objectives. Quota sampling is choosing samples according to a specific quota, such as 20% females vs 80% males (Mathhiesen and Binder, 2009). Such methods enable the researcher, who might be limited with time and money, an alternate way to acquire the samples needed for his research. Moreover, such methods are most convenient for researchers collecting qualitative data such as through focus groups, for example.

In the present study, non-probability testing was only used for pretesting. In the pretesting phase, convenience sampling was used, in which a dozen friends and family members were chosen to read over the questionnaire and communicate any unclear or vague questions they encountered. The translated version of the VSM13 was found to be clear and concise enough that it's meaning was understood by each respondent without further elaboration from the researcher. In the final phase, probability sampling methods were chosen. There are five different methods within that the researcher can apply to his research, such as simple random sampling, stratified random sampling, systematic random sampling, cluster random sampling, and multi-stage sampling methods (Saunders et al., 2012). In a simple random sampling method, the researcher ensures that every sample being drawn from a population has an equal probability of being selected. In contrast, a stratified random sampling is dividing the population into subgroups and then selecting a simple random sample from each group (Bell, 2010).

Systematic random sampling requires the researcher to list elements within a sampling frame and then start from a random starting point and start selecting every Xth element in the list. In a cluster random sample, the researcher divides the population into clusters then randomly samples each element with each cluster. A multi-stage sampling method involves a combination of the above listed methods, thereby creating a more efficient sampling method (Sekaran, 2003). The stratified random sampling method was employed in the final survey phase of the present study. In which, the population of each sampled country was divided further into a sub group (university students), of whom later a simple random sample was chosen for the dissemination

stage of the survey. Below is a graphical presentation of the steps taken towards selecting the most appropriate final probability sampling method.

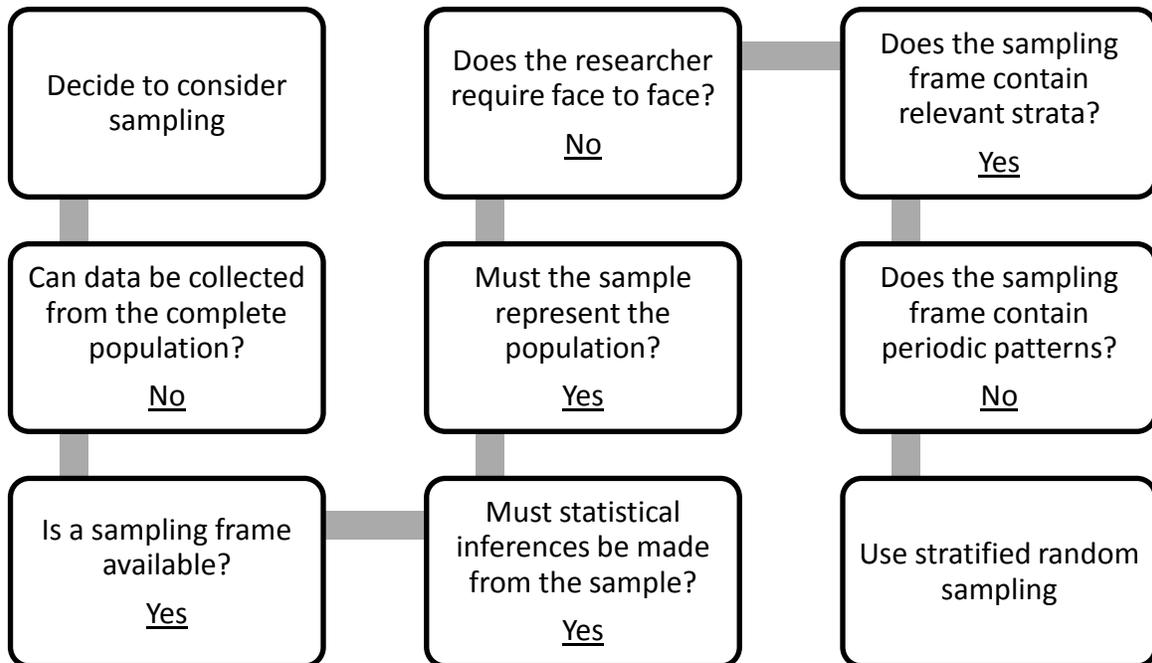


Figure 3.4 Probability method selection adapted to the present study from Saunders et al., 2012

### 3.12 Summary

The previous chapter has outlined the various techniques and methods to be utilized in the present study. This process has led to the formation of the chosen methodology and justifications were provided for each choice. As such, the next two chapters will each delve deeper into the two theories referenced previously and their subsequent data analysis and discussion will be described. The next chapter will be dedicated to the theory of national culture, the analysis of the VSM13, as well as the theoretical implications of the findings.

## **Chapter 4**

### **The Hofstedian Model**

## Chapter 4 The Hofstedian Model

### 4.0 Introduction

The research of Hofstede has identified several constructs pertaining to the theory of national culture. They have been assessed and validated by Hofstede and many previous researchers in the literature. However, it should be noted that tests of validation have only taken to citing national indices and correlational findings of empirical studies with his national culture dimensions. As for replications and studies investigating the psychometric properties of his survey instrument, the literature offers criticism towards his methodology and concern for the lack of reliability and validity of previous editions of the VSM13. Seeing as no replication study sampled more than 40 countries, Hofstede's counter argument against criticism of the reliability of his instrument was always the issue of sample size (Minkov and Hofstede, 2013). Since ecological level of analysis used countries instead of respondents, the size of the sample would greatly diminish any power and significance towards conventional methods of statistical analysis.

However, this present study's results should, nevertheless, be appropriately validated regardless of the literature's consensus on the reliability (or lack) of Hofstede's national culture theory. As such, construct validity of the VSM13 was assessed to measure whether the survey items successfully correlate and measure the intended theoretical construct. It should be noted that the entire section suffers from the ecological dilemma, or the insufficient sample size. Meaning that most of the data analysis will be conducted based on just seven cases (seven countries), as is the case for ecological level analysis, and as thus, the results are rather suspect, but nevertheless discussed, albeit with trepidation.

### 4.1 Reliability

Reliability, as mentioned in Chapter three, is concerned with measuring the consistency of the instrument used, which is in this present study's case, the VSM13. Cronbach's alpha is often used to test whether the instrument's items of the same construct correctly measure the construct in question (Trochim and Donnelly, 2008). As such, the coefficient measures the internal

consistency of the instrument and produces Cronbach's alpha coefficients between 0 and 1. Cronbach's alpha will generally increase when the correlations between the items increases. A commonly-accepted rule of thumb is that an alpha of 0.7 indicates acceptable reliability and 0.8 or higher indicates good reliability. Very high reliability (0.95 or higher) is not necessarily desirable, as this indicates that the items may be entirely redundant (Boyle, 1991). These are only guidelines and the actual value of Cronbach's alpha will depend on many things. For example, as the number of items increases, Cronbach's alpha tends to increase too even without any increase in internal consistency (Saunders et al., 2012).

Since Hofstede's theory is used for national level analysis, country level correlations will differ from individual level correlations. Therefore, when assessing the reliability of the VSM13, the overall mean scores of each country should be used. As such, each country would be treated as one case and the overall alpha for each country is calculated together for each dimension. However, since the study only has seven countries, and as such seven cases to calculate the reliability for, the results may be questionable given the small sample size. Similar sentiments have been expressed in the literature, as was the case with Spector's et al. (2001) replication of Hofstede's theory using 23 countries, in which they observed that because of the small number of countries, the test produced extremely unstable alphas. As such, Hofstede and Minkov (2013) suggest using a sufficient number of countries to be able to produce an acceptable level of reliability. Nevertheless, results can be seen as an indicator that the items within each dimension correlate too highly and may indicate a level of redundancy. Therefore, it was deemed necessary to question the construct validity and its subsequent items' correlation in the next section.

**Table 4.1** Reliability results

<b>Factor</b>	<b>Items</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Cronbach's alpha</b>	<b>Item to Total Correlation</b>
<i>PDI</i>	Q07	2.9386	.59759	.920	.962
	Q02	3.0829	.53310		.970
	Q20	3.2043	.34818		.497
	Q23	2.9529	.72263		.953
<i>UAI</i>	Q18	2.8614	.64623	.889	.957
	Q15	3.1586	.53530		.972
	Q21	2.9329	.15327		.286
	Q24	3.1586	.58193		.956
<i>IDV</i>	Q04	2.5943	.69120	.991	.998
	Q01	2.6729	.74121		.995
	Q09	2.8829	.62646		.991
	Q06	2.5971	.54273		.961
<i>MAS</i>	Q05	2.3014	.45922	.968	.837
	Q03	2.5500	.62934		.995
	Q08	2.9686	.76517		.959
	Q10	2.6729	.64838		.979
<i>LTO</i>	Q13	2.9557	.70225	.981	.975
	Q14	3.0857	.45471		.980
	Q19	2.5343	.67270		.980
	Q22	2.6286	.74104		.973
<i>IVR</i>	Q12	2.8029	.31569	.944	.892
	Q11	2.7629	.62641		.939
	Q17	3.1971	.43626		.956
	Q16	3.1071	.59019		.965

### *KMO and Bartlett's test (Measure of Sampling Adequacy)*

Prior to any analysis, researchers need to ascertain that the data has enough correlations to justify a factor analysis. This can be done by using the Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity. The KMO values tend to be between 0 and 1, and should be nearer to 1, so as to confirm an adequate sample for factor analysis (Field, 2014). As for Bartlett's test, it is used to determine whether a relationship exists between the variables, and as such, a significant p-value of  $<.05$  confirms the relationship and the appropriateness of a factor analysis (Trochim and Donnelly, 2007). It can be safe to say that the number of cases is of paramount importance to the ability to conduct both sampling adequacy tests, and as such the sample should exceed the number of items in the instrument by default. However, in this present study, seven cases per 24 items, failed to produce values for both the KMO and Bartlett's test. This is seen as unsurprising, seeing as the KMO test depends on a positive definite matrix, of which was not achieved because of the high correlation values between the sub scales. This is also most likely because of the small sample size in relation to the number of variables in the analysis, which results in an unstable correlation matrix (Field, 2014).

## **4.2 Construct Validation**

All previous tests point to the fallacy of continuing with a factor analysis, as this present study already understands. However, further investigation may still be useful in enriching our understanding of the VSM13's properties. Hofstede's own factor structure may not be applicable in this study, due to the small sample size, but previous studies have all reported the same conclusion when conducting their own investigation into the psychometric properties of previous VSM instruments. Seeing as no study has analysed the VSM13, it was deemed necessary that the factor analysis continue, but only tempered with the knowledge of the effect of the sample size and the level of national level analysis required. As such, the analysis will conclude with the present study's attempt to demonstrate construct validity. It will do so by attempting to present evidence of convergent and discriminant validity, which is necessary when construct validity is conducted (Trochim and Donnelly, 2007).

#### 4.2.1 Convergent validity

The term convergent validity refers to the degree in which the construct's items are similar to each other. As such, items that refer to the same construct should in essence be highly correlated to each other. As can be seen from Table 4.1, all the dimensions retained a very high alpha parameter indicating high inter item correlations and as such, convergent validity could be determined for all of Hofstede's constructs. It should be noted that each dimension was individually tested for reliability, based on Cronbach's (1951) suggestion, that should several factors exist then the formula should be applied to each sub scale. When examined further, the PDI and UAI constructs each had one item Q20 and Q21, respectively, that did not exhibit high correlation to the overall scale, indicating that deleting the item would have increased the overall alpha considerably. However, when constructing the overall model's reliability (.993), and correlation, all items showed high correlation values with each other. This may indicate a lack of independence to the scales, but that may be most likely due to the small sample size.

#### 4.2.2 Discriminant validity

Discriminant validity refers to the degree in which items pertaining to different constructs are dissimilar to each other. Meaning that items theoretically related to one dimension should also demonstrate that they are different from other items that relate to other dimensions. The lack of mutual exclusivity of the dimensions has already been criticized in past literature (Schmitz and Weber, 2014; Orr and Hauser, 2008; Bond, 2002), and the present study's findings do corroborate. However, one wonders if attempts at further analysis will only yield similar poor results because of the small samples utilized, seeing as no past study replicating Hofstede's theory sampled more than 40 countries at most. Nevertheless, the present study wishes to understand whether the MENA sample would follow the same factor structure and whether sub items would load in their related dimensions. Attempting to replicate Hofstede's factor analysis led to the extraction of factors through forcing and constricting the loaded factors to the postulated six factors by way of the orthogonal varimax rotation method.

The aim of the rotational method is to provide a reduction of the items and the ability to discern whether the data fits any consistent factor structure. In this particular study, the principle

component analysis was chosen to investigate whether Hofstede’s chosen sub scale items would load on their respective scales and thus operationalize his theoretical framework. This, unsurprisingly, resulted in subscale items scattered across different factors. Moreover, most of the variables are substantially loaded on Factor (Component) 1. It can be seen from the subsequent analysis that several items that belong to different dimensions are loaded in to the same factor. This also can serve as an indicator that the dimensions may not be as statistically independent from each other.

### 4.3 Demographic data

As can be seen from both datasets, the age and gender range for the overall sample were both fairly distributed (Table 4.2). Out of the 775 respondents, 46% were male, and 54% female, with a substantial 60% being in the 20-24 age range. Egypt comprised the largest sample from an Arab State with a 16% representation, while the UAE has the lowest number of respondents, a 12% out of the 775 students surveyed. It should be noted however, that large number of respondents aside, each country’s sample was treated as one average, as per ecological analysis. Thereby the sample comprised of just seven cases, one case for each country.

**Table 4.2 Country and Overall Frequency**

		Gender					
		Male		Female		Total	
		Count	Column %	Count	Column %	Count	Column %
<b>Nationality</b>	Kuwait	42	11.7%	71	17.0%	113	14.6%
	KSA	35	9.8%	63	15.1%	98	12.6%
	UAE	50	14.0%	40	9.6%	90	11.6%
	Lebanon	46	12.8%	58	13.9%	104	13.4%
	Iraq	80	22.3%	41	9.8%	121	15.6%
	Egypt	48	13.4%	82	19.7%	130	16.8%
	Libya	57	15.9%	62	14.9%	119	15.4%
	<b>Overall</b>	358	46.1%	417	53.7%	775	100.0%
<b>Age Group</b>	18- 20	82	22.9%	123	29.5%	205	26.5%
	20 -24	209	58.4%	254	60.9%	463	59.7%
	25 and higher	67	18.7%	40	9.6%	107	13.8%
	<b>Overall</b>	358	46.1%	417	53.7%	775	100.0%

In a way, adopting Hofstede's theory constricted the present study to utilizing his instrument and subsequently his framework and underlying methodology. In order to remain true to it, the author's own recommended methodology of ecological analysis had to be followed. In most cases, researchers are subjected to provide an adequate sample in order to begin conducting any sort of factor analysis, whether it's EFA or CFA (Williams et al., 2012). As such, from the initial start, it was apparent that most statistical and analytical tools would be inappropriate for Hofstede's ecological level of analysis, seeing as the cases would be averaged according to nationality and the sample shrunk from 775 cases to just seven cases. As such, only a fraction of the factor analysis methods was used in this chapter. EFA, in particular, is a rather complex set of statistical approaches with many steps and only a few have been outlined, partly due to the fruitlessness of marching onwards with such a deceptively small sample. However, it was felt necessary that some sort of analysis be conducted on the sample gleaned from the dissemination, if only to understand the literature's criticism towards Hofstede's chosen methodology and the psychometric properties of previous instruments. More so, to help this present study understand the intricacies of the ecological fallacy, and why the literature kept confounding the two levels of analysis. Having said that, this section concludes the data analysis and the next section will discuss the results from a theoretical lens.

#### **4.4 Discussion**

The following section will attempt to discuss the resulting ranking of the Arab States on each of Hofstede's six dimensions. The first half of the section will discuss Hofstede's own devised calculation for deriving each country's score on each dimension. The latter half will discuss the theoretical implications of each State in regards to Hofstede's national culture theory.

#### **4.5 VSM Calculations**

Dimensions from the VSM13 can be calculated from the first 24 content questions listed. The remaining six questions pertain to demographic related information. Four questions were

allocated to each dimension. As such, scores can be computed on six dimensions from the answers belonging to the four questions:  $6 \times 4 = 24$  content questions.

All content questions are scored on a five point Likert scale. Computing the scores can be done as following:

**Table 4.3** Example as used in the VSM13 Manual (2013)

---

For example, suppose a group of 57 respondents from Country C produces the following scores on question 04 (importance of security of employment):

10 x answer 1	=	10
24 x answer 2	=	48
14 x answer 3	=	42
5 x answer 4	=	20
1 x answer 5	=	5
54 valid answers	totalling	125

Three of the 57 respondents gave an invalid answer: either blank (no answer) or multiple (more than one answer). Invalid answers should be excluded from the calculation (treated as missing).

The mean score in our case is:  $125/54 = 2.31$ . Mean scores on five-point scales should preferably be presented in two decimals. More accuracy is unrealistic (survey data are imprecise measures).

---

The mean scores for each of the four questions will be inputted in the formula allocated for each dimension by Hofstede. Moreover, a constant (C) should be added to the formula in order to anchor the new researcher's scores to Hofstede's older dataset.

Due to the matched sample stipulation, scores attained by the VSM13, or any VSM edition for that matter, cannot be used as a comparison tool with Hofstede's scores attained from the 1967 IBM survey. Primarily because the IBM sample took place in the 1960's, sampled IBM employees, and was conducted by a different instrument. Therefore, the manual suggests that for new replications or extensions to be considered valid they should be anchored to the old dataset (Hofstede and Minkov, 2013). Meaning that any new scores computed by the VSM13 should be shifted according to the difference of the old and new data of the common country. This difference will represent the constant variable (C), in which will be later added to the dimension's formula. However, in the case of the Arab States, there was no common country. To reiterate, the Arab States were clustered in the original survey and each country attained similar scores on all four respective dimensions. As such, there was no common or base country in order to find the difference between the old and new datasets, and therefore a constant couldn't be calculated.

After corresponding with Hofstede, it was suggested that the averages for each country should be calculated for each dimension to act as a hypothetical base country. The hypothetical base country will then be used to find the difference between the old data scores. This difference will represent the constant (C), which should then be added to the formula to form the final country's score on the dimension. This scheme was adopted to compute the four original dimensions: power distance, individualism, masculinity, and uncertainty avoidance. However, for the remaining two dimensions, LTO and IVR, Hofstede advised that the averages should be taken from his own database and anchored to them, so as to provide a base country from which the constant C will be derived, as stated previously. From his database, Hofstede supplied the scores for the new two dimensions for Egypt, Iraq, and Saudi Arabia. The averages were taken of these three countries to act as a base country and later the difference was calculated to compute the (C), which was later added to the final scores. The scores are made so that they fall between 0-100, but some samples may have scores that fall outside of the range (Hofstede, 2001). The

formula for each dimension is shown in Table 4.4, along with each construct's set of related items:

**Table 4.4** VSM 13 Item formula

Construct	Items	Formula
PDI	Q07: be consulted by your boss in decisions involving your work	$\text{PDI} = 35(\text{m07} - \text{m02}) + 25(\text{m20} - \text{m23}) + \text{C(PDI)}^7$
	Q02: have a boss (direct supervisor) you can respect	
	Q20: How often, in your experience, are subordinates afraid to contradict their boss (or students their teacher?)	
	Q23: An organization structure in which certain subordinates have two bosses should be avoided at all cost	
IDV	Q04: have security of employment	$\text{IDV} = 35(\text{m04} - \text{m01}) + 35(\text{m09} - \text{m06}) + \text{C(IDV)}$
	Q01: have sufficient time for your personal or home life	
	Q09: have a job respected by your family and friends	
	Q06: do work that is interesting	
MAS	Q05: have pleasant people to work with	$\text{MAS} = 35(\text{m05} - \text{m03}) + 35(\text{m08} - \text{m10}) + \text{C(MAS)}$
	Q03: get recognition for good performance	
	Q08: live in a desirable area	
	Q10: have chances for promotion	
UAI	Q18: All in all, how would you describe your state of health these days?	$\text{UAI} = 40(\text{m18} - \text{m15}) + 25(\text{m21} - \text{m24}) + \text{C(UAI)}$
	Q15: How often do you feel nervous or tense?	
	Q21: One can be a good manager without having a precise answer to every question that a subordinate may raise about	

<sup>7</sup> In which m07 is the mean score for question Q07, etc.

---

	his or her work	
	Q24: A company's or organization's rules should not be broken - not even when the employee thinks breaking the rule would be in the organization's best interest	
<hr/>		
LTO	Q13: doing a service to a friend Q14: thrift (not spending more than needed) Q19: How proud are you to be a citizen of your country? Q22: Persistent efforts are the surest way to results	$LTO = 40(m13 - m14) + 25(m19 - m22) + C(LTO)$
<hr/>		
IVR	Q12: moderation: having few desires Q11: keeping time free for fun Q17: Do other people or circumstances ever prevent you from doing what you really want to? Q16: Are you a happy person?	$IVR = 35(m12 - m11) + 40(m17 - m16) + C(IVR)$
<hr/>		

## 4.6 Findings and discussion

After following Hofstede's recommended methodology, Table 4.5 shows the new scores for the Arab States as follows:

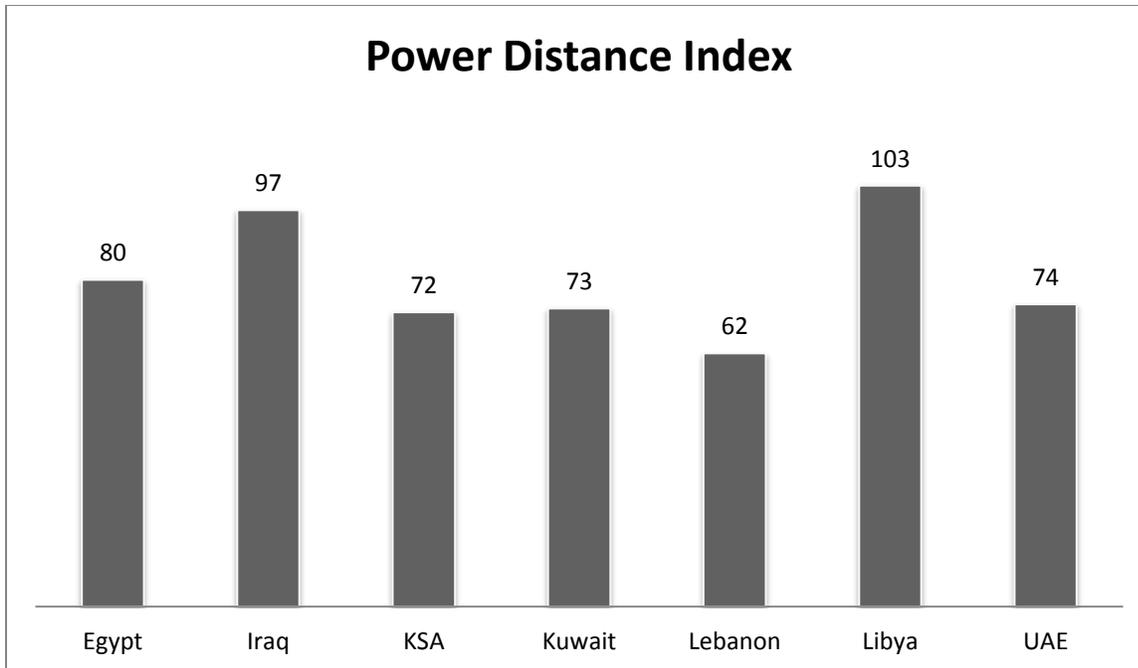
**Table 4.5 New dimension scores for the Arab States based on the VSM 13**

	Arab Cluster in 1967	Kuwait	KSA	UAE	Lebanon	Iraq	Egypt	Libya
PDI	<b>80</b>	73	72	74	62	97	80	103
IDV	<b>38</b>	39	48	36	43	31	37	35
MAS	<b>52</b>	45	43	52	48	53	55	66
UAI	<b>68</b>	70	64	66	57	96	55	67
LTO	<b>N/A</b>	19	27	22	22	12	42	15
IVR	<b>N/A</b>	29	14	22	10	23	-2	74

In order to understand the cultural context of the MENA region, the new national culture profiles of the seven Arab States will be examined.

### 4.6.1 Power Distance Index (PDI):

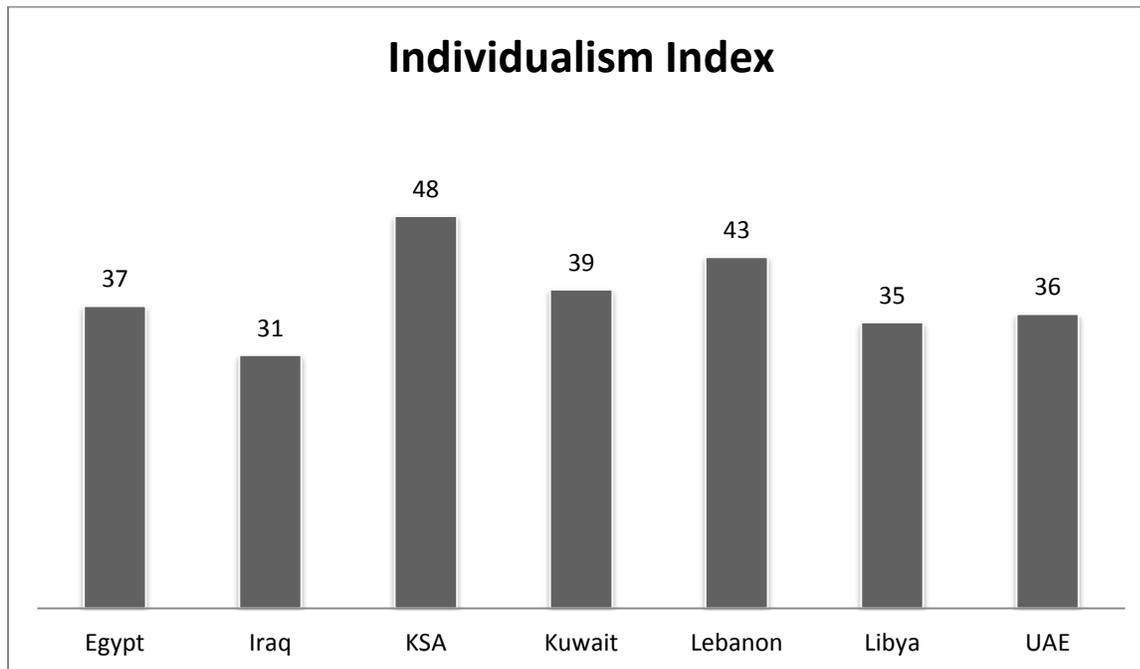
Power distance is considered to be the first dimension to be revealed by Hofstede's IBM data. The basic premise of the construct concerns the issue of human inequality and status consistency. Societies are measured with how much they expect and accept that power is distributed unequally. Inequalities can come about because of disparities in wealth, power, and prestige and how much weight is given to each area (Hofstede, 2001).



**Figure 4.1 PDI rank for the Arab States**

In Figure 4.1, the PDI dimension for all seven Arab States ranks them as countries with very high power distance, except for the Gulf States and Lebanon, who are ranked around average on the index. According to Hofstede (2001), high PDI societies encourage hierarchy, and thus inequality. Moreover, in high PDI societies, power need not be legitimate. People in power are entitled to privileges, which in turn can foster corruption. Thus, in high PDI societies where they are associated with more revolutionary fervour, it is believed that the only way to change a social system is to dethrone the ones in power. From the viewpoint of current world events, the VSM13 PDI scores for the Arab States may very well act as complementary anecdotes into what the political landscape of today's MENA region has become. It has been mentioned that Hofstede (2013) believes now the region to be vastly different from the region he first surveyed in 1967. He has cited the Arab Spring as a contributing force behind the heterogeneity of the region and its changed landscape.

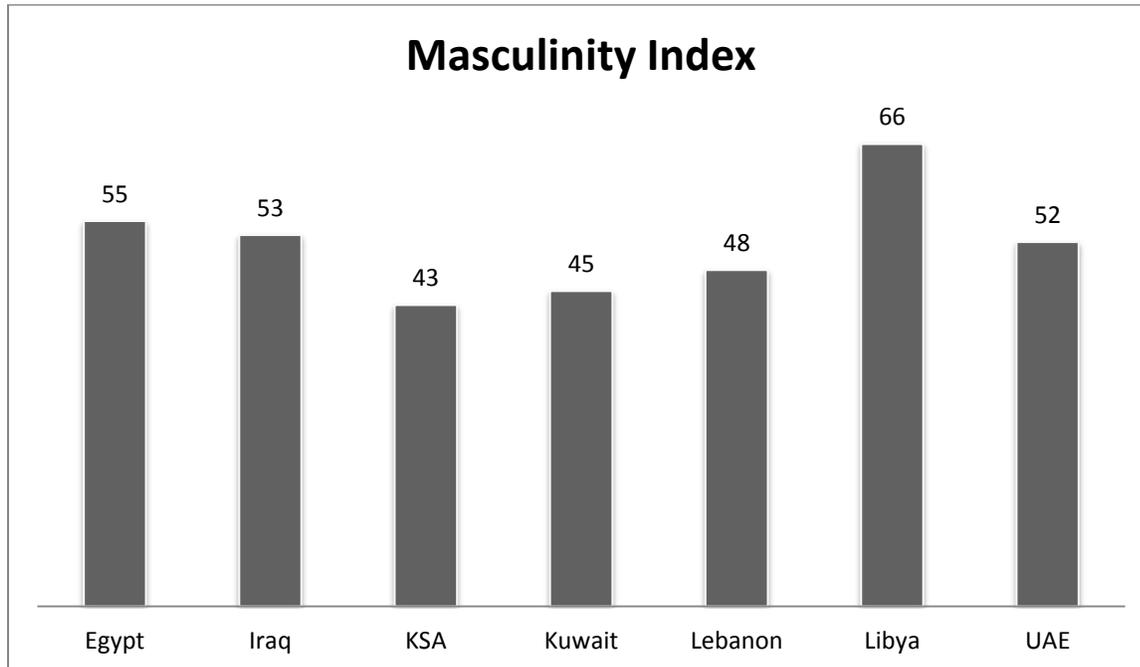
#### 4.6.2 Individualism Index (IDV):



**Figure 4.2 IDV rank for the Arab States**

The second dimension relates towards the individualism and collectivism aspects found in societies. Generally, the Arab States have all scored towards the more collective end of the individualistic-collective spectrum. Collective countries are more “we” conscious and are labelled as traditional societies. The people are born into extended families and clans. They emphasise belonging to the group and their identity is based on the social system that nurtures them (Hofstede, 1994). The MENA region is known to embrace family cohabitation, in which children are encouraged and expected to live with their families even after reaching their adult age (Bowen and Early, 2002). KSA and Lebanon have scored the highest on the IDV rank, but are still considered rather collective when compared to other countries in the world, such as the highly individualistic USA. In KSA, or the Gulf region in particular, individuals allocate two and sometimes three days a week to visit relatives and extended families (At-Twajjri and Al-Muhaiza, 1996).

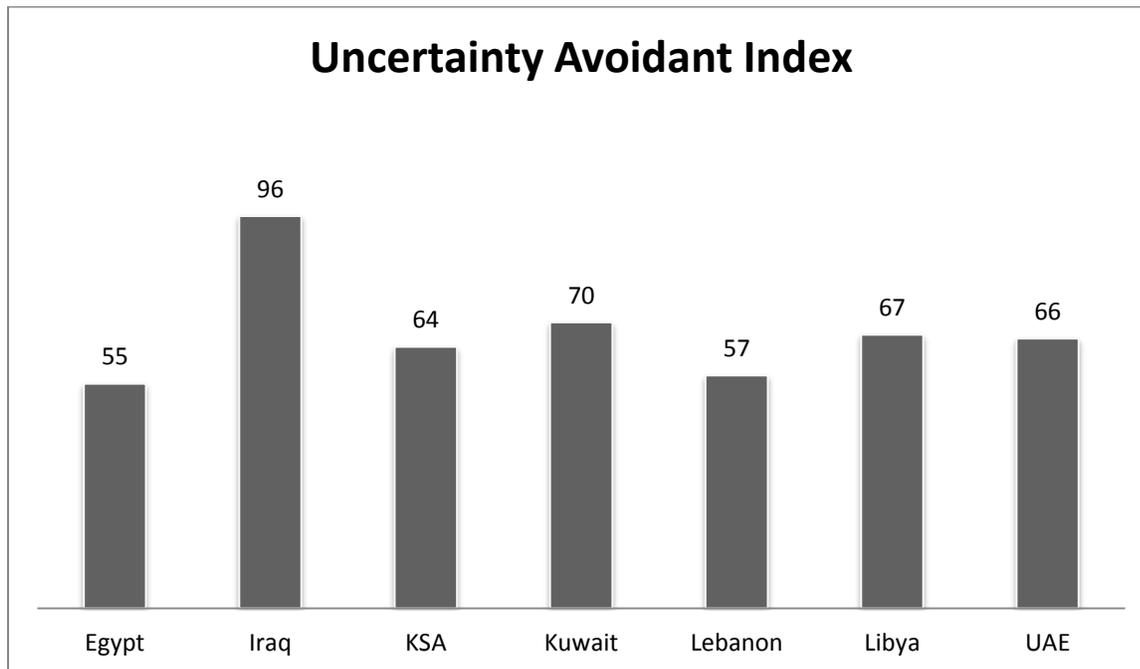
#### 4.6.3 Masculinity Index (MAS):



**Figure 4.3 MAS rank for the Arab States**

The third dimension pertains to the distribution of roles between the genders and of which it consequently derives its name: masculinity-femininity construct. Hofstede found that in highly MAS societies, people would tend to value the opportunity for freedom and action, and attaining one's own personal development and goals, over the need to contribute to the satisfaction of others. Helping others, being of service, and demonstrating the nurturing aspect of one's personality is seen more of a contributing factor towards the dominance of the femininity trait in societies. Considering the Arab States on the MAS index, they can be seen as ranked relatively average on the construct, with only Libya scoring slightly higher on the MAS dimension (66 MAS). The social nature of the genders is fairly distinct, in which there is not much overlap of gender roles as seen in more feminine oriented countries. Looking at the Arab States' societies from the MAS index lens, it could be said that they include more traditional family concepts, slightly larger share of women in professional jobs, and a slightly negatively skewed attitude towards political institutions (Hofstede, 1994).

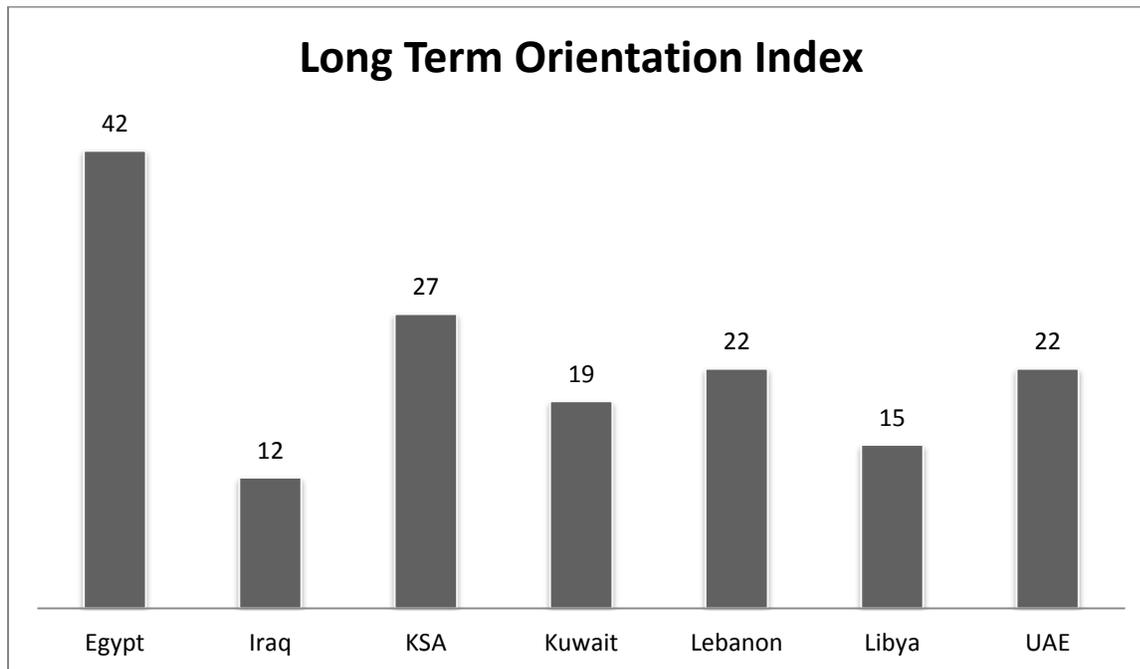
#### 4.6.4 Uncertainty Avoidant Index (UAI):



**Figure 4.4 UAI rank for the Arab States**

The fourth dimension describes how humans cope with the uncertainty of their future and is in essence their tolerance (or lack thereof) towards ambiguity. Generally, the Arab States have scored around average on the UAI dimension, except for Iraq, which ranked the highest (96 UAI). Egypt and Lebanon ranked as the lowest UAI countries, while the Gulf States are ranked together similarly. Hofstede (1994) believes that the UAI construct primarily deals with society's need to protect itself from uncertainty through the utilization of technology, rules, and rituals. From this lens, high UAI societies will tend to have higher work stress, exhibit higher anxiety in its population, and deal with trust issues especially regarding what they may believe as foreign concepts. They will also be able to influence their lives and future better than in higher UAI societies.

#### 4.6.5 Long Term Orientation Index (LTO):



**Figure 4.5 LTO rank for the Arab States**

Long term orientation versus short term orientation is the fifth dimension on Hofstede's national culture theory. It was conceived in 2001 and founded from answers of student samples from 23 countries on the Chinese Value Survey (CVS), first developed by Michael Bond (1988). The dimension was largely based on values relating to Eastern minds, in which its items represented prevalent Confucius teachings, such as persistence and thrift, as well as stability and respect for tradition. Long term oriented societies value investing, saving, and achieving results, while short term oriented societies value stability, traditions, conventions, and have a relatively small inclination to save. Hofstede (2001) attributed the absence of the dimension from his original set, because of the influence of the western mind set when initially designing the IBM questionnaire. The Arab States were not originally surveyed by the CVS study and thus had no ranking on the fifth dimension. Hofstede seems to believe that religion can play an indicative role as to what level the Arab States' ranking will be on the LTO dimension. The general consensus is that countries with a dominant Muslim tradition would rank low on the LTO construct.

All Arab States scored less than average on the construct. Iraq scored the lowest (12 LTO), while Egypt attained the highest score (42 LTO). All countries have stated Islam as the official religion, except for Egypt and Lebanon. Whereas Egypt is still predominantly Muslim, with a population that is 90% Sunni Muslim, the same could not be said for Lebanon. The MENA region's culture has always been attached to Islam, perhaps due to the pervasiveness of the religion's teaching in everyday dealings. However, it is difficult to hypothesise whether Middle Eastern traditions and customs were a product of Islam or whether the religion itself incorporates aspects of Middle Eastern pre Islamic culture. It is necessary to allude to the fact that both culture and religion are intertwined in the region and are difficult to divorce in both practice and theory (Patai, 1952). Even if Islam was still considered a unifying cultural aspect for the region, then it should be noted that Muslims all over the world, and even Muslim Middle Easterners, differ on every aspect, such as geography, class, customs and ethnicity (Bowen and Early, 2002). The MENA region is dominated by Islam, but different sects do exist and their dominance varies across countries (Kabasakal et al., 2012).

#### 4.6.6 Indulgent Versus Restraint Index (IVR):

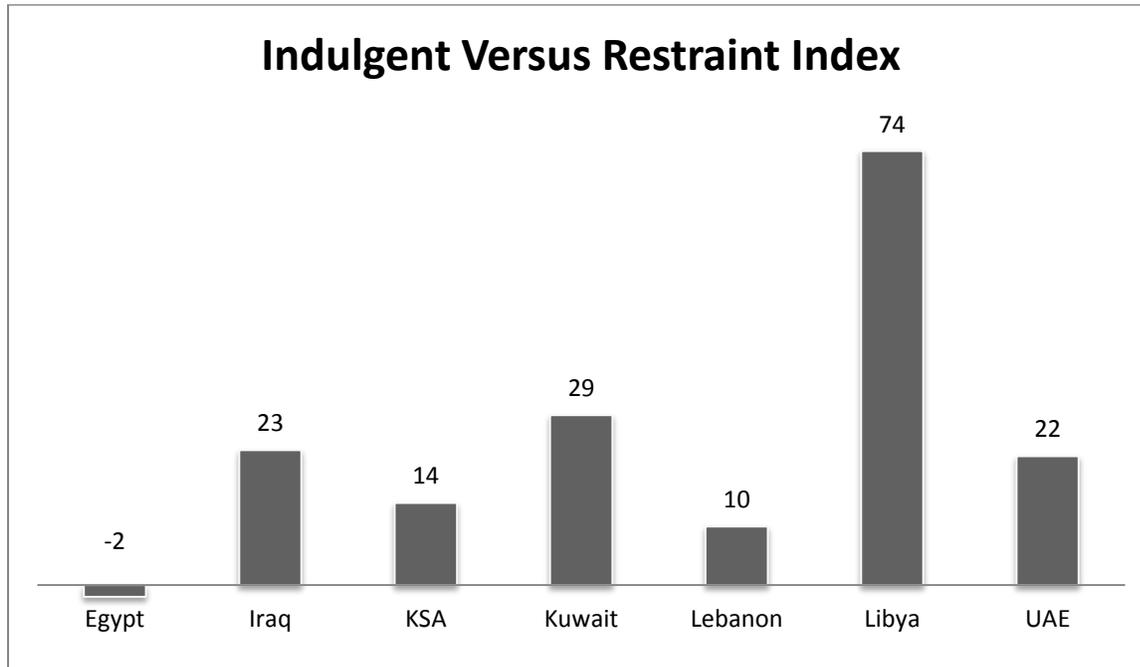


Figure 4.6 IVR rank for the Arab States

The sixth construct is called the indulgent versus restraint dimension and was conceptualized in 2010 by Hofstede and Bulgarian scholar Michael Minkov. The dimension relates to the gratification versus the need to curb basic human desires related to the enjoyment of life (Hofstede, 2011). It is more or less thought to be a complementary construct to the LTO dimension discussed previously, but was conceptualized from a different survey instrument: The World Values Survey (WVS) devised by U.S sociologist Ronald Inglehart. According to Hofstede, being referenced as a restrained society, usually reflects the lack of freedom of speech within said society, stricter sexual norms, and fewer happy people. In contrast, indulgent societies would place more value on leisure time, more likely to remember positive emotions, and freedom of speech is seen as paramount. The Arab States can be described as having rather restrained societies, except for Libya, who stands as the more indulgent country (74 IVR), while Egypt ranks as the more extremely restrained country out of the group (-2 IVR). In the case of Egypt's negative ranking, outliers do and can exist outside of the hypothesized 1-100 range, primarily because of the nature of the sample and the previous process of anchoring the scores to

Hofstede's IVR dataset, mentioned in section 4.5. Again, Hofstede (2011) predicted that Muslim countries would fall within the restrained range, seeing as their faith would constrict them from gratifying what might be otherwise considered hedonistic pleasures.

#### **4.7 Summary**

This chapter focused on national culture theory with two sections focused respectively on data analysis and the subsequent discussion of results. The Arab State's sample provided the present study with a chance to investigate the psychometric properties of the new VSM13. It also allowed the Arab States to be un-clustered on Hofstede's four original dimensions – PDI, IDV, MAS, and UAI - as well as ranked on his two latest dimensions – LTO and IVR. The next chapter will follow a similar format, with two sections, outlining the data analysis and data discussion, pertaining this time, to the diffusion of innovations theory.

# **Chapter 5**

## **The Bass Model**

## Chapter 5 The Bass Model

### 5.0 Introduction

This section will attempt to analyse the cellular mobile subscription data for each Arab State using the Bass Model. The first half of the chapter will graphically illustrate the Bass Model's fit with actual data for each respective state. The latter half will theoretically address the Arab State's mobile subscriber historical data to uncover their respective innovation and imitation coefficients.

### 5.1 The Bass Model Parameters

The Bass Model has been used extensively in the marketing literature for its predictive ability and behavioural assumptions. The model's construction and its constants,  $p$  and  $q$  coefficients, enable marketers to derive useful behavioural information from the referenced population (Bass, 2004). Evaluative studies show strong empirical support for the Bass Model, and companies who have utilized the model include multinational corporations such as IBM, AT and T, and Sears (Rogers, 2003). The model enables international firms to design compatible marketing communication plans and segmentation strategies. In which, the marketing team infers marketing communication campaigns from the  $p$  and  $q$  parameters, which delineates for mass media and word of mouth respectively. As such, the Bass Model estimates the effect of mass media such as advertising, and the effect of interpersonal relations, such as word of mouth or influencers, on the target market's adoption levels. A population that estimates diffusion patterns with a high  $p$  coefficient, will be more susceptible to mass media and advertising tactics, than populations that produce a high  $q$  coefficient, which delineates for a society that is built on interpersonal connections. The Bass Model also enables international firms to infer from the  $p$  coefficient, which societies were more innovative and receptive to their products and services, as can be seen from the literature reviewed in Chapter two (Van den Bulte and Stremersch, 2004; Sundqvist et al., 2005; and Kumar and Krishnan, 2002). Thus, populations that produce higher  $p$  parameters were targeted first for innovations, seeing as they were more likely to adopt innovative and

technological products and services first (Dekimpe et al., 2000; Takada and Jain, 1991; and Talukdar et al., 2002).

Penetration data of mobile cellular telephone subscriptions was used in order to accurately measure the diffusion process within each state. This is in line with previous diffusion studies which have frequently used market penetration of new products and services to measure the diffusion rate (Chandrasekaran and Tellis, 2007). The telecommunication sector has been utilized in previous studies because its growth rate is seen as ideal for estimating the parameters of the Bass Model (Michalakelis et al., 2008; Chu and Pan, 2008; Gruber, 2001). As is the case with most innovations, the growth trends in mobile telecommunication technology are S-shaped curves, in which annual growth in subscriptions start slowly, and once maximum penetration is reached, the growth rate declines slightly and tapers off (Jang et al., 2005). This is seen in the cases of Libya and KSA, whereas with Kuwait, Lebanon, Iraq, Egypt, and the UAE, the growth rate is still seen as rising with the inflection point yet to be reached.

Table 5.1 provides the estimated  $p$  and  $q$  parameters, and the range of available data used for each Arab State. Accordingly, the coefficients were estimated by the NLS method to provide the final Bass Model fit. However, it has been criticized for providing poor estimates if the number of observations was low, but such criticism can be due to the nature of the diffusion model itself, which is highly sensitive to the number of observations (Wu and Chu, 2009). In diffusion literature, the goodness of fit measures is often estimated in addition to the estimated values graphically depicted over the actual data to provide a better representation of the model's estimation capability. However, in most studies, results are often reported to compare between models, and to choose the diffusion model with the lowest estimation error (Wu and Chu, 2010; Michalakelis et al., 2008). As such, the next section will provide an illustrated graph of the actual and predicted diffusion patterns for each country.

It should be noted that large values for statistical errors have been previously observed by studies, much to do with the Bass Model's sensitivity to the number of years of available diffusion data (Wu and Chu, 2010). Moreover, it has been reported that any diffusion model depicting the diffusion process across several data points of which do not include the inflection period will not calibrate properly. This is evident in Lebanon's case, but which can be seen more

clearly from the plotted graph in the next section. More elaboration on the limitations of the Bass Model will be discussed at length in Chapter seven.

Table 5.1 Estimation of the Bass Model

	<b>Estimate</b>	<b>Years</b>
<i><b>Kuwait</b></i>		1985-2013
P	4.720e-04	
Q	1.723e-01	
<i><b>KSA</b></i>		1990-2013
P	6.07e-05	
Q	3.97e-01	
<i><b>UAE</b></i>		1982-2013
P	2.770e-04	
Q	2.239e-01	
<i><b>Iraq</b></i>		2002-2013
P	.00476	
Q	.40037	
<i><b>Libya</b></i>		1997-2013
P	3.91e-04	
Q	4.77e-01	
<i><b>Lebanon</b></i>		1995-2013
P	1.538e-06	
Q	.13491	
<i><b>Egypt</b></i>		1987-2013
P	6.973e-05	
Q	.41109	

## Libya

Libya has available number of subscriptions starting from the year 1997-2013. The maximum number of subscriptions was 10,900,000 that registered at 2010, with mobile penetration reaching a high 180%.

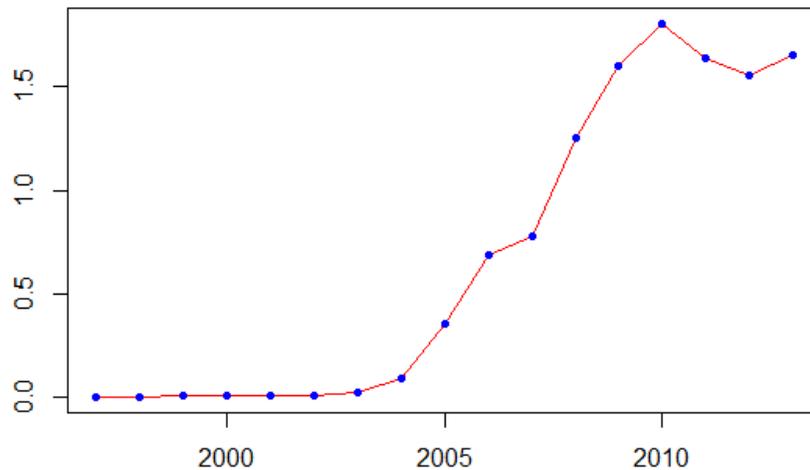


Figure 5.1 Plot of the penetration data

Below is the plot of the fitted values together with the observed data. The estimated values in Table 5.1, along with the plot, shows a good fit with the actual subscription data.

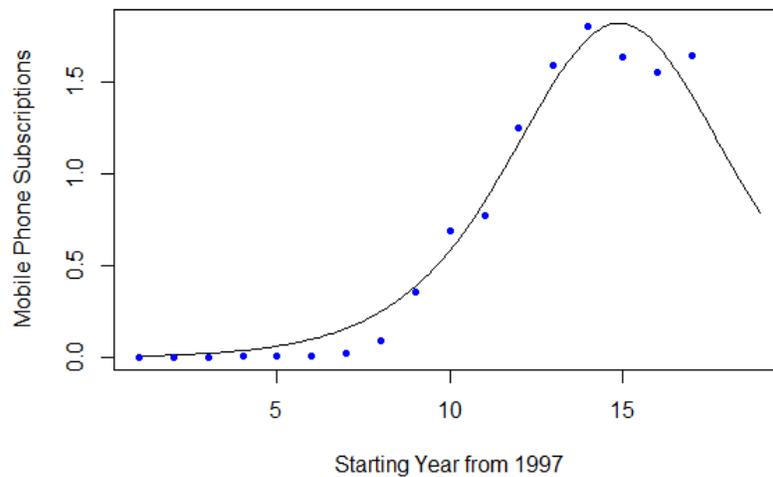
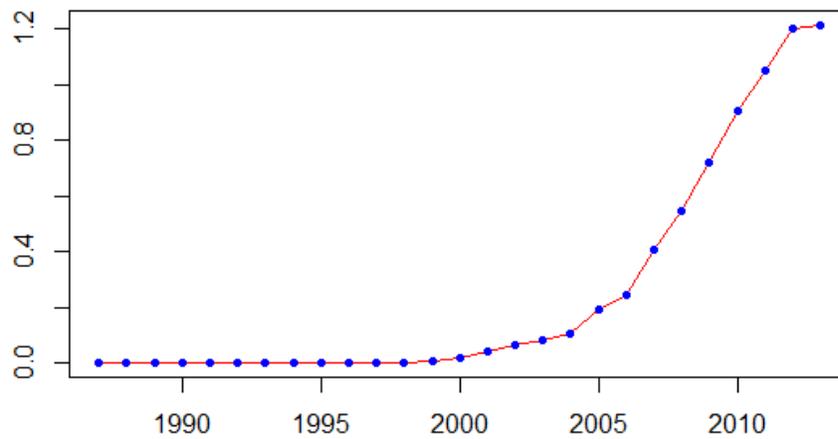


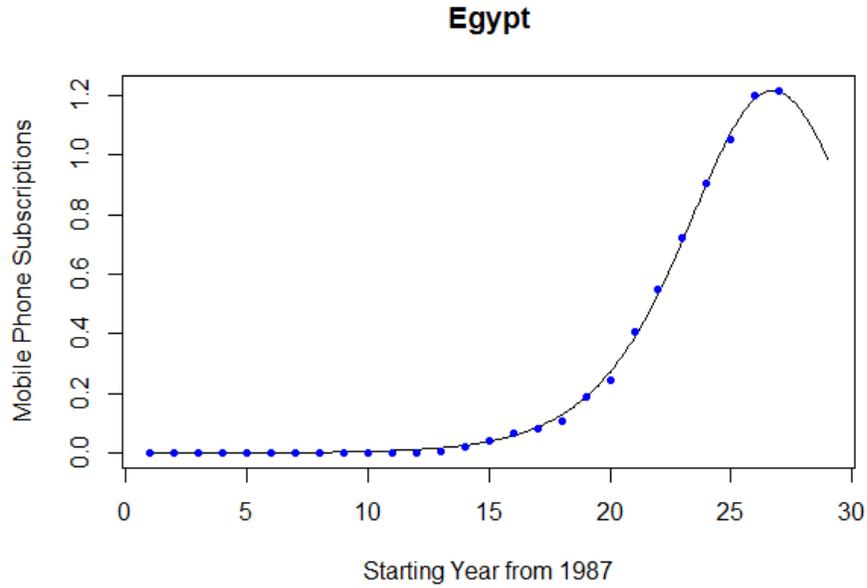
Figure 5.2 Plot of the fitted values together with the observed data

## *Egypt*

Egypt dataset included the number of mobile phone subscriptions from 1987 up to 2013. The maximum number of subscriptions was 99,704,976 registered at 2013, with penetration levels reaching 122%. There is an increasing pattern of growth from 2002 to 2013, with no sign of declining or registration of inflection point reached.



**Figure 5.3 Plot of the penetration data**



**Figure 5.4 Plot of the fitted values together with the observed data**

### *Iraq*

Iraq data has the number of subscriptions from 2002 up to 2013. The maximum number of subscriptions was 32,450,000 that registered at 2013, reaching a 96% penetration rate. Looking at the penetration rate of subscriptions through time we see increasing numbers from 2002 to 2013, however, as of 2013, Iraq is yet to reach full penetration levels.

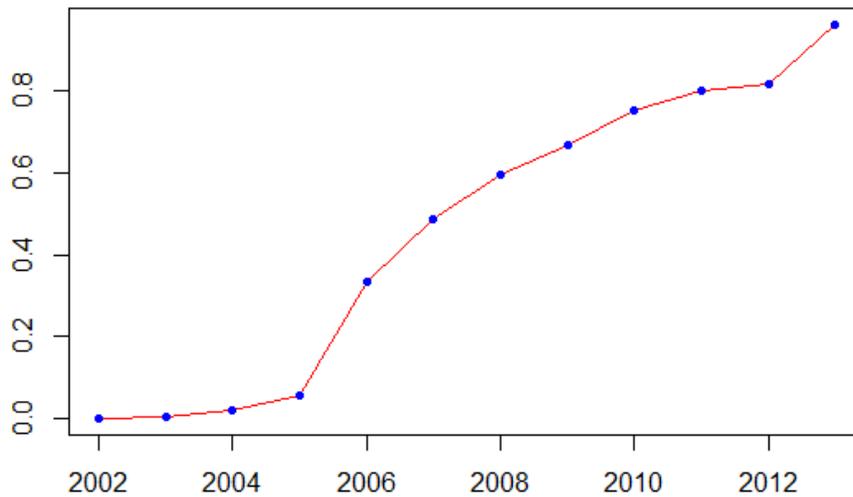


Figure 5.5 Plot of the penetration data

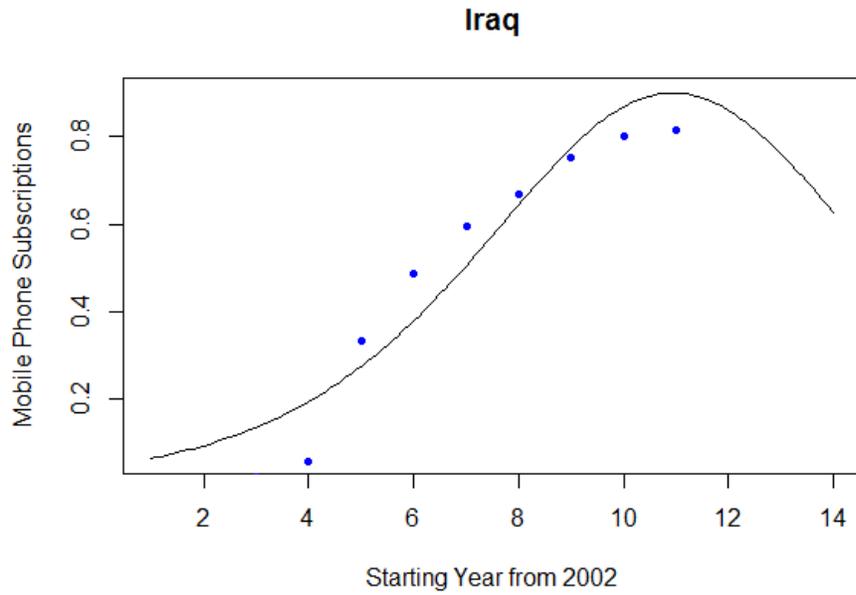


Figure 5.6 Plot of the fitted values together with the observed data

### *Lebanon*

The dataset for Lebanon was available from 1995 to 2013. The following graph shows the actual penetration rate of mobile phone subscriptions in this time interval. The maximum number of subscriptions was 3,884,757 that were registered at 2013, with only an 81% penetration level reach.

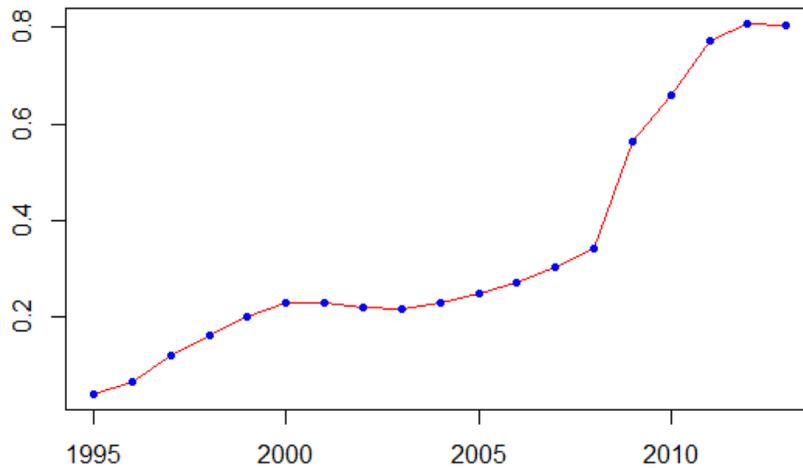
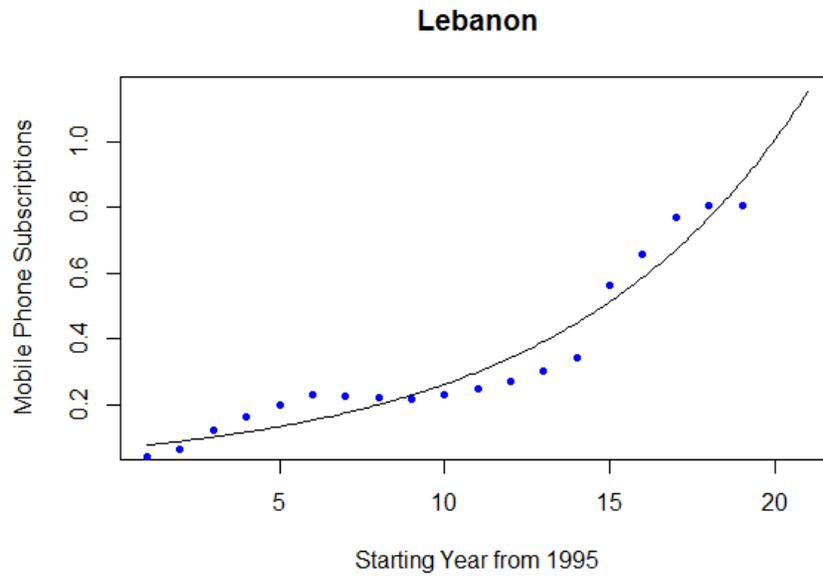


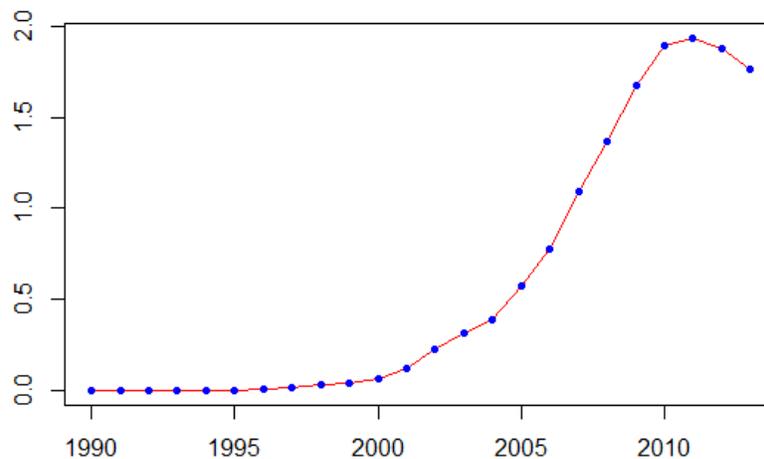
Figure 5.7 Plot of the penetration data



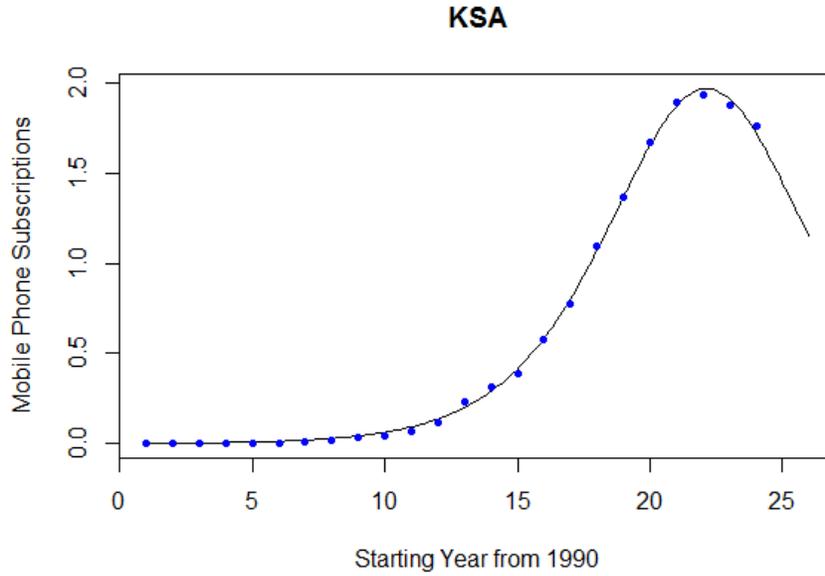
**Figure 5.8 Plot of the fitted values together with the observed data**

### KSA

The data for Saudi Arabia was available from 1990. The following graph shows the rate of penetration for mobile phone subscriptions since 1990 to 2013. The maximum number of subscriptions was 53,705,808 that were registered at 2011, with 193% penetration level. As KSA reaches the saturation point, a steady decline is witnessed afterwards with only a 176% penetration reach recorded in 2013.



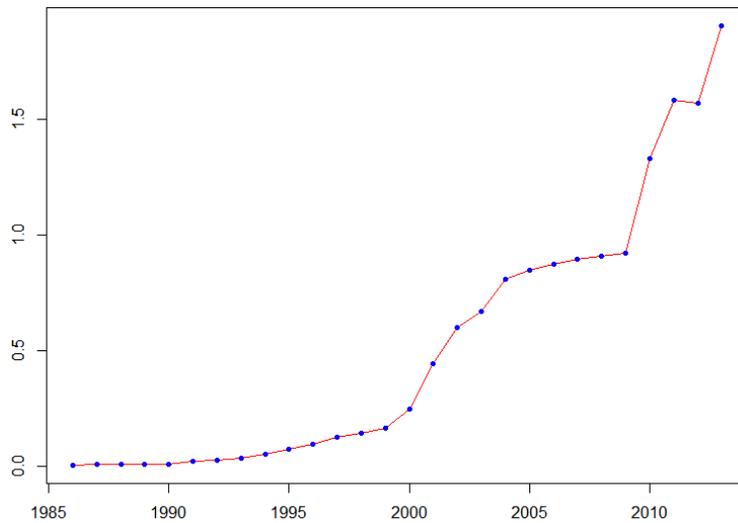
**Figure 5.9 Plot of the penetration data**



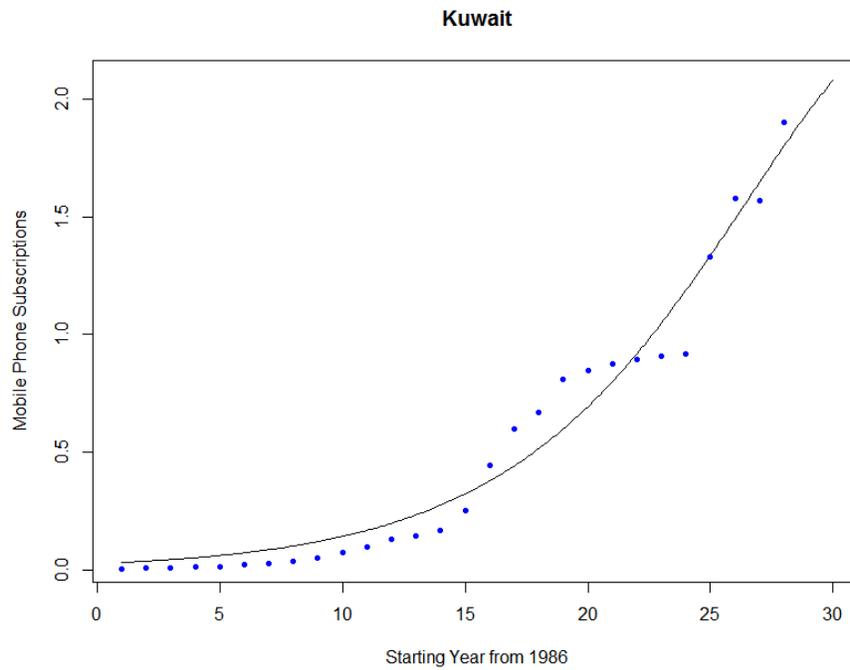
**Figure 5.10 Plot of the fitted values together with the observed data**

*Kuwait*

Kuwait dataset included a number of subscriptions records dating from 1986 up to 2013. The maximum number of subscriptions recorded was at 6,410,000 at 2013. A steady increasing growth rate is witnessed with a recorded 190% penetration levels at 2013.



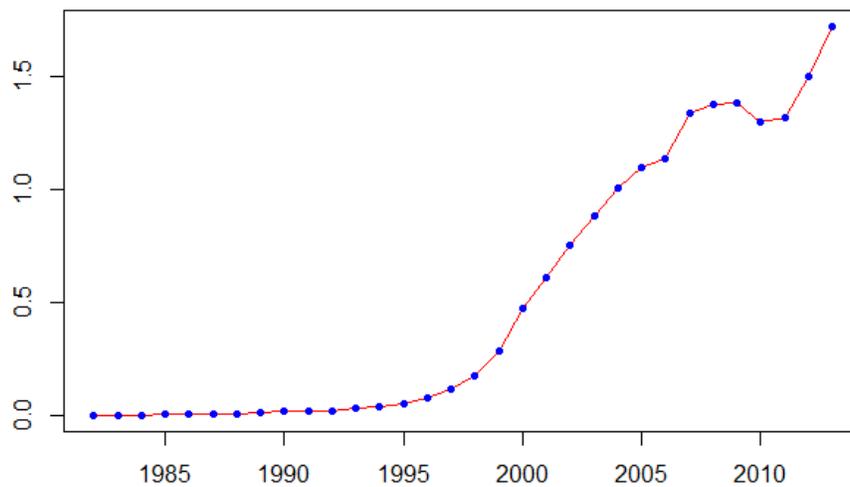
**Figure 5.11 Plot of the penetration data**



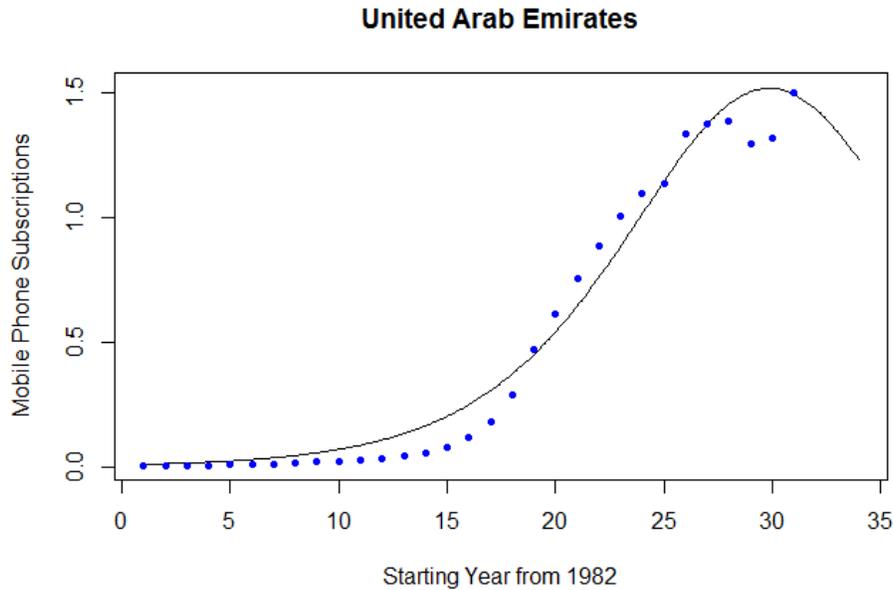
**Figure 5.12 Plot of the fitted values together with the observed data**

*UAE*

The dataset for the UAE was available from 1982 to 2013. The plot shows a constantly increasing penetration rate with peaks reaching a maximum 16,063,547 subscribers at 2013, with a high reach of 172% penetration level.



**Figure 5.13 Plot of the penetration data**



**Figure 5.14 Plot of the fitted values together with the observed data**

The previous sections showcased the data analysis conducted on the cellular mobile subscription data respective to each Arab State. The model allowed the study to map the diffusion rate of each Arab State and discern their innovative as well imitative coefficients. The next section will attempt to discuss the implications of these findings and their relevance to diffusion literature.

## **5.2 Discussion**

International diffusion research has dealt mostly with comparisons of diffusion processes between and across a limited set of regions, mainly in Europe and in the United States of America (Chandrasekaran and Tellis, 2007; Dekimpe et al., 1999). As was discussed in Chapter two, even though the literature indicates that there are systematic regional differences in diffusion patterns, very few international diffusion studies included the Arab States in their sample. To understand country diffusion, the present study sought to ascertain the extent of the literature's generalizations by analysing the Arab States diffusion patterns through the Bass Model. Diffusion theory models have been used extensively in the literature to estimate the adoption of innovations whether they are products or services. They are considered to be of great

importance in the estimation of the product or service's life cycle, likelihood of adoption, and maximum penetration reached, among other associated factors relevant to the management and marketing fields (Michalakis et al., 2008).

To recap the diffusion section in Chapter two, most diffusion cycles encompass the earliest adopters, which are recognized as the innovators, whose decision to adopt is independent of outside media or other influencing factors. This is unlike the rest of the adopters, whose propensity to adopt is influenced by word of mouth and media channels, and as such can be categorized as imitators (Rogers, 2005). Both types of adopters, innovators and imitators, are represented by the Bass Model, as well as the dynamics of the diffusion process and its associated variables. For over 30 years, the Bass Model has been applied to a number of different datasets from different regions with credible results based on the good fit between estimated and historical data (Van den Bulte, 2002; Bass et al., 1994). Its popularity in the marketing field especially, stems from the model's ability to determine the coefficients of innovation and imitation (internal and external influence), identify the time of peak sales, as well as the magnitude of sales and market potential (Chandrasekaran and Tellis, 2007).

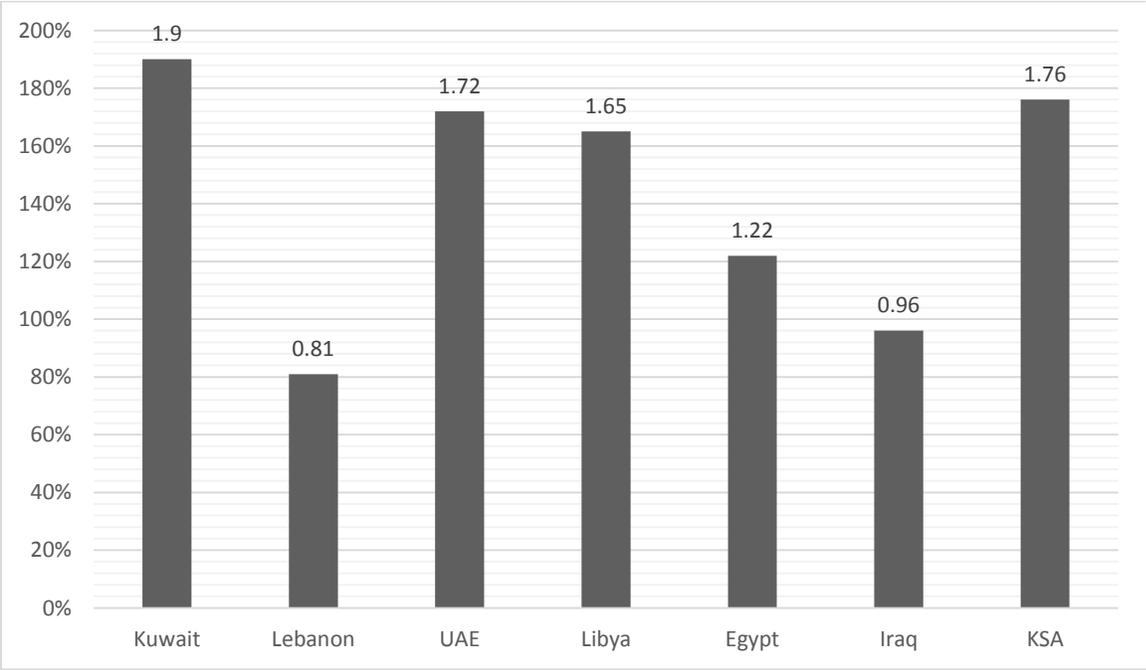
### 5.3 The Arab States' Diffusion Patterns

Table 5.2 Ranking of innovative to least innovative country based on  $p$  parameter

Country	$p$	$q$
Iraq	.0047609	.40037
Kuwait	.0004719	.17231
Libya	.00039055	.47651
UAE	.00027701	.22394
KSA	.000060709	.39677
Egypt	.0000069731	.41109
Lebanon	.0000001538	.13491

Mobile cellular telephone subscriber data for the seven Arab States have been analysed to extract

and compare their diffusion rates according to the Bass Model. Mobile subscriber data, as an indicator, has been used in the diffusion literature and are most commonly analysed through the Bass Model (Sundqvist et al., 2005; Wu and Chu, 2009; Michalakelis et al., 2008, and Dekimpe et al., 2000). However, the literature is absent on any diffusion data focused on comparing the above Arab States, or on their respective mobile diffusion rates. The dataset used for this analysis comprises each state's respective first year of introducing the technology until the most recent year of which information is available. As such, the technology's age and number of years differ greatly between the Arab States. Even though mobile cellular technology has been first introduced in the 1980's, some Arab States did not adopt until this last decade (Tsang et al., 2000).



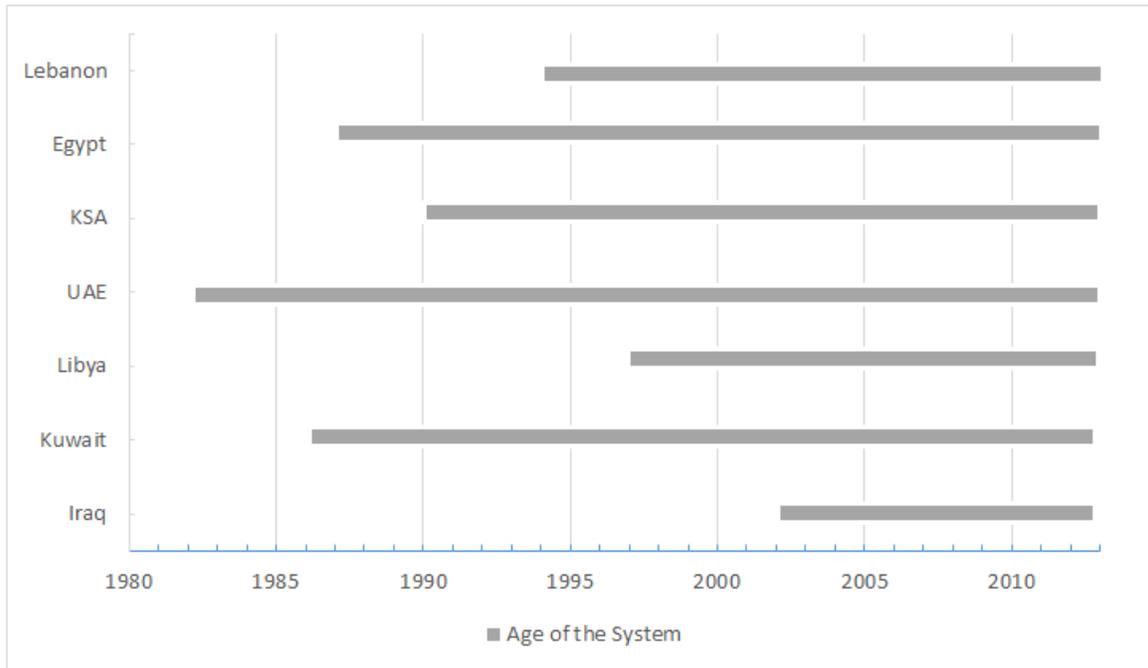
**Figure 5.15 ITU Mobile telecommunication penetration rates (percentage ratio of subscribers/population)**

Figure 5.15 shows the mobile cellular subscription penetration levels for the different Arab States at the end of 2013, which shows that in terms of penetration rates, there appears to be large heterogeneity among the countries. Empirical results have led to the ranking of the countries according to the  $p$  parameter, or the innovation coefficient, shown in Table 5.2. At first glance, Iraq's rank as the most innovative country and Lebanon as the least innovative country is rather perplexing. However, there are a number of factors that need to be considered regarding the Arab States' relative diffusion rates, most especially in Iraq and Lebanon.

It should be noted that the ability of the model to provide a good fit between the estimated and historical datasets often may depend on a number of outside factors that may affect the diffusion process itself. For example, wars, competition, telecom infrastructure, and governmental interference can have a devastating effect on the population's potential adoption and perceived utility gain, which may ultimately influence the diffusion pattern. These factors as well an overview of the Arab states' telecom industry will be further discussed in the next section.

#### **5.4 Mobile Telecommunication Sector Overview in the Arab States**

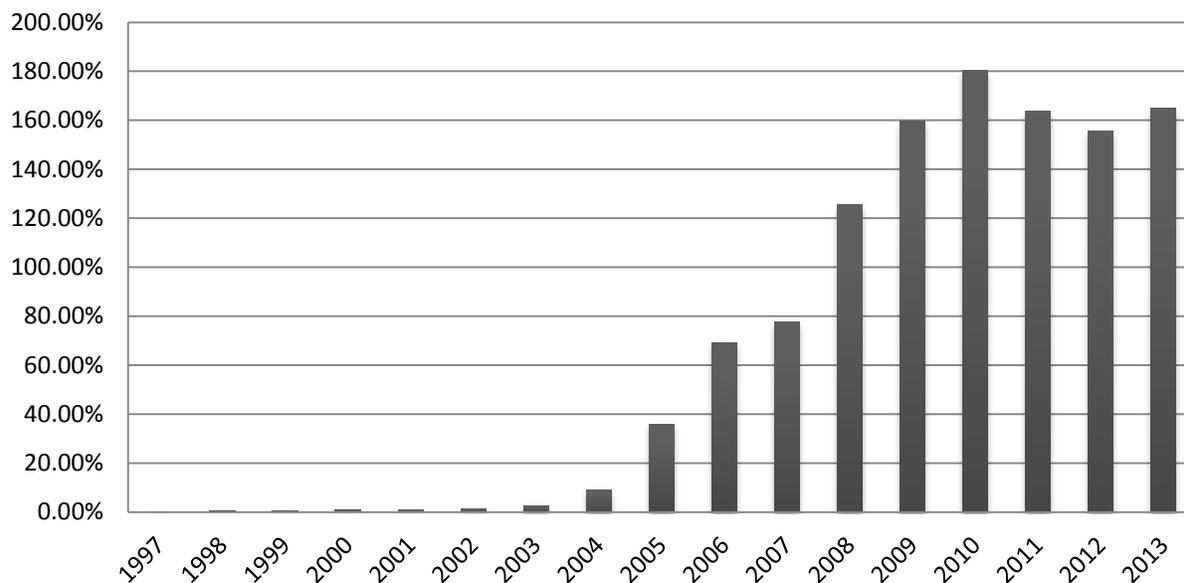
Governments can make several important decisions that can affect the telecommunication sector's diffusion rates such as setting technological standards, timing of the technology's introduction, number of licenses and subsequent policies, as well as regulating the procedures and stipulations effecting competitive telecommunication companies (Gruber and Verboven, 2001).



**Figure 5.16 Arab States' starting date for mobile subscriber data**

Across the world, the take-off for most countries appear around the late 90's with expansion taking place around 2002, as countries enter their saturation stage (Jang et al., 2005). However, in the case of some of the Arab States, mobile cellular technology was introduced much later and sometimes governments would introduce the technology but limit its reach to a select few, such as the case is with Iraq. Such detrimental factors would affect the diffusion and growth rates in the region and thus comparatively it would make sense that some of the countries did not reach their saturation stage unlike most countries.

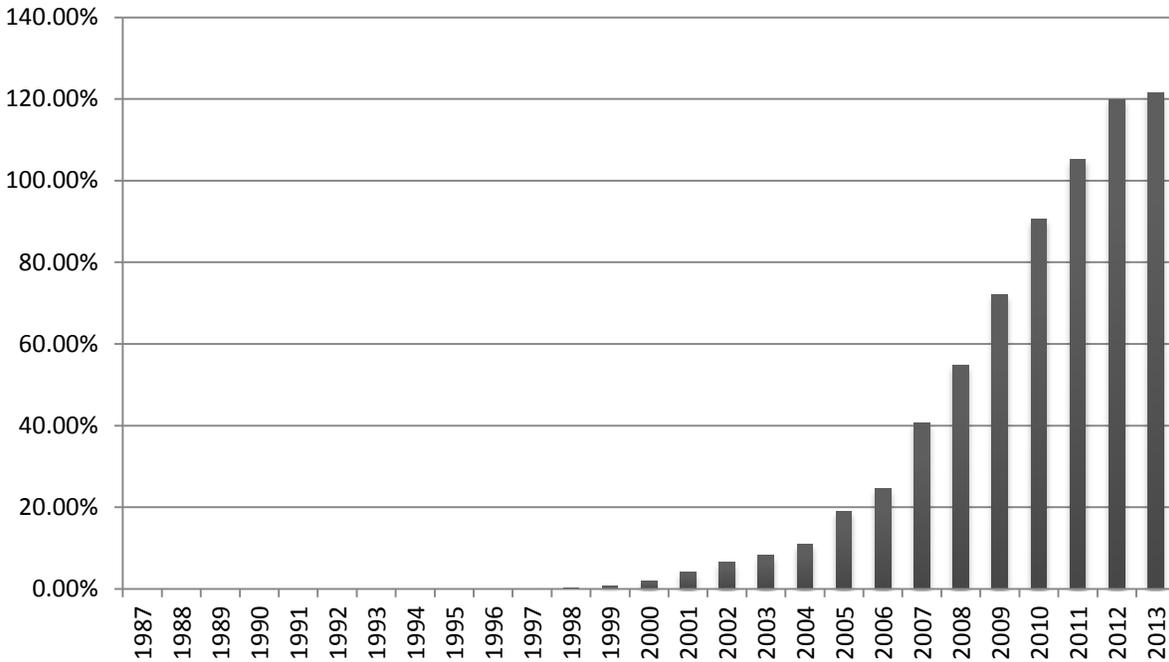
*Libya*



**Figure 5.17 Subscription penetration levels in Libya by age of the system**

The internet became available in Libya in 1997. However, prices were very high in the beginning due to it being monopolized by the government. The Libyan Telecommunications and Information Technology Company (LIPTC) is the main telecommunications operator in Libya and owns the only two mobile phone service providers in the country, AlMadar and Libyana (Gelvanovska et al., 2014). High number of subscribers can be attributed to declining prices thanks to the introduction of Libyana, the second mobile provider, in 2003. The now affordable services, as well as the introduction of 3G services, resulted in a 69% penetration level by 2006, a huge leap from its low 2% levels in 2003. However, the Libyan civil war still left its mark on the country's telecommunication sector, seeing as penetration levels have decreased slightly since 2012. With the government struggling with its external as well as internal warring factions, little improvements have been made to bettering its telecommunication infrastructure, improving the quality of its services, and developing regulatory mandates to match international standards. As such, broadband is still not widely available, 4G still has not been introduced as of 2014, and lack of resources and personnel to perform maintenance have restricted the country from improving its telecommunication sector (freedom on the net, 2014).

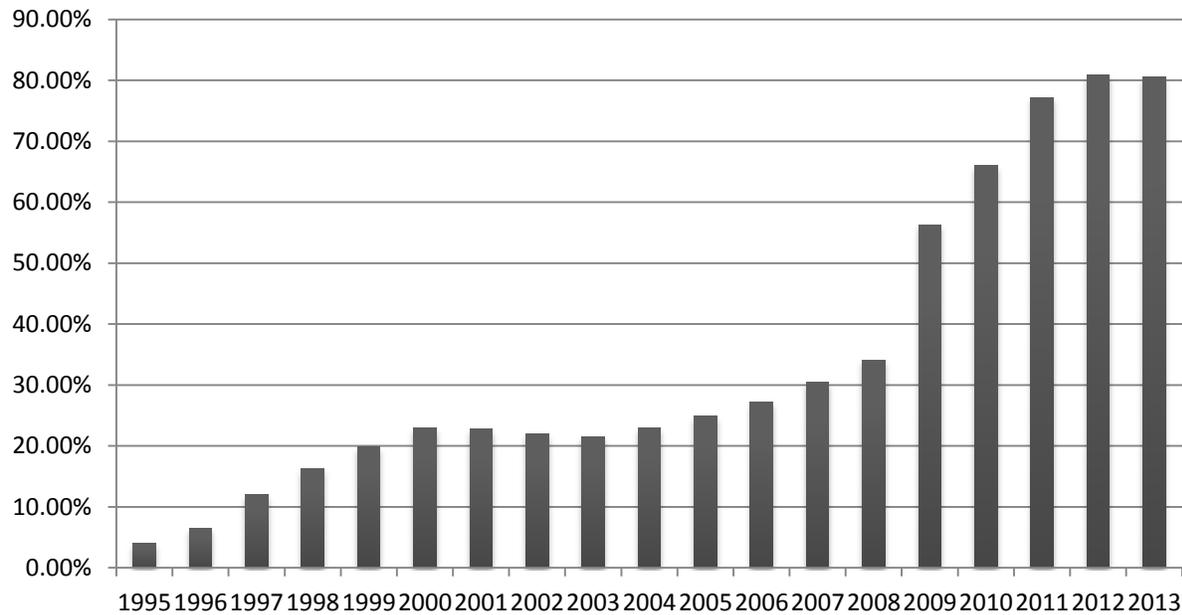
*Egypt*



**Figure 5.18 Subscription penetration levels in Egypt by age of the system**

Egypt’s low diffusion rates can be attributed to the country’s poor telecommunications infrastructure in rural and urban areas, the Arab Spring ramifications and subsequent internal civil revolts, as well as its flagging economic conditions. As such, investments in the telecommunication sector has been limited since the 2011 revolution and plans for more mobile service providers have been halted due to the increased political instability (freedom on the net, 2014). Moreover, all of Egypt’s telecommunication infrastructure is operated by the government owned Telecom Egypt Company, making it easy to suspend internet access as well as monitor and censor the general population (freedom on the net, 2014). Egypt has three mobile service operators, Vodafone and Mobinil which were both launched in 1998, and Etisalat Misr, which was launched in 2007, and which also happens to be the first company to introduce 3G services in the same year (Kamli, 2012). It is after the introduction of the third mobile service company as well as 3G services, that Egypt saw a leap in subscription numbers, jumping from an 11% penetration level in 2004 to recording a 91% reach in 2010.

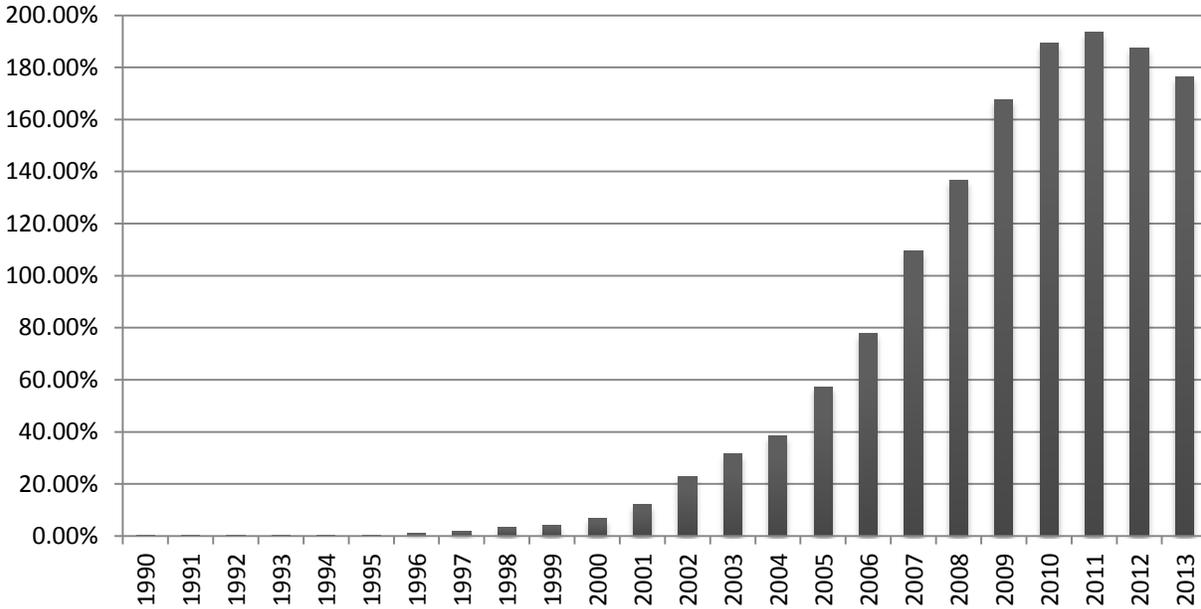
*Lebanon*



**Figure 5.19 Subscription penetration levels in Lebanon by age of the system**

Lebanon’s mobile services have been described as expensive, slow, unreliable, and unavailable in rural areas outside of the capital (freedom on the net, 2014). Moreover, OGERO, a government owned company, is the sole fixed line operator in the country, thus maintaining a fixed monopoly over the telecommunication industry (freedom on the net, 2014; Kamli, 2012). The lack of competition may explain the fact that as of 2013, Lebanon has yet to reach maximum penetration levels, reaching only an 81% reach. Furthermore, Lebanon has only two service providers, Touch and Alfa. However, both mobile operators are in an agreement with the government, which stipulates that all revenue have to go to the State in exchange for a monthly paid fixed sum. This explains the lack of investment from the mobile operators since they will be paid a fixed amount regardless of the revenue or lack of (Gelvanovska et al., 2014). As of 2011, even though both operators have launched 3G services, only a 4% increase in penetration level was recorded after the introduction. All in all, Lebanon is considered a laggard country in terms of adopting mobile 3G services, since all the Arab States have adopted earlier with the exception of Iraq.

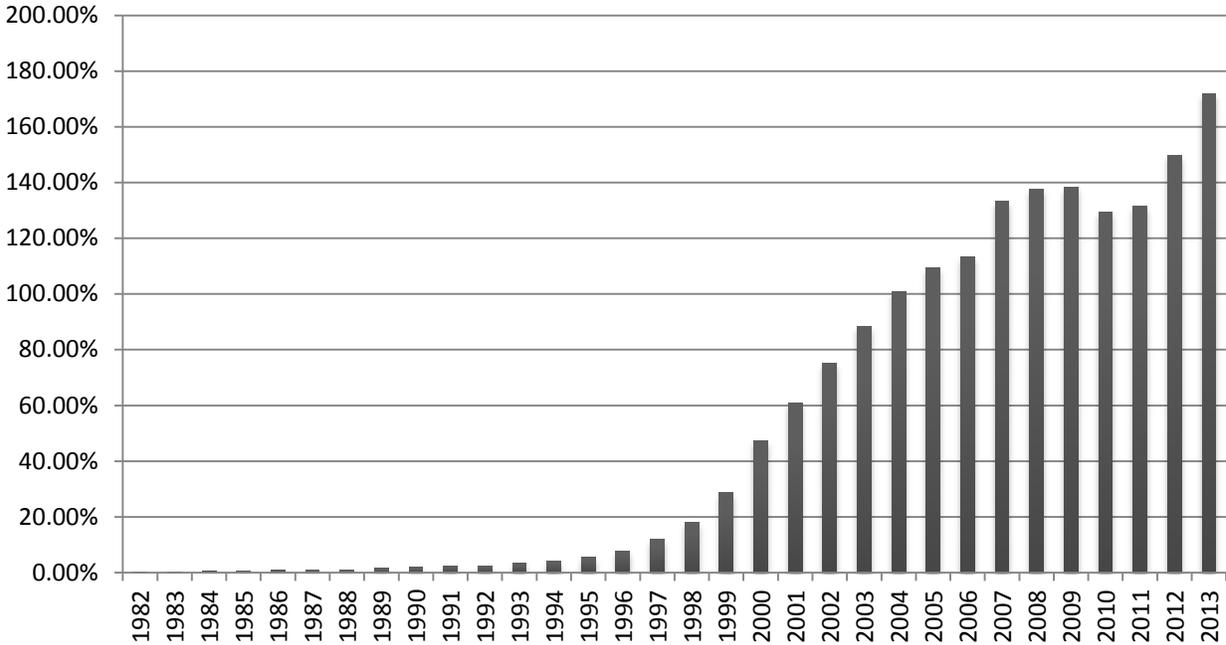
*KSA*



**Figure 5.20 Subscription penetration levels in KSA by age of the system**

KSA enjoys all forms of mobile phone access including fibre optic networks, 3G as well 4G mobile services (freedom on the net, 2014). KSA also enjoys a solid telecommunication infrastructure, however, rural areas may not be as well serviced as the country’s major cities. The country currently has four mobile service operators: Al Jawwal, Mobily, Bravo, and Zain (Kamli, 2012). KSA is also considered one of the early adopters of the 3G service and is the only Gulf Country to liberalize its fixed telephone market, resulting in lower prices and better quality service (Kamli, 2012). It is also the only Arab State out of the sample to record the highest penetration reach of 193% in 2011. This is consistent with the literature in which competition and sector liberalization is seen as a factor in speeding the diffusion growth (Gruber and Verboven, 2001). As of 2013, KSA’s penetration levels are steadily declining and reaching the saturation stage.

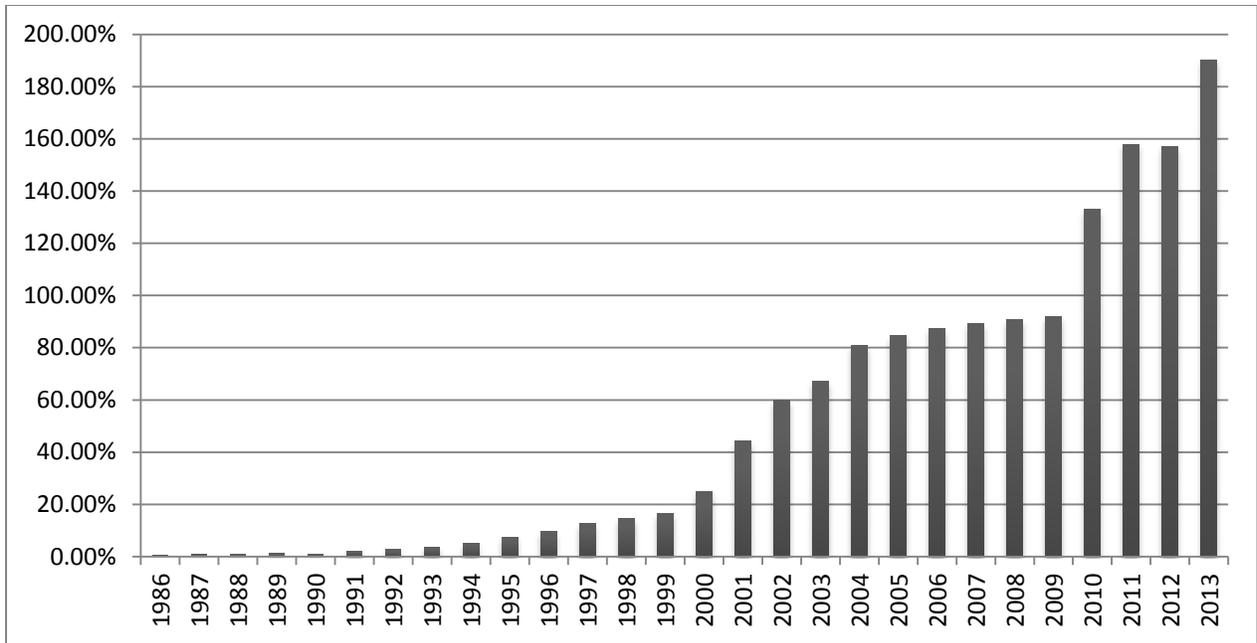
*UAE*



**Figure 5.21 Subscription penetration levels in UAE by age of the system**

The UAE has only two mobile service operators, Etisalat and Du, which are respectively both directly and indirectly owned by the government (freedom of the net, 2014). Du was launched in 2006, making it the only mobile service provider and operator competing with Etisalat. The benefits gained from the introduction of a second service provider can be seen reflected in the 20% increase in penetration levels in the year after 2006, in comparison with the 3% increase in the year before. Both operators provide 3G services and as of 2012 have already launched 4G networks, making the UAE, along with Kuwait and KSA, one of the earliest countries in the region to have done so (Kamli, 2012).

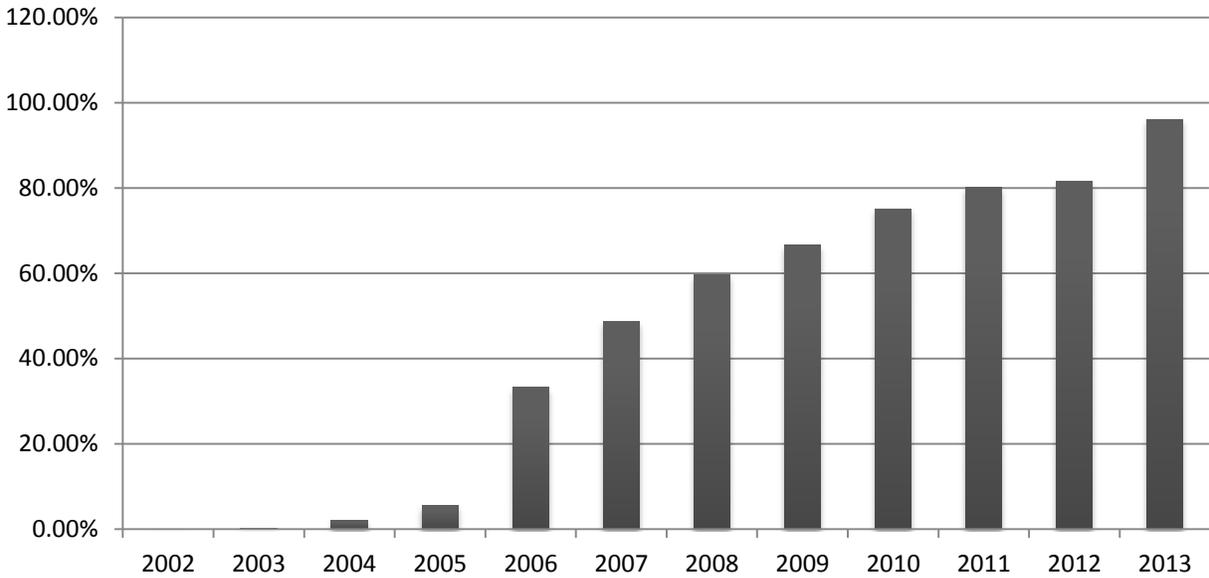
*Kuwait*



**Figure 5.22 Subscription penetration levels in Kuwait by age of the system**

Kuwait has three mobile service operators: Zain, Ooredoo, and Viva, with the latter being the last company to be introduced in 2007 (Kamli, 2012). All service providers offer 3G and 4G services making Kuwait one of the first Gulf States to adopt the technology related networks. This is in line with the more developed markets, in which it demonstrates higher technological diversity and as such stronger growth rates. However, Kuwait’s government, much like its neighbouring Arab States, is still the sole provider of fixed line services, limiting competition and monopolizing the telecom sector (Gelvanovska et al., 2014).

*Iraq*



**Figure 5.23 Subscription penetration levels in Iraq by age of the system**

Iraq's telecommunication data is the shortest out of the Arab States, starting only in 2002-2003. The reasoning behind Iraq's very late entrance is due to Saddam Hussein's complete censorship and control over the telecommunication sector. Even two years after the end of his regime, only about 2% of the Iraqi population were using mobile phones (Bakir, 2010). It was only during 2005 that mobile subscriptions started growing. In 2006, the government owned Iraq Telecom and Posts Company (ITPC) lost its status as the sole provider of fixed lines in the country, which ended the government's monopoly over the telecom sector. The country has three mobile service operators: Zain, AsiaCell, and Korek (Kamli, 2012). Iraq's perplexing high innovation as well as imitation coefficient can be attributed to the interaction effect between the adjoining countries who have already adopted and Iraq who has yet to adopt. This can be seen as a by-product of word of mouth and can be attributed to international learning spill overs, which is a process that greatly accelerates the adoption rate (Gruber and Verboven, 2001). This is most evident with telecommunication technology, as it can be described as an interactive innovation, of which each successive adopter adds more value to future and past adopters (Meade and Islam, 2006; Rogers, 2005).

For example, the first adopter of the fixed telephone would perceive no utility from his adoption unless there are other adopters of the same technology so that an interaction can occur. As such, Iraq's very high diffusion process can be seen as a factor of the population's already built in awareness of the perceived utility of the technology. Moreover, seeing neighbouring countries continued usage of the technology increases the target country's acceptance of the technology and thus speeds the adoption process (Tellis et al., 2003; Meade and Islam, 2006). Since Iraq now perceives the innovation to be successful, any perceived associated risks are now reduced, accelerating the diffusion process.

Another reason for Iraq's speedy diffusion can be related to the now lower cost of cellular telephones, declining cost of infrastructure, and subscriber equipment, which is a benefit that was not afforded to countries who adopted when the technology was too risky and expensive (Gruber and Verboven, 2001). Since the barriers of entry declined, more competitive markets were introduced and as such prices plummeted as the technology itself matured (Jan et al., 2005; Gruber, 2001). Therefore, regardless of Iraq's political turmoil and economic deficiencies, it still enjoyed a much greater rate of growth compared to the rest of the Arab States in such a relatively short amount of time, because the technology was more mature and less risky due in large to the economies of scale. This is why it's ranked as the most innovative country in terms of mobile subscriptions when realistic expectations may have hypothesized otherwise.

## 5.5 Arab States' Diffusion Patterns versus Diffusion Literature

**Table 5.3 Averages of  $p$  and  $q$  based on diffusion literature versus Arab States' sample**

	$p$	$q$
Developed countries	.001	.50
Developing countries	.00027	.55
Arab States	.0008	.316

In a meta-analysis study done on the  $p$  and  $q$  parameters of the Bass Model, Van den Bulte (2002) sought to analyse how these coefficients varied across products and countries. He found that a high value for  $p$  would indicate a quick start to the diffusion process, but with a slower

acceleration afterwards. Whereas a high value for  $q$  would indicate a slower start but with a wider and faster diffusion afterwards. Moreover, he concluded that interactive technologies, such as mobile cellular telephones, would exhibit much lower  $p$  coefficients and higher  $q$  coefficients than other products and services. Prior research has indicated that with interactive technology, people tend to adopt only when there are a sufficient number of prior adopters so that their perceived utility is maximized. The present study's results are taken as consistent seeing that in all cases, the  $p$  parameter is lower than the  $q$  parameter, corroborating with the past research on the higher effect of word of mouth in the diffusion of interactive technology.

The diffusion literature's consensus seems to be that the average recorded value for the  $p$  parameter is around .001 for developed countries and .00027 for developing countries, and that the  $q$  parameter is on average .50 for developed countries and .55 for developing ones (Chandrasekaran and Tellis, 2007; Talukdar et al., 2002; Van den Bulte and Stremersch, 2004). Even though the literature is absent on any diffusion data centring on the MENA region, which is home to a lot of countries that are categorized as developing nations. However, according to the World Bank, the Arab States can be further reclassified according to income. For example, the Gulf States are all considered very high income countries, whereas Lebanon and Libya are classified as just high income, and Iraq and Egypt as low income countries. In this present study, they all still respectively registered lower  $p$  parameters than initially generalized by past research. However, on average, the Arab States, as developing countries, registered higher  $p$  and lower  $q$  parameters than initially hypothesized by past studies.

## **5.6 Determinants in Mobile Diffusion Telephony Literature**

The literature reviewed in Chapter two focused on studies correlating national culture along with other socioeconomic indicators on the diffusion process. Socioeconomic indicators included GDP, literacy rate, openness to trade, and a host of other possible influencing factors on national level adoption rates. However, most studies in cross national diffusion literature analysed the diffusion of consumer durable products, and as such, some of the influencing factors present in telecommunication related innovations may not have been studied and represented. As such, a review of the literature focusing on the diffusion of the telecommunication sector was further examined so as to provide the present study with more context. The review led to the

understanding that studies analysing the diffusion of mobile telephony included a number of specific related indicators such as the number of fixed lines, policy measures, government licensing and regulations, the number of mobile service providers, and the level of urbanization, in addition to the socioeconomic indicators previously mentioned, such as GDP and literacy rate (Meade and Islam, 2006).

Since its inception, the growth of the telecommunication market is seen thanks to the expansion made by the digital technology which allowed more competition and thus declining costs. Digital versus analogue effect, the coordination of regulations governing the licensing agreements, and a common global technical standard, were all factors effecting the diffusion of mobile telephony (Gruber and Verboven, 2001). As can be discerned from the overview of the Arab's telecommunication history in section 5.6, most of these factors have already manifested and could be seen as determinants for the increase or decrease in mobile cellular subscriptions for each state. For example, the literature discusses the intensity of competition of mobile service providers, and how increase in competition, leads to decreasing prices and more benefits and offers (Gruber, 2001). This is evident in all the cases of the Arab States, in which penetration is almost doubled when a second mobile provider company is introduced.

Moreover, the mobile diffusion literature discusses at length the effect of infrastructure and built in technology in speeding the adoption process. In the case of the telecommunication sector, mobile networks are often restricted to the number of already installed fixed mainlines and availability of services in some parts of the country (Meade and Islam, 2006). This is most evident in the case of Egypt and Lebanon, in which poor telecommunication infrastructure in rural and urban areas prevent the diffusion of mobile adoption and make laggards of both countries compared with the other Arab States. This also ties in with the level of urbanization, and how the literature on mobile diffusion describes the urbanized population as possessing more purchasing power than the rural population, because they are already wealthy enough to live in cities and towns (Gruber, 2001). As such, the higher the urbanization level in a country is, the more potential first adopters of the mobile technology are, and thus the quicker the diffusion process is. This is most evident in Kuwait, in which it is the most urbanized country, with 98% of the population living in urban areas, and is one of the most innovative countries compared to the other Arab States (ITU, 2014).

The literature also offers additional factors, such as entry licensing, governmental authority and regulatory power over the telecommunication sector, and the effect of earlier mobile technology (digital vs analogue), over the diffusion process. However, in regards to the MENA region, the present study found little evidence to the availability of such data, so as to include them as factors effecting the diffusion process. As such, only data that was available to all Arab States was used to help investigate the effect of influencing factors on the innovation and diffusion patterns of the MENA region. Hence, this study was left with national culture indicators, such as Hofstede's national culture dimensions; socioeconomic indicators, such as wealth and literacy rate; and telecommunication sector specific indicators, such as urbanization, infrastructure, and competition. More discussion around each indicator will be conducted in the next chapter.

## **5.7 Summary**

In the case of the Arab States, there has been few studies done on their diffusion patterns and the factors involved in their respective adoption processes. Therefore, the discussion in this chapter pertained exclusively to the Arab States diffusion patterns and what factors may have effected their adoption and subsequent diffusion processes. Sector specific variables and socioeconomic indicators of which were identified in this chapter, as well as national culture findings from Chapter four, will be correlated and analysed in the next chapter. Chapter six will aim to understand to what degree a country can be characterized as an innovator in adopting a new product/service and how these factors can affect the diffusion process. Building on previous studies, the chapter extends diffusion theory to encompass a region otherwise excluded from the literature's generalizable findings. Doing so would aid in understanding the relevancy of the literature's findings and how generalizable they are in relation to the Arab States.

## **Chapter 6**

### **Cross National Diffusion**

## Chapter 6 Cross National Diffusion

### 6.0 Introduction

This section will attempt to investigate whether there is a significant relationship between a number of independent variables in the form of socioeconomic, sector specific, and national culture indicators on the coefficients of innovation and imitation,  $p$  and  $q$  respectively, of which will denote for the dependent variables in this analysis. The reasoning behind the choice of each indicator was influenced strongly by the literature and its subsequent findings regarding the significance of their role on the innovation and diffusion of countries.

Socioeconomic indicators were taken from the World Bank database and include GDP per capita based on purchasing power parity (PPP), and the percentage of people ages 15 and above who are considered literate. Sector specific indicators were taken from the ITU database and include the percentage of the population living in urban areas, the number of fixed telephone subscriptions (per 100 people), and the number of competitive mobile service provider companies in the country as of 2013. The rest of the indicators refer to the national culture indices gathered from disseminating Hofstede's VSM13 survey on each respective Arab State.

Both socioeconomic and sector specific indicators were yearly data, of which were averaged from the first available data point to the year 2013, for all Arab States respectively. The method of averaging the indicators was recommended and emulated from cross national diffusion literature. The justification stemmed from the problem of measuring the diffusion process from past adoption behaviour, while correlating it with independent variables that were measured in the present tense (Lee, 1990). In this present study, national level indicators measured in the present tense wouldn't be a viable indicator on how it adopted an innovation from years ago. Therefore, the literature suggests averaging the independent variables over the intended timespan to overcome this limitation (Stremersch and Tellis, 2004; Talukdar et al., 2002; and Gatignon et al., 1989). The final step was taking each indicator and correlating it respectively with the innovation ( $p$ ) and imitation ( $q$ ) coefficients of the Bass Model.

The next section will detail the development of each hypothesis as well as present a table reporting the results of the correlational analysis that tested the subsequent hypothesis. David (1938) recommends that the Pearson's correlation be used only when the sample is or exceeds 25. Therefore, the Spearman rho's test was found to be the most appropriate for this analysis because of the small number of countries used as sample cases and the usage of ordinal data such as GDP and national culture indices (Field, 2014). The present study also found two precedents in the study conducted by Dwyer's et al., (2005) and Yaveroglu and Donthu (2008), in which they used the Spearman's correlational analysis to test their sample of five and nineteen countries respectively.

## **6.1 Hypothesis development**

The present study attempts to determine whether country specific variables can explain differences found in diffusion patterns observed across countries. Specifically, we examine and discuss the relationship of each set of indicators on innovation and imitation levels of each Arab State and hypothesize on the direction and significance of each variable on the diffusion patterns.

### **6.1.1 Wealth**

According to cross national diffusion literature, people in economically wealthy countries are considered more likely to purchase new and innovative products and services than their less affluent counterparts (Rogers, 2003). It is expected that newly launched products and services are often costlier once they are introduced, and thus the target consumer is more likely to be wealthy enough to be the first buyer and thus handle the risks of buying an unproven innovation (Lee, 1990). They are also equipped with a better media infrastructure and subsequently the population is easily informed and influenced, thereby accelerating the adoption process (Stremersch and Tellis, 2004). It is therefore expected that it would have a significantly strong positive association with both the innovation and imitation parameters.

**H1a** There is a significant positive relationship between GDP and the innovation coefficient.

**H1b** There is a significant positive relationship between GDP and the imitation coefficient.

### 6.1.2 Literacy rate

Cross national diffusion literature suggests that the more educated the population is, the more likely an innovation will be accepted and diffused quickly. The literacy rate is seen as an indicator on how educated the country's nationals are and has been used in diffusion literature to reflect the importance of education on the diffusion of innovations (Yeniyurt and Townsend, 2003; Lee, 1990). Education is seen as a vehicle for spreading new ideas and highlighting the importance of technology in human progression (Tellis et al., 2003). Therefore, high literacy rate is seen as a signpost for how receptive the population is to innovations. As such, earlier adopters are often characterized as having higher education and literacy, thus more likely to adopt the innovation faster than their illiterate counterparts (Midgley and Dowling, 1978; Rogers, 2001). Therefore, it is posited that the literacy rate will have a strong positive effect on the Arab State's innovation and imitation patterns.

**H2a** There is a significant positive relationship between literacy rate and the innovation coefficient.

**H2b** There is a significant positive relationship between literacy rate and the imitation coefficient.

### 6.1.3 Urbanization

The level of urbanization in a country can be a reference to the number of people living in cities and large towns (Gruber, 2001). The urban population may be typically richer than their rural counterparts and should be expected to be more prone to consumption and adopting new innovations. Moreover, the concentration of the urban population will allow the innovation to be communicated faster and allow for word of mouth to speed the diffusion process, therefore adoption is quicker through society. Therefore, it is hypothesized that the more urbanized a country is, the higher its innovation and imitation parameters are.

**H3a** There is a significant positive relationship between urbanization and the innovation coefficient.

**H3b** There is a significant positive relationship between urbanization and the imitation coefficient.

#### 6.1.4 Infrastructure

This indicator captures the number of fixed mainlines per capita. This variable is seen as the main infrastructure in which the mobile network is built upon, as discussed in Chapter five. Telecommunication diffusion literature suggests that the higher the number of fixed networks, the more likely the population will be mobile subscribers. Thus, it is hypothesized that the number of fixed lines will have a strong positive effect on the diffusion rate.

**H4a** There is a significant positive relationship between the number of fixed lines and the innovation coefficient.

**H4b** There is a significant positive relationship between the number of fixed lines and the imitation coefficient.

#### 6.1.5 Competition

Telecommunication diffusion literature emphasized the importance of competition on diffusion rates. It has been posited that the higher the number of established mobile service providers are in a country, the quicker the diffusion rate is. The number of competitive firms is used to indicate the level of competitive intensity as is suggested by the relevant literature (Gruber, 2001). Therefore, it is hypothesized that the number of competitive firms will lead to a strong positive effect on the innovation and imitation patterns.

**H5a** There is a significant positive relationship between competition and the innovation coefficient.

**H5b** There is a significant positive relationship between competition and the imitation coefficient.

#### 6.1.6 PDI

The PDI construct refers to the extent in which people accept that power is distributed unequally in a society. The literature's findings seem to indicate that high PDI societies constrict and limit innovation levels in a country, since most of the authority is centralized with a small portion of the society (Yalcinkaya, 2008). Such that only a fraction of the population, namely the most

powerful and wealthy, can afford to adopt the latest innovations, and as such, the country's innovation level should be lower than that of low PDI countries (Yaveroglu and Donthu, 2002; Waarts and Van Everdingen, 2005; Shane, 1993). From the perspective of diffusion literature, high PDI societies tend to exhibit more preference to materialistic possessions and products that advertise their status. Therefore, it can be seen that the acquisition of the innovative product or service by the powerful, influential, and wealthy would greatly entice the less powerful to try to identify with them by emulating their purchasing decision. Therefore, it can be posited that the PDI construct would have a strong negative effect on innovation levels but a positive effect on imitation patterns.

**H6a** There is a significant negative relationship between the PDI scale and the innovation coefficient.

**H6b** There is a significant positive relationship between the PDI scale and the imitation coefficient.

#### 6.1.7 IDV

Since the IDV construct relates to the prevailing concept of the self over the group, it has been posited that countries with a high IDV score would prove to be more innovative than imitative. The individualistic society would be more independent than the collective centric society and as such, more likely to try new innovations regardless of the society's stance on adoption. Moreover, the communication process is an integral part of the diffusion process, and since high IDV countries are more characterized to have loose ties and are more focused on promoting their self-interests rather than the group, they should exhibit higher innovativeness than imitative tendencies, unlike collective countries. Collective countries would have a higher communication process due to their strong social networks, and thus the diffusion of innovations would prove to be quicker than in highly individualistic countries, thus a higher imitation coefficient (Bulte, 2002). Therefore, it is hypothesized that the indicator would prove to have a strong positive effect on innovation levels but a strong negative effect on imitation patterns.

**H7a** There is a significant positive relationship between the IDV scale and the innovation coefficient.

**H7b** There is a significant negative relationship between the IDV scale and the imitation coefficient.

#### 6.1.8 MAS

As was discussed in Chapter four, the MAS index refers to a society's adherence to gender roles. The MAS index can also indicate a society's propensity to prioritize achievement, wealth, and materialism. Therefore, it has been theorized that high MAS countries would emphasize the importance of possessing new products and especially products that are deemed new and innovative. Feminine societies, on the other hand, would place more emphasis on nurturance and care giving, and thus stress social norms and ties rather than personal consumption and achievement (Singh, 2006). Therefore, countries that have scored high on the MAS index are posited to have higher innovation levels while feminine countries would have higher imitation levels. It is then hypothesized that the construct would have a positive association with innovation levels but a negative influence on imitation patterns.

**H8a** There is a significant positive relationship between the MAS scale and the innovation coefficient.

**H8b** There is a significant negative relationship between the MAS scale and the imitation coefficient.

#### 6.1.9 LTO

The LTO dimension relates to a society's future outlook. Long term oriented societies incorporate several values such as thriftiness and persistence, whereas short term oriented societies tend to place more value on traditions and personal connections. Diffusion studies incorporating the LTO dimension reflect that short term oriented societies would prove to be more innovative than their long term oriented counterparts and have speedier diffusion rates (Dwyer et al., 2005). Seeing as long term oriented societies would prioritize saving and thriftiness, it would go against their nature to succumb to purchasing new and therefore relatively expensive as well as untested products and services. Short term oriented societies, on the other hand, very much like MAS and PDI societies, prefer materialistic and status quo possessions. Moreover, similar to the UAI dimension, an LTO country would be more prone to imitate as a

risk reduction strategy than be a first adopter of an innovation. Therefore, it can be posited that the LTO scale would have a strong negative effect on innovation patterns but a positive effect on imitation patterns.

**H9a** There is a significant negative relationship between the LTO scale and the innovation coefficient.

**H9b** There is a significant positive relationship between the LTO scale and the imitation coefficient.

#### 6.1.10 IVR

As previously stated in Chapter two and later in Chapter four, the IVR dimension is the last national cultural index to be added to Hofstede's theory and is incidentally the least widely used national culture dimension in cross national diffusion literature. The IVR index refers to the extent society indulges or restrains its needs and desires. Such that high IVR societies would be more prone to leisure time and indulging themselves, while highly restrained societies would be conformed to strict social norms and regulations, and have less time for leisure time. Therefore, it is hypothesized that indulgent societies would be more predisposed in adopting new innovations than restrained societies.

**H10a** There is a significant positive relationship between the IVR scale and the innovation coefficient.

**H10b** There is a significant positive relationship between the IVR scale and the imitation coefficient.

#### 6.1.11 UAI

The UAI scale indicates the extent to which members of the population feel threatened by uncertainties. Cultures that are high in UAI are therefore opposed to having risks and have a low tolerance for ambiguity. From the perspective of cross national diffusion, innovations are often viewed as risky, seeing as they are still considered new and untested, and thus it has been previously hypothesized that high UAI countries would be less innovative than low UAI countries (Shane, 1993). It is also expected that high UAI countries would prove to have a high

imitative coefficient, seeing that they would only adopt the innovation until after the innovators and early adopters have adopted, thus they would use imitation as a risk reduction strategy (Stremersch and Tellis, 2004; Yaveroglu and Donthu, 2008; Gong, 2009). Therefore, it is hypothesized that the indicator would have a strong and negative influence on innovation levels but a strong positive influence on imitative patterns.

**H11a** There is a significant negative relationship between the UAI scale and the innovation coefficient.

**H11b** There is a significant positive relationship between the UAI scale and the imitation coefficient.

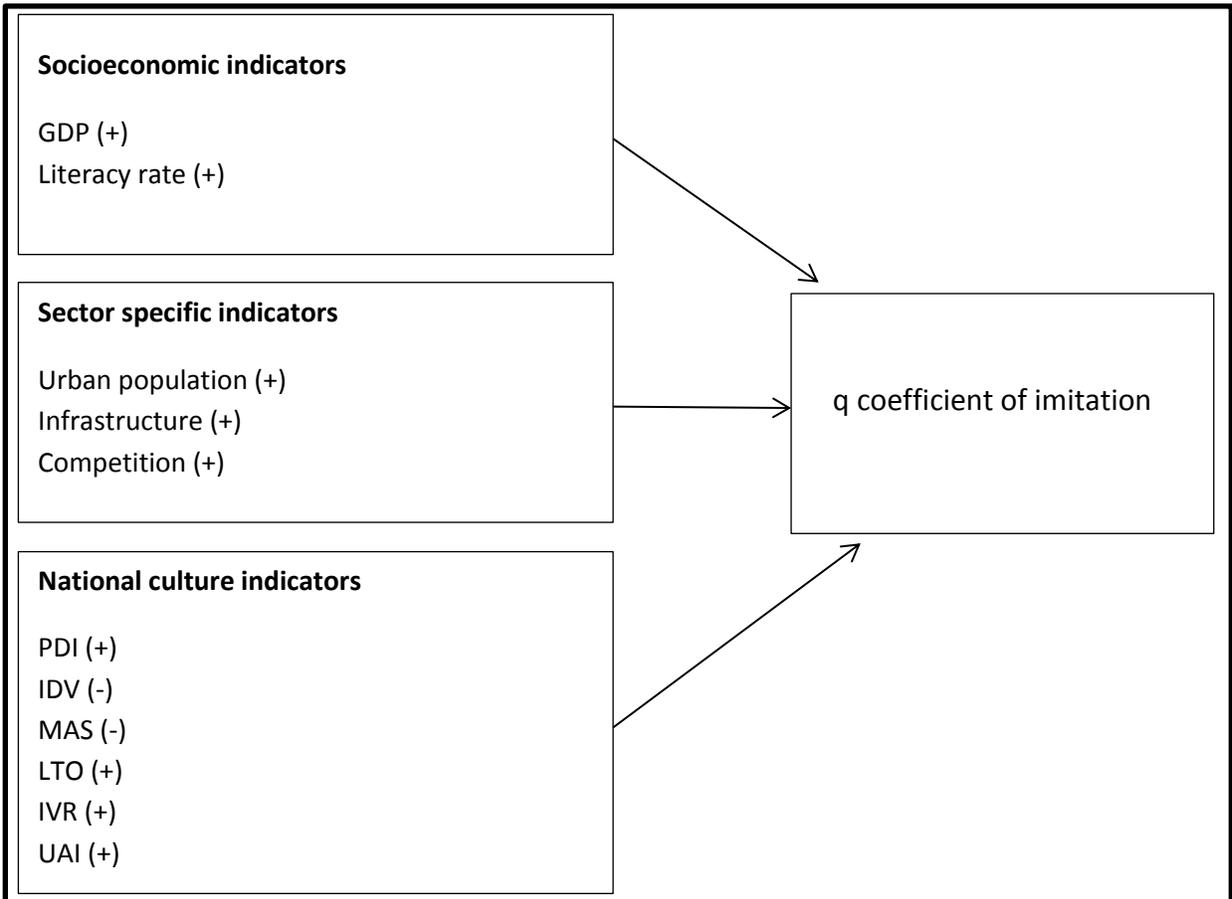
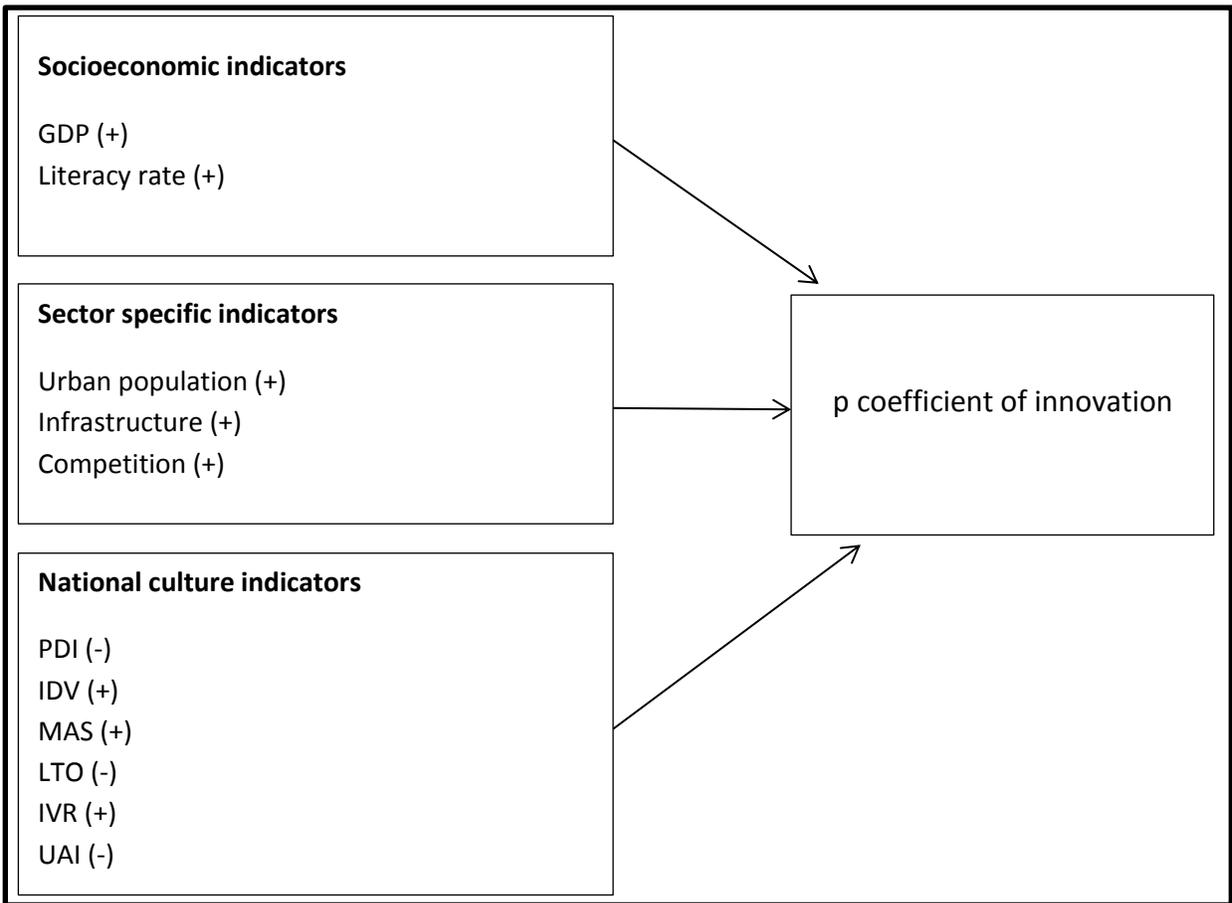


Figure 6.1 Structural Model of Hypotheses

## 6.2 Correlational Analysis

A spearman correlation coefficient was computed to assess the relationship between the chosen country characteristics on national innovation and imitation levels. Bivariate correlations were computed among the eleven variables - socioeconomic, sector specific, and national culture indicators - on the p and q coefficients, respectively. Table 6.1 shows the result of the correlation tests, indicating that only 6 out of the possible 22 correlations were found to be statistically significant.

**Table 6.1** Hypothesis path and estimates

Path	Hypothesis Tested	Sign	p-value	Estimates	Correlation
Wealth → p coefficient	H1a	+	.645	.214	NS
Wealth → q coefficient	H1b	+	.337	-.429	NS
Literacy → p coefficient	H2a	+	.589	-.250	NS
Literacy → q coefficient	H2b	+	.014	-.857	*
Urban pop. → p coefficient	H3a	+	.939	-.036	NS
Urban Pop. → q coefficient	H3b	+	.014	-.857	*
Infrastructure → p coefficient	H4a	+	.702	-.179	NS
Infrastructure → q coefficient	H4b	+	.071	-.714	NS
Competition → p coefficient	H5a	+	.741	.154	NS
Competition → q coefficient	H5b	+	.805	.116	NS
PDI → p coefficient	H6a	-	.180	.571	NS
PDI → q coefficient	H6b	+	.014	.857	*
IDV → p coefficient	H7a	+	.119	-.643	NS
IDV → q coefficient	H7b	-	.180	-.571	NS
MAS → p coefficient	H8a	+	.760	.143	NS
MAS → q coefficient	H8b	-	.052	.750	NS

\* Correlation is significant at the .05 level ( $p < 0.05$ )

\*\* Correlation is significant at the .01 level ( $p < 0.001$ )

LTO → p coefficient	H9a	-	.027	-.811	*
LTO → q coefficient	H9b	+	.818	.108	NS
IVR → p coefficient	H10a	+	.023	.821	*
IVR → q coefficient	H10b	+	.645	.214	NS
UAI → p coefficient	H11a	-	.000	.964	**
UAI → q coefficient	H11b	+	.879	.071	NS

### 6.2.1 Wealth

The correlation between a country's wealth and economic prosperity, measured in GDP per capita, and the innovation coefficient was found to be statistically non-significant,  $r=.214$ ,  $n=7$ ,  $p=.645$ , two tailed. Even though results indicate a weak positive relationship, overall there appears to be no correlation between wealthy countries and their innovation levels, as  $p>.05$ . However, results are in accordance with the literature on the positive relationship between wealth and innovations levels, however tentative they may be.

The correlation between wealth and the imitation coefficient was found to be statistically non-significant,  $r=-.429$ ,  $n=7$ ,  $p=.337$ , two tailed. The results indicate a weak inverse relationship between the level of wealth and imitation levels. Even though results indicate a weak negative relationship, overall there appears to be no correlation between the level of wealth and imitation levels, as  $p>.05$ .

### 6.2.2 Literacy rate

The correlation between the literacy rate and the innovation coefficient was found to be statistically non-significant,  $r=-.250$ ,  $n=7$ ,  $p=.589$ , two tailed. Even though results indicate a weak negative relationship, overall there appears to be no correlation between the level of literacy and innovation levels, as  $p>.05$ .

The correlation between literacy rate and the imitation coefficient was found to be statistically significant,  $r=-.857$ ,  $n=7$ ,  $p=.014$ , two tailed. The results indicate a strong inverse relationship between the literacy rate and imitation levels. Therefore, we can conclude that there is a

significant strong negative correlation between high literacy and the coefficient of imitation, as  $p < .05$ .

### 6.2.3 Urbanization

The correlation between urbanization and the innovation coefficient was found to be statistically non-significant,  $r = -.036$ ,  $n = 7$ ,  $p = .939$ , two tailed. Even though results indicate a weak negative relationship, overall there appears to be no correlation between the level of urbanization and innovation levels, as  $p > .05$ .

The correlation between urbanization and the imitation coefficient was found to be statistically significant,  $r = -.857$ ,  $n = 7$ ,  $p = .014$ , two tailed. The results indicate a strong inverse relationship between the level of urbanization and imitation levels. Therefore, we can conclude that there is a significant strong negative correlation between the urbanization and the coefficient of imitation, as  $p < .05$ .

### 6.2.4 Infrastructure

The correlation between the telecommunication infrastructure, taken from the number of fixed lines per 100, and the innovation coefficient was found to be statistically non-significant,  $r = -.179$ ,  $n = 7$ ,  $p = .702$ , two tailed. Even though results indicate a very weak negative relationship, overall there appears to be no correlation between a developed telecommunication infrastructure and innovation levels, as  $p > .05$ .

The correlation between the telecommunication infrastructure, taken from the number of fixed lines per 100, and the imitation coefficient was found to be statistically non-significant,  $r = -.714$ ,  $n = 7$ ,  $p = .071$ , two tailed. Even though results indicate a rather strong negative relationship, overall there appears to be no correlation between a developed telecommunication infrastructure and innovation levels, as  $p > .05$ . Although tentatively the results indicate an inverse relationship between the number of fixed lines and both innovation and imitation levels, and as such, may be seen as a substitute to mobile networks and not a complement to mobile adoption as hypothesized by the literature discussed in Chapter five.

### 6.2.5 Competition

The correlation between the intensity of competition, denoted by the number of mobile service providers in a country and the innovation coefficient was found to be statistically non-significant,  $r=.154$ ,  $n=7$ ,  $p=.741$ , two tailed. Even though results indicate a weak positive relationship, overall there appears to be no correlation between the intensity of competition and innovation levels, as  $p>.05$ .

The correlation between the intensity of competition, denoted by the number of mobile service providers in a country and the imitation coefficient was found to be statistically non-significant,  $r=.116$ ,  $n=7$ ,  $p=.805$ , two tailed. Even though results indicate a weak positive relationship, overall there appears to be no correlation between the intensity of competition and innovation levels, as  $p>.05$ . However, results are in accordance with the literature on the positive relationship between competitive markets and innovations and imitation levels, however tentative they may be.

### 6.2.6 PDI

The correlation between PDI and the innovation coefficient was found to be statistically non-significant,  $r= .571$ ,  $n=7$ ,  $p=.180$ , two tailed. Even though results indicate a somewhat strong positive relationship, overall there appears to be no correlation between the level of power distance and innovation levels, as  $p>.05$ .

The correlation between PDI and the imitation coefficient was found to be statistically significant,  $r=.857$ ,  $n=7$ ,  $p=.014$ , two tailed. The results indicate a strong positive relationship between the PDI dimension and imitation levels. Therefore, we can conclude that there is a significant strong positive correlation between PDI and the coefficient of imitation, as  $p<.05$ .

### 6.2.7 IDV

The correlation between IDV and the innovation coefficient was found to be statistically non-significant,  $r= -.643$ ,  $n=7$ ,  $p=.119$ , two tailed. Even though results indicate a strong negative

relationship, overall there appears to be no correlation between the level of individualism and innovation levels, as  $p > .05$ .

The correlation between IDV and the imitation coefficient was found to be statistically non-significant,  $r = -.571$ ,  $n = 7$ ,  $p = .180$ , two tailed. Even though results indicate a somewhat strong negative relationship, overall there appears to be no correlation between the level of individualism and imitation levels, as  $p > .05$ .

#### 6.2.8 MAS

The correlation between MAS and the innovation coefficient was found to be statistically non-significant,  $r = .143$ ,  $n = 7$ ,  $p = .760$ , two tailed. Even though results indicate a weak positive relationship, overall there appears to be no correlation between the level of masculinity and innovation levels, as  $p > .05$ .

The correlation between MAS and the imitation coefficient was found to be statistically non-significant,  $r = .750$ ,  $n = 7$ ,  $p = .052$ , two tailed. Even though results indicate a strong positive relationship, overall there appears to be no correlation between the level of masculinity and imitation levels, as  $p > .05$ .

#### 6.2.9 LTO

The correlation between LTO and the innovation coefficient was found to be statistically significant,  $r = -.811$ ,  $n = 7$ ,  $p = .027$ , two tailed. The results indicate a strong negative relationship between the LTO dimension and innovation levels. Therefore, we can conclude that there is a significant strong negative correlation between LTO and the coefficient of innovation, as  $p < .05$ .

The correlation between LTO and the imitation coefficient was found to be statistically non-significant,  $r = .108$ ,  $n = 7$ ,  $p = .818$ , two tailed. Results indicate a very weak positive relationship, and overall there appears to be no correlation between the long term orientation and imitation levels, as  $p > .05$ .

#### 6.2.10 IVR

The correlation between IVR and the innovation coefficient was found to be statistically significant,  $r=.821$ ,  $n=7$ ,  $p=.023$ , two tailed. Results indicate a strong significant positive relationship with indulgent countries and their level of innovations. Therefore, we can conclude that there is a significant strong positive correlation between the level of indulgence in a country and its coefficient of innovation, as  $p<.05$ .

The correlation between IVR and the imitation coefficient was found to be statistically non-significant,  $r=.214$ ,  $n=7$ ,  $p=.645$ , two tailed. Even though results indicate a weak positive relationship, overall there appears to be no correlation between the level of IVR and imitation levels, as  $p>.05$ .

#### 6.2.11 UAI

The correlation between UAI and the innovation coefficient was found to be statistically significant,  $r=.964$ ,  $n=7$ ,  $p=.000$ , two tailed. The results indicate a strong positive relationship between the UAI dimension and innovation levels. Therefore, we can conclude that there is a significant strong positive correlation between the level of uncertainty avoidance in a country and its coefficient of innovation, as  $p<.001$ .

The correlation between UAI and the imitation coefficient was found to be statistically non-significant,  $r=.071$ ,  $n=7$ ,  $p=.879$ , two tailed. Even though results indicate a very weak positive relationship, overall there appears to be no correlation between the level of UAI and imitation levels, as  $p>.05$ .

The previous section detailed how the literature assisted in developing the research's hypotheses in addition to listing each variable and its corresponding literature and theorized hypothesis. Figure 6.1 showed the structural model for this section's postulated hypotheses. The latter part of the section illustrated the research's hypotheses in Table 6.1, as well as the results of the correlational analysis. The next part of Chapter six will examine the results of the correlational analysis and its theoretical implications in regards to the MENA region.

### 6.3 Discussion

The chapter centres around the Arab States' distinctive diffusion patterns and what exogenous and endogenous country characteristics may have affected the diffusion process. Previous existent theories of country adoption and diffusion processes are tested using data from the mobile cellular telephone industry for the seven Arab States from the MENA region- Kuwait, KSA, UAE, Iraq, Libya, Egypt, and Lebanon.

Many studies have focused on developing effective strategies for entering international markets (Craig and Douglas, 1996). The international marketing field has also dedicated substantial time and effort to identify the various criteria upon which countries can be clustered (Dekimpe et al., 2000). Segmenting countries would allow international marketing managers to form unified strategies to target seemingly homogenous countries, thus resulting in time and cost efficiencies. There are many factors that can implicitly or explicitly affect the acceptance, and thus the adoption and diffusion process, of the product or service being introduced. Generally, segmenting countries usually revolve around economic, cultural, and sometimes political factors relevant to the product or service in question (Gupta et al., 2002). A basic understanding of the factors that are likely to influence a country's adoption and diffusion patterns is of paramount interest to international managers who may face decisions involving strategic international expansion (Dekimpe et al., 2000; Talukdar et al., 2002).

The MENA region's market may be considered risky, because of the political turmoil, but is otherwise a market full of potential opportunities (Punnett and Clemens, 1999). The MENA region is highly diverse with many ethnicities and a diverse range of economies and political systems (Mellahi et al., 2010). In the case of the Arab States, there has been few studies done on their diffusion patterns and the factors involved in their respective adoption processes. Existing studies have only focused on industrialized nations, and thus resulting findings may not be as generalizable to emerging markets, such as those of the Arab States (Talukdar et al., 2002). The present study wishes to fill the existing gap in the literature by extending the diffusion theory to encompass a region otherwise excluded from the literature's findings. Doing so would aid in understanding the relevancy of the literatures findings and how generalizable they are in relation to the Arab States. As such, discussion will centre only on relationships that proved to be

significant. Thus, this section will analyse the findings from H1b, H3b, H6b, H9a, H10a, and H11a and attempt to link them to the relevant literature.

**Table 6.2** Hypotheses results

<b>Indicators</b>	<b>Path</b>	<b>Hypothesis Tested</b>	<b>Sign</b>	<b>Correlation (sign)</b>	<b>Result</b>
<b>Socioeconomic</b>	Wealth $\longrightarrow$ coefficient p	H1a	+	NS	Rejected
	Wealth $\longrightarrow$ coefficient q	H1b	+	NS	Rejected
	Literacy $\longrightarrow$ coefficient p	H2a	+	NS	Rejected
	Literacy $\longrightarrow$ coefficient q	H2b	+	*(-)	<b>Accepted opposite sign</b>
<b>Sector specific</b>	Urban pop. $\longrightarrow$ coefficient p	H3a	+	NS	Rejected
	Urban Pop. $\longrightarrow$ coefficient q	H3b	+	*(-)	<b>Accepted, opposite sign</b>
	Infrastructure $\longrightarrow$ coefficient p	H4a	+	NS	Rejected
	Infrastructure $\longrightarrow$ coefficient q	H4b	+	NS	Rejected
	Competition $\longrightarrow$ coefficient p	H5a	+	NS	Rejected
	Competition $\longrightarrow$ coefficient q	H5b	+	NS	Rejected

<b>National Culture</b>	PDI → coefficient	p	H6a	-	NS	Rejected
	PDI → coefficient	q	H6b	+	*(+)	<b>Accepted</b>
	IDV → coefficient	p	H7a	+	NS	Rejected
	IDV → coefficient	q	H7b	-	NS	Rejected
	MAS → coefficient	p	H8a	+	NS	Rejected
	MAS → coefficient	q	H8b	-	NS	Rejected
	LTO → coefficient	p	H9a	-	*(-)	<b>Accepted</b>
	LTO → coefficient	q	H9b	+	NS	Rejected
	IVR → coefficient	p	H10a	+	*(+)	<b>Accepted</b>
	IVR → coefficient	q	H10b	+	NS	Rejected
	UAI → coefficient	p	H11a	-	**(+)	<b>Accepted, opposite sign</b>
	UAI → coefficient	q	H11b	+	NS	Rejected

\*Correlation is significant at the .05 level ( $p < 0.05$ )

\*\*Correlation is significant at the .01 level ( $p < 0.001$ )

### 6.3.1 Socioeconomic indicators

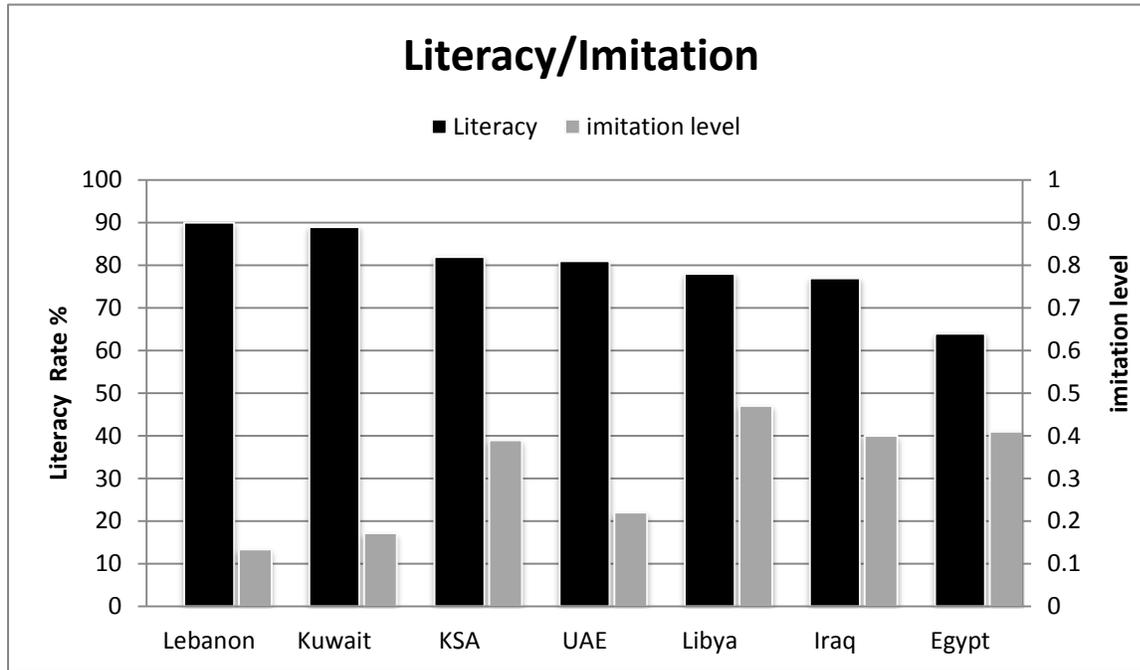


Figure 6.2 Literacy rate and imitation levels

Only one socioeconomic indicator – literacy rate - shows a significant relationship with diffusion patterns. It is shown to be significantly correlated with the  $q$  coefficient of imitation at the .05 level. The present study's hypothesis is not confirmed.

**H1b:** Literacy rate has a strong positive relationship with the imitation coefficient.

Correlational analysis indicates a strong negative relationship between the literacy rates of a country with its imitation coefficient. It seems to indicate that the more literate a society is, the less imitative it is. In past literature, findings proved that literacy rate was positively associated with innovation levels (Rogers, 2003; Talukdar et al., 2002; Lee, 1990). However, no other study in cross national diffusion literature alluded to the association between the literacy rate and the imitation coefficient ( $q$ ). Still, since the imitation coefficient of the Bass Model also refers to the influence of word of mouth on the diffusion process, and taking in mind the results of the correlational analysis, it can be inferred that the higher the literacy rate in a country, the less effect word of mouth communication has on its society. Such results may indirectly suggest that

external mass media, which also denotes for the p parameter, is more influential on a literate and educated society, much like the literature has hypothesized.

### 6.3.2 Sector specific indicators

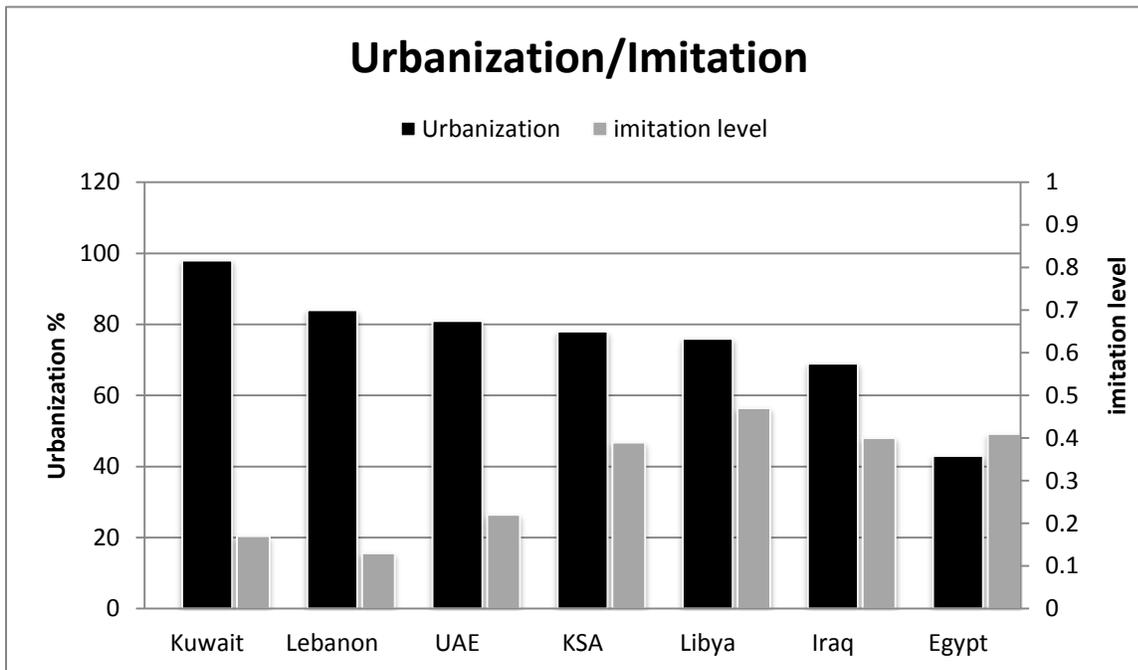


Figure 6.3 Urbanization and imitation levels

Only one sector specific indicator – urban population - shows a significant relationship with the diffusion patterns. It is shown to be significantly correlated with the q coefficient of imitation at the .05 level. The present study’s findings do not confirm the hypothesis.

**H3b:** There is a significant positive relationship between urbanization and the q coefficient.

The relationship reflects a negative strong association between the urban population and the propensity of a country to imitate. The more geographically concentrated the society is, the less imitative it gets. Again, no past study has mentioned the possible correlation between the imitation coefficient and the level of urbanization in a country. As stated in Chapter five, only the telecommunication diffusion literature has proposed a possible linkage between the level of urbanization and the diffusion process (Gruber, 2001). Contrary to the hypothesis, the level of urbanization did not significantly and positively correlate with the innovation and imitation

parameters. The findings indicate however that the level of urbanization may negatively affect the word of mouth process, such that the higher the level of urbanization is, the less effective word of mouth is on the diffusion process. This may imply that people living in cities and large towns are not prone to socializing regardless of their close geographical proximity. In fact, several studies suggest that urbanization often leads to a more individualistic society, distant relationships, and looser ties with the community (Wirth, 1938; Marsella, 1998). While these findings may suggest that urbanization would have a positive effect on the innovation levels much like the IDV construct, however, this study could not confirm the first part of the hypothesis either.

### 6.3.3 National culture indicators

By utilizing the VSM13's national culture score for the Arab States, the present study found support linking four of Hofstede's dimensions – UAI, PDI, LTO, and IVR – with their diffusion patterns. More specifically, it was found that PDI has a significantly strong positive association with the coefficient of imitation ( $q$ ), and that both the IVR and UAI constructs have a strong positive effect on the innovation coefficient ( $p$ ), while the LTO scale had a strong negative effect on it.

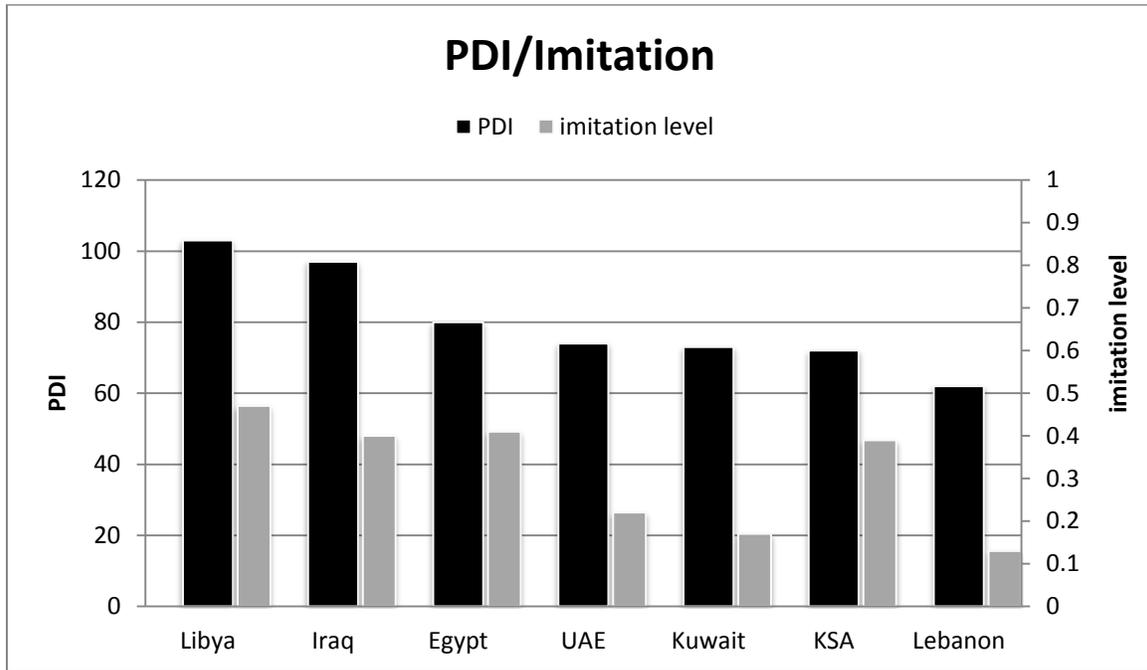


Figure 6.4 PDI and imitation levels

Only a partial confirmation of the hypothesis regarding the PDI dimension is confirmed. The construct shows a significant relationship with the diffusion patterns. It is shown to be positively correlated with the  $q$  coefficient of imitation at the .05 level. The results therefore confirm the present study's hypothesis.

**H6b:** There is a significant positive relationship between the PDI scale and the  $q$  coefficient.

Yaveroglu and Donthu's (2008) and Singh's (2006) study has already alluded to the positive effect of power distance on the imitation coefficient. While their study findings did not find the relationship significant, their theoretical implications may still apply to the present study. People in high power distance communities are more susceptible to power inequalities and are more accepting of these differences. Therefore, it is inferred that there is a great gap between the more powerful and less powerful in the society, and imitating the more powerful will enable the less powerful to outwardly bridge that gap. This mimicking behaviour may be the result of the power imbalance, but it does accelerate the diffusion process of innovations, most specifically status and materialistic innovations.

## LTO

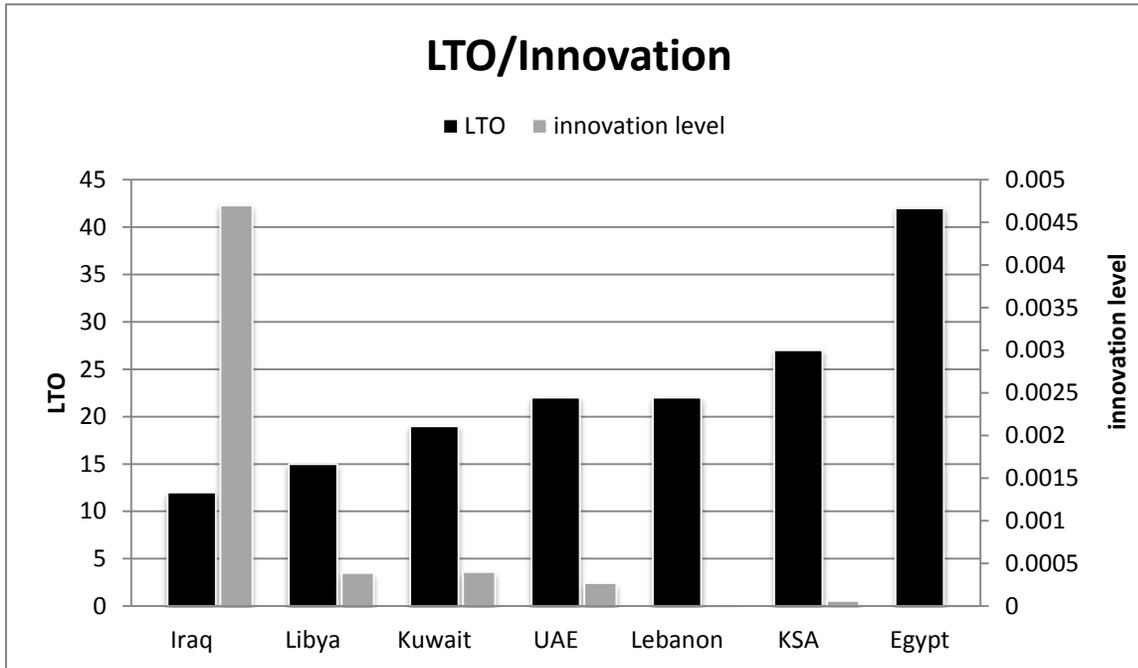


Figure 6.5 LTO and innovation levels

Only a partial confirmation of the hypothesis regarding the LTO dimension shows a significant relationship with the diffusion patterns. It is shown to be significantly correlated with the  $q$  coefficient of imitation at the .05 level. The results therefore confirm the present study's hypothesis.

**H9a:** There is a significant negative relationship between the LTO scale and the  $p$  coefficient.

The LTO dimension in particular has not been referenced heavily in the literature in regards to the diffusion of innovations. Possibly, because it is still considered a new dimension with not many countries scored on its scale, and as such availability of data was limited. Only Dwyer et al., (2005) have theorised and found the possible innovativeness of short term oriented societies to be significant in their study. Similarly, the present study's findings also indicate that short term oriented societies are more likely to be innovative than long term oriented societies. The literature does seem to allude that short term oriented societies are more prone to spending, status consumption and are not averse to risk-taking. Such characteristics are more likely to innovate and adopt earlier; therefore, the present study can contribute to the literature by confirming the negative relationship between LTO and innovation levels.

## IVR

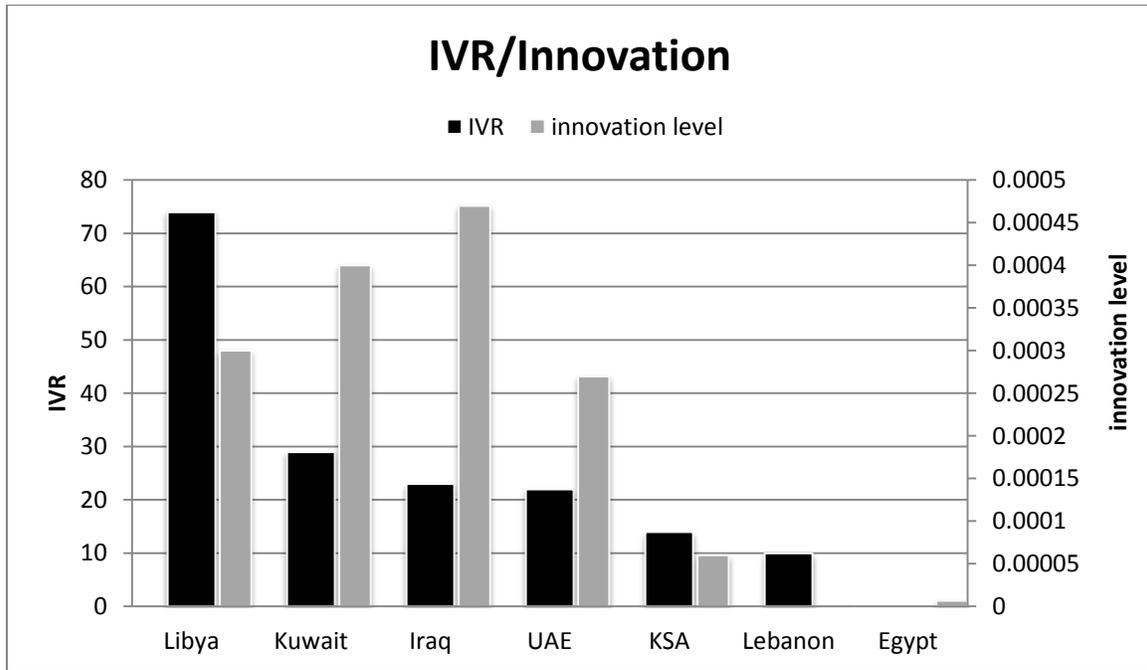


Figure 6.6 IVR and innovation levels

Only a partial confirmation of the hypothesis regarding the IVR dimension shows a significant relationship with the diffusion patterns. It is shown to be significantly correlated with the  $p$  coefficient of imitation at the .05 level. The present study's findings do confirm the hypothesis.

**H10a:** There is a significant positive relationship between the IVR scale and the  $p$  coefficient.

Much like the LTO dimension, the IVR scale has not been mentioned heavily in the cross national diffusion literature reviewed. This may also be caused by it being a relatively new dimension with not as much available country data, unlike the original four dimensions. Nevertheless, the findings seem to signify that the more indulgent the society is, the more innovative it is. From a theoretical lens, it would seem that restrained societies would not indulge themselves by adopting new innovations, because of the constraints they would inwardly place in fulfilling their desires. Unlike indulgent societies, which have more freedom to enjoy their proclivities without being restricted or shunned from their society. As such, the present study's findings can contribute to cross national diffusion literature by being the first study to confirm the positive association between indulgence and innovation levels.

## UAI

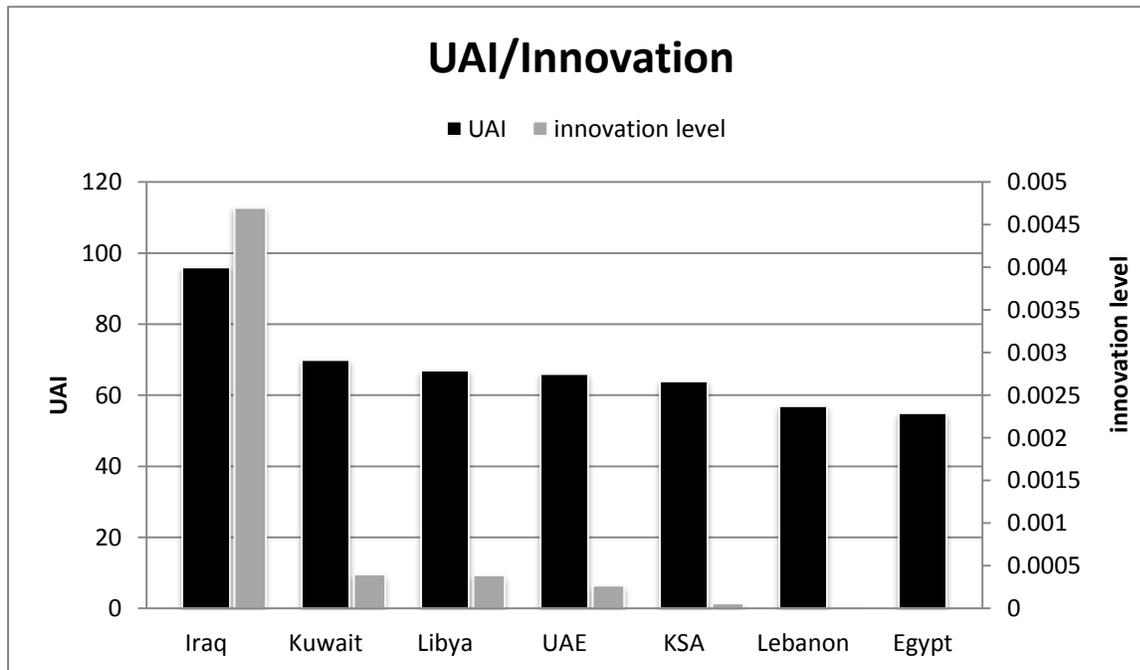


Figure 6.7 UAI and innovation levels

Only a partial confirmation of the hypothesis regarding the UAI dimension shows a significant relationship with the diffusion patterns. It is shown to be significantly correlated with the  $p$  coefficient of imitation at the .001 level. The present study's findings do not confirm the hypothesis.

**H11a:** There is a significant negative relationship between the UAI scale and the  $p$  coefficient.

While the initial hypothesis rejects any positive relationship between UAI and innovation level, the correlational analysis shows an unexpected positive association. This is the antithesis of the literature's consensus that high UAI countries hinder the adoption of new innovations (Yeniyurt and Townsend, 2003; Steenkamp et al., 1999; Lynn and Gelb, 1996; and Singh, 2006). Therefore, the present study's findings are an anomaly when compared with the cross national diffusion literature, except for the study by Gong (2009), which found a positive association between UAI and diffusion rates of B2C e commerce adoption. As such, the findings may indicate that the results may be sector specific in the case of this particular dimension. Since high UAI societies are risk averse, and have structured regulations, it would not be farfetched to hypothesize that they would still be more in line to be early mobile subscribers. In the case that the innovation under study is related to the telecommunication sector and has an already built in

infrastructure – the fixed lines network – then it would seem that the less risky option lies in adopting the cellular technology. This is in line with the characteristics of high UAI, since they would seek to have as much control over their environment, and so would be adamant not to fall behind other countries. Incidentally, it's also considered an interactive technology, as discussed previously in Chapter five, and so the risk of uncertainty decreases as the number of adopters increases (Sundqvist et al., 2005). Moreover, the cellular network related innovation is vital to a country's security as well as economic and political health than any other innovation (Gruber, 2001). As such, it would seem that the literature's findings may not be as applicable as initially hypothesized. In this theoretical scheme, the present study's findings indicate that for particularly national level critical innovations, high UAI countries would prove to be more innovative.

#### **6.4 Arab States Cross National Diffusion Data**

In today's competitive environment, the need to establish more market share drives more firms to enter into broader and more diversified markets. As such, the success of the firm depends on how successful their product and services are introduced in the intended market. The success of a product and service introduction depends on a number of factors, one of which is culture, which is considered a significant factor in international marketing (Yeniyurt and Townsend, 2003). Therefore, the clustering of the Arab States implies that they share similar cultures and as such similar standardized marketing strategies. The primary assumption would be that the Arab States are of similar geographic, cultural, and socioeconomic profiles, of which the present study's findings have contradicted. Namely, that the Arab States are economically different, possess different diffusion patterns, and have distinctive national culture profiles, as the new VSM13 scores have established.

*The higher the literacy rate, the lower the imitation parameter*

Lebanon and Kuwait are the countries with the highest literacy rate and the lowest imitation rate versus Iraq, Libya, and Egypt. Empirical results suggest that word of mouth, interpersonal connections, and social networks may not work as well on these countries with such a low  $q$  coefficient. As such, external mass media, promotion, and advertisement would work better in accelerating the diffusion and adoption process in Kuwait and Lebanon. Countries with low imitation levels but a high literacy rate would imply a population that is well educated, has more

formal education, and as such is more exposed and influenced by mass media channels (Rogers, 2003). For countries, such as Egypt and Iraq, who have a low literacy rate and high imitation coefficients, the literature suggests that their social networks would exert the highest influence on their diffusion patterns. As such, marketing efforts could focus on affiliating their products and services with local celebrities to act as brand ambassadors, or opinion leaders, to help increase the acceptance rate throughout the community.

*The more urbanized the population, the lower the imitation parameter*

Again, Kuwait and Lebanon are the countries with the highest urbanization rate and the lowest imitation coefficient. Theoretically, high literacy rate and high urbanization have been found to be correlates and as such the results are not overly confounding. Taking this in mind, the same previously discussed international marketing implications do apply in this case as well. A highly literate and urbanized population would be more susceptible to mass media influence and advertising schemes. As opposed to Egypt, for example, whose population of 80 million is only 43% urbanized (ITU, 2013). As such, Egypt's large geographic area is mostly villages and small towns with sometimes no access to radio, internet, and other external media. As such, it would be better for marketing managers to focus their external mass media efforts on cities and more urbanized areas, whereas they should utilize one-on-one marketing and partnerships with recognized local retailers when targeting rural areas and mostly rural countries, such as Iraq and Egypt.

*High power distance in a country leads to more imitation*

In accordance with the previous analysis, Libya, Iraq, and Egypt are shown to have the highest imitation level. The relationship indicates a significant positive association with them being the highest scored on Hofstede's PDI scale. As stated previously, a high PDI country may indicate a society that encourages strong imitative tendencies. Countries such as Libya, Iraq, and Egypt could be influenced by using trusted authority figures from the local community to act as brand ambassadors. This type of strategy will be most optimal, seeing as high PDI societies seek to emulate the ruling elites, and as such affiliating the firm's product and services with the most prestigious and wealthy demographic will increase the adoption and diffusion process. In Mellahi et al., (2010) study, findings corroborate with the present study, in which they believe

that in the MENA region especially, establishing a relationship with local powerful partners will act as an insurance policy and also provide them with preferential treatment and access to valuable resources.

*High uncertainty avoidant countries are more innovative*

The most UAI country is Iraq and is also the most innovative country out of the sample. In Chapter five, the present study already discussed the strong possibility that Iraq's high innovation level is an outcome of it being the last country to adopt the mobile technology in response to the end of Saddam Hussein's embargo on Iraq's telecommunication sector. As such, it has the shortest adoption time span of any MENA region country sampled and is consequently the last one to have adopted the technology, which may have accelerated the diffusion process. Therefore, it is more theoretically plausible that Kuwait is the most innovative country along with Libya and the UAE, given their background in the telecommunication literature reviewed in Chapter five. As such, coupled with their high UAI rank, it would suggest that these countries in particular should be more exposed to external mass media as hypothesized by the literature. The nature of the mass media message should be tailored to recognize and address the ambiguities related to the product and services. It would be prudent that all marketing efforts reduce all the risks associated with their products and services and communicate the necessary relevant information to their target market in order to curb these uncertainties.

*Short term oriented countries are more innovative*

The same analysis on Iraq's innovation level is applied. The same countries, Libya, Kuwait, and the UAE, are again featured as the most innovative in relation to their short term oriented position on Hofstede's LTO dimension. As indicated by the results, short term oriented societies will be more influenced by mass media than long term oriented societies. Libya, Kuwait, and the UAE short term oriented culture coupled with their high PDI rank, indicates their societies' inclination towards consumption and spending. Unlike high LTO societies, such as Egypt, whose thrifty attitude and saving mentality, coupled with its very low innovation level, suggests that LTO countries would not adopt innovations on the expense of their saving's account. As such, it is expected that the adoption and diffusion process will be much greater in short term oriented countries, as was already confirmed by Dwyer's et al., (2005) study.

### *More indulgent countries are more innovative*

Whereas all the Arab States scored as restrained, the only Arab country to score as highly indulgent is Libya. According to the literature, indulgent societies would exhibit higher innovation levels, and as such, would be more inclined to adopt faster and innovate. The positive association between less restraint and innovation levels within a country is exhibited by the first ranking of Kuwait and Libya. The correlational analysis also implies that restrained societies would be inversely associated with innovation levels. This can be seen from Egypt's low rank of the most restrained (-2 IVR) and one of the least innovative countries in terms of the innovation coefficient  $p$ . Innovations can vary and may not always be necessary or vital, but indulgent societies would be more predisposed to adopt innovations to gratify their desires and not because it's a necessity. As such, with restrained societies, such as Egypt, it would be beneficial to stress the importance of the innovation and market it as essential.

### **6.5 Summary**

The literature reviewed characterized innovative countries as high masculinity, high individualism, and short oriented, low power distance, and low uncertainty avoidant. Whereas the present study did not find masculinity and the individualism dimensions to be significantly associated with innovation, it did confirm that innovation levels were positively associated with short oriented societies. It also found high UAI to be positively correlated with innovation levels as opposed to the literature's consensus. Therefore, the present study's innovative profile is found to be high uncertainty avoidant, high IVR, and short oriented. Findings also found the country imitative profile to have low literacy rates, low urbanization, and high on the PDI dimension. The next chapter concludes this research, identifies the limitations, and thus provides further recommendations for future researchers.

## **Chapter 7**

### **Conclusion, Implications, and Limitations**

## Chapter 7 Conclusion, Implications, and Limitations

### 7.0 Introduction

This chapter comes after completing all the phases required for this present study starting from the literature review, to the research design, data collection, to data analysis, and this section's presentation of the findings and derived conclusions. The chapter begins with an overview of the thesis and summarises each chapter. The next section details the thesis's findings and contributions. It is then followed by the implications in terms of their practical implementation in an international marketing context. Limitations are then outlined in regards to the findings gleaned from both national culture theory (Chapter four), diffusion of innovations theory (Chapter five), and the significance of their correlation in cross national diffusion theory (Chapter six). Based on the limitations, a set of recommendations are then outlined along with a final concluding remark which draws the end of this doctoral thesis.

### 7.1 Thesis overview and summary

Chapter one began by stating the research problem and an introduction of the literature that investigated the effect of national culture on the diffusion of innovations. The underrepresentation of the Arab States in cross national diffusion literature has led the present study to question the clustering of the Arab States on Hofstede's national culture theory, as well as the lack of diffusion studies done on the MENA region. To address these issues, the present study has chosen to disseminate the VSM13 to establish each Arab State's national culture and measure the same Arab States' diffusion process, in order to correlate each theory's findings and investigate whether national culture has an effect on a country's diffusion process. Chapter one also outlined the scope of the research and offered a brief overview of the research.

Chapter two then provided a critical review of the existing issues that have been addressed in the literature in regards to national culture theory, diffusion of innovations theory, and the subsequent studies linking the two theories together in cross national diffusion research. The review suggests that national culture does have an effect on the diffusion process. Most specifically, an innovative country would be high MAS, high IDV, low LTO, low PDI, and low

UAI, as well as wealthy and literate. However, what the literature does not provide is the extent of how generalizable these findings are on areas outside of Europe and the United States. As such, the lack of MENA representation in cross national diffusion literature shaped the hypotheses to be applied to the research project as well as the chosen methodology outlined in Chapter three.

Chapter three chartered the range of qualitative and quantitative methods available, as well as the different approaches that can be pursued within the research project. As such, a quantitative questionnaire based method was deemed most suitable, seeing as establishing the Arab State's national culture would necessitate the application of Hofstede's latest VSM survey. The survey in question was tested and translated and administrated in seven different geographic locations of which were described in the last section of the methodology chapter.

Chapter four was dedicated to the analysis and discussion of the Arab States' national cultures. The first half of the chapter explored the validity and reliability of the research instrument, the VSM13. Cronbach's alpha reliability test was used to investigate the stability of the data collected, as well as an exploratory factor analysis to demonstrate the robustness and reproducibility of Hofstede's dimensions. The latter half of the chapter discussed the theoretical implications gleaned from establishing each Arab State with a distinctive national culture profile.

Chapter five provided an analysis and discussion of the Arab States' diffusion patterns. The first half of the chapter investigated each state's diffusion patterns by utilizing the Bass Model. The model was estimated from mobile cellular subscriptions data pertaining to each State. Results were discussed in the latter half of the chapter in which they were ranked according to their innovation parameter, the  $p$  coefficient. Kuwait and Libya were found to be the most innovative countries, while Egypt and Lebanon ranked last. The telecommunication literature and each Arab State's telecommunication history were also discussed in relation to their diffusion patterns.

Chapter six delineated the analysis and discussion of the relationship of country specific variables on their diffusion patterns, most particularly the effect of national culture on national levels of innovation and imitation. The first half of the chapter discussed the hypotheses formation and detailed the subsequent sets of required correlational tests along with their results. The latter half of the chapter was devoted to relating the findings from the correlational analysis

with the studies reviewed in the cross national diffusion literature. It described the similarities and differences of the findings from previous studies regarding the effect of the chosen indicators on diffusion patterns with those found by the present study. Results found that certain variables can in fact provide better understanding of the factors that influence the diffusion, innovation, and imitation levels of a country. Those results will be detailed in the next section.

## **7.2 Research findings**

The present study generated several hypotheses fuelled by the cross national diffusion literature regarding the diffusion patterns of the Arab States and their relationship with national culture. These hypotheses were tested quantitatively and results provided findings that can contribute to the body of knowledge on cross national diffusion. The literature discussed in Chapter two implies that countries with a similar national culture would adopt similar diffusion patterns. Since the Arab States originally shared one national culture on Hofstede's dimensions because of their clustering, they were assumed to have similar adoption and diffusion patterns. Such theoretical linkage would raise serious implication on international marketing managers who utilize national culture to guide their expansion strategies into the region. As such, it was imperative for the present study to not only establish each Arab State with its own national culture, but also estimate their respective diffusion patterns.

Empirical evidence makes it apparent that each Arab State differs in both national culture and diffusion rates. The findings from these two theories were then used to test the cross national diffusion literature's own conclusions regarding the effect of national culture and other country specific characteristics on diffusion and innovation levels. The findings of the present study are in agreement with the literature's consensus that the diffusion of a new innovation is a culture specific phenomenon (Rogers, 2003; Takada and Jain, 1991), and that the differences in diffusion rates between the Arab States is a function of country specific characteristics such as their literacy rate, urbanization, and their rank on Hofstede's PDI, LTO, IVR, and UAI dimensions.

Since the MENA region has been overlooked in diffusion literature, the present study's findings can also provide insights to marketing managers on such critical issues such as timing, order of entry, market selection, and segmentation strategies. For global and international firms seeking

to expand into the MENA region, the findings shed insights regarding the Arab States' diffusion processes and country characteristics that may determine eventual product or service adoption. The present study's sampling of countries from the MENA region and subsequent findings provide a stronger basis to draw empirical generalizations about international product diffusion process than previously suggested by the literature. Testing the Arab States provides the literature with the ability to contrast between developing and developed countries regarding the diffusion process and to represent a different region with different characteristics both economic and cultural. The outcome of the research provides a series of contributions of which will be detailed in the section.

### **7.3 Contributions**

Although previous research has already dedicated substantial effort to understanding the effect of national culture and national country level variables on the diffusion patterns of countries, this research still offers a number of independent contributions to academia and further research. The theoretical contributions are outlined first followed by contributions garnered from Chapter four, five, six, and the overall thesis.

#### *Theoretical Contributions*

One of the key theoretical contributions of the study is extending and validating, with empirical understanding, the MENA region's national culture profiles, contributing to the body of research incorporating Hofstede's theory in the international marketing context. The present study is the first attempt to challenge Hofstede's assumption of the homogeneity of the MENA region. The updated and unique rankings of the Arab States all register differences on all dimensions, particularly the PDI, UAI, IVR, and LTO dimensions. The unique national cultural profiles of the Arab States have implications on previous cross cultural studies, which sampled these countries and utilized their unified national culture in their various investigations, based on the assumption that they were culturally similar (Yeniyurt and Townsend, 2003; Sundqvist et al., 2005). Moreover, previous research has examined the effects of national culture on the diffusion of innovations and reached a consensus that the spread of products and services through society is a culture specific phenomenon. Cross national diffusion research has typically shown that

Hofstede's dimensions have a significant effect on diffusion and adoption levels, in so much that they can be used as indicators as to whether the market was innovative or imitative.

The present study validates the role of national culture in diffusion literature as proposed in previous research. However, the present study also extends previous understanding of national culture's role in diffusion research, in which empirical findings did not corroborate with the literature's suggested innovative and imitative profiles. As such, implications in cross national diffusion literature are found not to be applicable to the MENA region context, which is an area that has never been previously tested in the literature. Hence, this research provides fresh insights into the diffusion and national culture relationship by analysing the MENA region, which presents a theoretical contribution to cross national diffusion studies by advancing our understanding of the process by which Hofstede's dimensions are associated with innovative and imitative levels. From a MENA region context, results indicate a positive relationship with innovation levels and uncertainty, which is the antithesis of the literature's consensus. Moreover, power distance was found to be conducive to the quick spread of innovations, and an indicator of imitative tendencies, which does not corroborate with past studies. Particularly, the present study was able to isolate national cultural differences in imitative behaviour, which is an objective that was understated in most cross national diffusion literature, seeing as most emphasis is put on the innovative profiles and innovative characteristics of societies. As such, the results of this research can further enrich the body of literature investigating the characteristics of imitative societies and the imitative behaviours of communities and their effect on the diffusion process

*Establishing an un-clustered national culture profile for each Arab State (Chapter four: national culture theory)*

Increased trade between countries meant that managers had to increase their knowledge base regarding different cultures and demonstrate their cross cultural sensitivity so as to better influence their target market and to achieve more effective results. The cultural context can play a pivotal role in accomplishing international firm's objectives (Kabasakal et al., 2012). Reviewing the literature revealed that there is a scarcity of studies investigating the national cultures of the MENA region due to Hofstede's initial claim of their unified culture (Alajmi et al., 2011). Chapter findings provided empirical evidence towards the differences found in the Arab States' national cultures. Regardless of their similar common language, religion, and

geographical location, the Arab States still registered differences on all of Hofstede's dimensions. The purpose behind Chapter four's methodology was to distinguish the seven Arab States from each other and establish their individual ranking on Hofstede's dimensions and thus provide proof of the heterogeneity of their national cultures.

Contributions of the present study included the translation of Hofstede's latest national culture survey, the VSM13, as well as being the first study to disseminate it in the MENA region. Findings from Chapter four included de-clustering the Arab States on four national culture dimensions and providing new scores for the Arab States on the IVR and LTO dimensions. Findings also provide updated figures for better understanding and comparison of the region's national cultures. As such, the database concerning the ranking of the Arab States can be shared and utilized by any researcher wishing to incorporate the new un-clustered ranking of the MENA region countries in their cross cultural investigations. The chapter ends with empirical evidence that differences based on the PDI, UAI, IVR, IDV, LTO, and MAS do exist between the seven Arab States and as such invalidates the claim of the regions' homogeneity. The present study also provided theoretical accounts for the differences in national cultures established for the Arab States from the dissemination of Hofstede's national culture VSM13 questionnaire.

*Measuring the diffusion process of each Arab State and establishing their p and q parameters (Chapter five: diffusion of innovations theory)*

The purpose behind Chapter five's methodology was to estimate the Arab States diffusion patterns utilizing the Bass Model and distinguish them according to their innovation and imitation coefficients. This has never been attempted by the national diffusion literature as indicated by the lack of representation of the MENA region. As far as this research can attest, the Bass Model was never applied to any indicator pertaining to any country from the MENA region. The diffusion process and the Bass Model parameters can be linked directly with the late Frank Bass's database for p and q coefficients. The present study's findings on the MENA region's diffusion process can help enrich the database by incorporating the parameters of an underrepresented region in diffusion research. The results of the diffusion analysis can be utilized by any diffusion researcher in their investigations which will help the present study's credibility and validity when utilized in other studies and referenced by other scholars. Chapter findings provided empirical evidence towards the differences found in the Arab States' diffusion

rates, and in particular, their innovation and imitation parameters. The present study also reviewed each Arab State's telecommunication sector which provided a theoretical interpretation of the differences found in their diffusion patterns.

*Correlating the Arab States' diffusion process with national culture, socioeconomic, as well as sector specific indicators (Chapter six: cross national diffusion)*

Chapter findings provided empirical evidence towards the significance of national culture, literacy rate, and urbanization on the diffusion patterns of the Arab States. The present study has considered all six dimensions in investigating the association of national culture with national diffusion rates, which according to the literature, has never been attempted by previous studies. The purpose behind Chapter six's methodology was to expand the number of countries sampled in cross national diffusion literature to include the MENA region and investigate how generalizable the findings are when examined through the Arab States. Therefore, the present study contributes to cross national diffusion literature in several ways. It follows Dwyer's et al., (2005) recommendation on correlating the Bass Model's p and q coefficients with national culture indices to investigate whether national adoption was associated with mass media (p) or social interpersonal networks (q). It also tests all of Hofstede's latest dimensions, including the IVR dimension, on diffusion patterns, in order to provide a more comprehensive analysis.

*MENA region representation in cross national diffusion literature (overall thesis)*

Ultimately, the purpose of this research is to contribute to the body of literature investigating the relationship between country specific variables, including national culture, on its diffusion patterns, mainly its innovation and imitation levels. Table 7.1 summarises this research's findings and whether it has been tested previously by the literature.

All the significant associations found by the present study have never been reported by previous studies, except for the negative relationship found between LTO and diffusion, which was confirmed in Dwyer's et al., (2005) study; and the positive association between UAI and diffusion levels which was confirmed in Gong's (2009) study. However, in both studies, the diffusion rate was operationalised using a different model than the Bass Model, and as such their diffusion rate was not isolated into either innovative and imitative tendencies, and in that sense, the present study retains novelty. There is a substantial interest in the differences found in the

diffusion patterns across countries and what influences these patterns, and hence the present study's findings can enhance the body of knowledge in cross national diffusion literature. The research also retains novelty due to its investigation of the MENA region's diffusion patterns, an area never previously examined. The present study's findings also contributed to the literature by providing the characteristics of innovative countries, which are high UAI, low LTO, and high IVR countries; and imitative countries, which are found to have low literacy rates, low urbanization, and ranked as high PDI. The present study also isolated national cultural differences in imitative behaviour, but it should be noted that in this case, the present study was heavily influenced by Singh's (2006) conceptual study on the hypothesized effect of national culture on imitative societies, which was previously reviewed in section 2.4.5.3.

**Table 7.1** Literature review findings versus present study findings

<b>Indicators</b>	<b>Path</b>	<b>Whether tested in existing literature</b>	<b>Correlation results (sign)</b>	<b>Results corroborate with past literature findings</b>
<b>Socioeconomic</b>	Wealth → p coefficient	Yes	NS	
	Wealth → q coefficient	No	NS	
	Literacy → p coefficient	Yes	NS	
	Literacy → q coefficient	<b>No</b>	<b>*(-)</b>	
<b>Sector specific</b>	Urban pop → p coefficient	Yes	NS	
	Urban Pop → q coefficient	<b>No</b>	<b>*(-)</b>	
	Infrastructure → p coefficient	Yes	NS	
	Infrastructure → q coefficient	No	NS	
	Competition → p coefficient	Yes	NS	
	Competition → q coefficient	No	NS	
	PDI → p coefficient	Yes	NS	
	PDI →	<b>Yes</b>	<b>*(+)</b>	<b>No</b>

<b>National Culture</b>	q coefficient	(Singh, 2006)		
	IDV → p coefficient	Yes	NS	
	IDV → q coefficient	Yes	NS	
	MAS → p coefficient	Yes	NS	
	MAS → q coefficient	Yes	NS	
	LTO → p coefficient	<b>No</b>	*(-)	
	LTO → q coefficient	No	NS	
	IVR → p coefficient	<b>No</b>	*(+)	
	IVR → q coefficient	No	NS	
	UAI → p coefficient	<b>Yes</b> (Yeniyurt and Townsend, 2003; Van den Bulte and Stremersch, 2004; Yaveroglu and Donthu, 2002; Singh, 2006; Sundqvist et al., 2005)	**(+)	<b>No</b>
	UAI → q coefficient	Yes	NS	

## 7.4 Managerial implications

### *National cultures of the Arab States*

Empirical results show a decrease in PDI ranking among the Gulf States and Lebanon, than previously theorised by Hofstede, which may be attributed to the exposure of these countries to other nations, especially western countries, of which led to major social changes. For example, considerable wealth has been accumulated by the Gulf States because of the discovery of their oil reserves, which has led to various business ventures and global trade agreements, exposing these societies to other cultures. As such, lower rankings of these countries may be taken as a by-product of these countries move from autocratic rulings to establishing constitutional monarchies with advisory councils, thereby lessening the power of the ruling families (Kabasakal and Bodur, 2002). Lebanon's and the Gulf State's political systems may be seen as more favourable to international firms interested in setting trade ventures, seeing as the climate is more open towards outside foreign investments, than in the case of Egypt, Iraq, and Libya. As such, joint ventures and franchising are currently the most prevalent and favoured entry modes into the region (Kellahi et al., 2011). As of 2015, Al Shaya, a private Kuwaiti family business, is considered to be the region's leading and largest retail franchise company in the region, with licensing agreements with most major retail brands, such as Starbucks and Debenhams (Mahajan, 2012, Mellahi et al., 2011).

All the Arab States scored collective, with KSA and Lebanon as somewhat the highest ranking on the individualism scale, as was discussed earlier. The ranking coupled with their average scoring on the MAS index, can be seen as an indication for the importance of relationships in conducting business and business relations. While the rankings of the Arab States on both scales did not differ much from their original positions, they do act as further validation to other academic research's consensus on the importance of building relationships in collective societies and their effect on business success rates (Shane, 1993; Al-Twaijri and Al-Muhazia, 1996; Sasaki and Yoshikawa, 2014). Furthermore, the collective aspect of the MENA region is further enforced by the present study's empirical results, signifying that interrelationships and establishing networks in the region are paramount to the survival and

success rate of business venturing in to the region. For example, before 2015, both Kuwait and KSA forbid foreign investors from starting businesses in the country without a national partner. While the region's laws are now more amenable to foreign presence, having an established relationship with local national businesses can still act as an integral part in solidifying the presence and market power of the foreign company. International firms should also be aware that most companies in the region are family owned, and as is the case with collective societies, trust and allocating time for establishing relationships with well-known families and business owners in the region may in fact prove more productive than maintaining a strictly professional and distant relationship (Kabasakal and Bodur, 2002).

In addition, the positioning of countries on the uncertainty avoidance scale is seen as an indication of how receptive the market is towards accepting uncertainty and risk. The cultural construct may indicate how successful the entry of the international firm is, and how successful its interaction is with the targeted market. In this case, international firms may find that targeting the less uncertainty avoidant countries first, such as Egypt, Lebanon, and KSA, allows nearby countries who may be more avoidant of risk the opportunity to assess the firm and gain more information. Targeting less risk averse countries and establishing presence in their markets, allows nearby high UAI countries to acclimate to the international firm. Therefore, any associated risk is gradually decreased with time, or can be addressed, which allows for a smoother expansion entry in the region and also acts as a possible gauge for how receptive nearby markets are.

The Arab State's ranking on the LTO dimension showcased them as short-term oriented societies with a focus on traditions and social obligations as opposed to frugality and thrift, except in the notable case of Egypt. The case of disparity found between Egypt and the Arab States on the LTO dimension is perhaps best illustrated by a case study done on the penetration levels of Procter and Gamble's Head and Shoulder's shampoo in the MENA region. Having recorded more than 100% penetration levels in Kuwait and KSA, as opposed to Egypt's weak 53% level, the marketing research team decided to conduct an in-depth query. Results indicated that a large number of the population of Egypt considered shampoo a luxury and would actually substitute it with soap instead (Mahajan, 2012). Such disparities corroborate with the marketing literature that

emphasizes the role of wealth and culture and the seemingly interdependent nature (Hofstede, 2001). Moreover, it validates the studies in international marketing that imply a linkage between LTO and frugality and thrift (Dwyer et al., 2005).

The study of national cultural differences between Arab countries in the MENA region and its effect on their diffusion rate is relevant to international marketers because it will aid them in their marketing plans and strategies when targeting the region. The literature provides firms with innovative and imitative profiles and advises international marketers to utilize them as indicators towards first entry. The innovative and imitative profiles in cross national diffusion are always linked with national cultural variables, as discussed in Chapter two. As such, Hofstede's dimensions are often linked with innovative and imitative tendencies. However, the literature has been absent on any study from the MENA region due to Hofstede's claim of their homogeneity. As such, the findings of the present study can ascertain whether the implications to international marketers are valid and generalizable to the MENA region. This is relevant because cross national diffusion literature often provides international marketers with many implications in regards to their segmentation strategies and marketing communications. Such that numerous studies have advised that international firms should concentrate their efforts and budget on mass media and advertising when targeting innovative countries (Steenkamp et al., 1999; Takada and Jain, 1991, and Dwyer et al., 2005), as opposed to utilizing influencers and brand ambassadors when targeting imitative countries (Rogers, 2003; Singh, 2006; and Yalcinkaya, 2008). The findings of the present study have proved different innovative and imitative profiles than previously implied by the literature. Moreover, it has identified countries within the MENA region and assigned them both national cultural profiles as well as ranked them according to their innovative and imitative levels. Hence, the present study helps marketers targeting the MENA region by enriching their understanding of its consumer base and the cultural differences between them, so as to better design a marketing scheme that can work effectively.

In regards to targeting short term oriented societies, international firms should conform to the host country's prevalent traditions and customs, so as to allow for a seamless and successful entry. In particular, embodying the prevalent cultural values will strengthen the interactions between the host and foreign international firm (Sasaki and Yoshikawa, 2014). As such, with the

Gulf countries in particular, in which a significant number of nationals are Muslims, it is prudent that the foreign firm adhere to the Islamic values in all related activities. For example, it is actually illegal to eat or serve food during the Holy month of Ramadan during the day in countries such as KSA, UAE, and Kuwait; anyone who is caught eating can be seriously fined or imprisoned. Being unaware of certain values and traditions relevant to the targeted country will decrease the chances of having a successful entry mode and expansion in the region.

As is the case with the region's mostly short oriented national culture, and its adherence to traditions and values, the region's national culture ranking as restrained does not surprise, with the exception of Libya's case. As discussed earlier, restrained societies reflect the prevalent norms of the society while radical or extreme values are censored and shunned by the majority. As such, interested firms should be aware of the national culture of the target market, especially with Arab States such as Iraq, Lebanon, and the Gulf States, who have both a combination of short orientation and restraint. Active participation and interaction with the host country's national culture will establish a less tenuous presence and protect the firm's image in the minds of the nationals from otherwise negative associations. For example, MacDonal'd's often emphasize their contributions to the region, especially during the Ramadan season and their efforts in providing food for the fasting poor. They also engage in putting advertisements in local Arab newspapers condemning the raids in Palestinian territories (Mellahi et al., 2011). Such successful interaction has enabled the brand to sustain its competitiveness in the region and its image as a brand that is not just "western", but actually "global".

#### *National level innovation of the Arab States*

To compete effectively in a global market, international marketing managers need to understand how products get diffused and adopted through different countries around the world. Marketing managers are often concerned with launching their products and services, how they are adopted and diffused, and why so many end up in failure (Rogers, 2003). Having a better understanding of the diffusion process and its correlates would allow for better market assessments and therefore better market expansion strategies. As such, the present study expands the cross national diffusion literature by testing a new region to understand how national cultural variables may affect diffusion patterns. Findings from sampling the MENA region provide new marketing

insights into the relationship between national-level cultural characteristics and innovation levels.

International marketing has become more important as firms continue to expand into major developing countries thanks to the recent continuing economic expansion (Talukdar et al., 2002). Intense regional competition has often compelled firms to expand abroad into yet undiscovered territories for new business opportunities. Hence, international marketing managers have to ensure the success of their market entry by having a solid understanding of the target market (Takada and Jain, 1991). Understanding the different characteristics and country specific variables would enable firms to predict how fast their products and services are adopted and diffused. Therefore, it is imperative that international marketing research addresses the issues related to diffusion of innovations in an international context in order to tailor their marketing strategy accordingly. How an innovation is communicated through society and how it is adopted by the population are crucial questions that can be answered by the Bass Model's innovation and imitation coefficients, as was discussed in Chapter five.

Findings from Chapter six validate the literature's consensus that innovation levels vary across national cultures, which have strong implications for international marketers. Since the  $p$  and  $q$  parameters denote for mass media and interpersonal communication respectively, international marketing managers can accompany their market entry with matching communication strategies. Cultural factors can act as a barrier in international marketing communications, which are considered one of the most important aspects of the success of international firms. Hence, the more a firm is aware of and sensitive to cultural differences, the more competitive advantage it gains (Tian and Borges, 2001). How international marketing efforts are employed with the intended segment market's culture determines how successful they are (Takada and Jain, 1991). International firms that can successfully identify the culture of their target market and reconcile the cultural differences or exploit them can acquire a competitive edge in the marketplace (Lenartoweiz and Roth, 1999).

The most critical aspect of the product or service may not be how innovative it is, but how innovative or receptive the market is and as such, clarity of the target market is key to a successful product and service launch. From a marketing strategy perspective, countries that have a slightly low literacy rate, are less urbanized, and are ranked as high PDI countries should

be targeted for late market entries. Since these characteristics are linked with a very high  $q$  coefficient, they can be considered imitator countries, and as such, marketing strategies should be adjusted accordingly. For example, a most likely marketing scheme would be to adopt a waterfall strategy and target an adjoining innovative country, for initial entry into the region, seeing as they would be more receptive of new innovations. A waterfall strategy would imply subsequent market introductions, while a sprinkler strategy would be a simultaneous market entry across countries. The literature consensus supports the present study's findings in targeting innovative countries and later imitator countries after the awareness of the innovation has spread (Tellis et al., 2003; Takada and Jain, 1991).

Understanding the findings of the present study provides international firms looking to enter the international markets with several different parameters that help make their entry successful. Considering that the results indicate a significant positive relationship with UAI, IVR, and short orientation with innovation levels, marketing managers would find it helpful in targeting those countries first for introducing their innovation. In the case of the Arab States, Libya and Kuwait appear to be the most desirable choices in the MENA region towards market entry and adopting new innovations. Moreover, the Bass Model's  $q$  parameter is often linked with word of mouth communication and how greatly internal and social influence is integral to imitating societies' diffusion process. As such, marketing strategies could employ the usage of opinion leaders, or influencers. Opinion leaders can be anyone that can act as a link between the targeted segment and the innovation being communicated (Rogers, 2003). The benefit of utilizing these sources, especially in imitator countries, is that these authority figures are able to recommend the product or service and informally influence others through interpersonal communication, which often determines the rate of adoption speed in imitator countries (Singh, 2006). Sociology literature has always indicated the notion that imitation is driven by social and status concerns, very much like in cross national diffusion literature (Bulte and Stremersch, 2004). This is particularly relevant when targeting imitator countries, who are also high PDI, such as Egypt, which also happens to be the least innovative out of the sample. In Egypt's case, notable international brands such as Pantene and Lipton tea, frequently employ Egyptian actresses and football players to act as brand ambassadors and utilize their star power to attract and influence their targeted market (Mahajan, 2012).

It should be noted that international marketing decisions should not be limited to the implications listed previously and should be considered alongside a multitude of other factors vital to the success of the product and service introduction and adoption process. They should be fortified with other appropriate marketing strategies and marketing mix efforts, such as pricing and distribution. However, international marketing managers can still tentatively attribute the present study's results to their chosen marketing strategies, as long as they also consider the pitfalls and limitations of the findings of the present study.

## **7.5 Limitations**

As is the case with any research, limitations do occur and should be identified in order to provide the relevant literature with the prospect of resolving it. Having said that, the present study has encountered several of them, which will be discussed according to chapter limitations in the section below.

*The VSM13, Hofstede's latest survey (Chapter four: national culture theory)*

Limitations of the national culture theory have been discussed at length in section four of Chapter two. As such, previous discussed limitations still stand and are relevant, but this section will only detail the limitations relevant to Chapter four's methodology and discussion.

The way the VSM13 survey scores are computed and the need for the new scores to be anchored to the old dataset, essentially leaves very little room for new research to establish radically different scores. On one hand, the model provides a method to enable replications and extensions to produce valid outcomes. On the other hand, though, the method essentially confines the significances of the contributions, by way of anchoring. Additionally, past studies have also scrutinized the wording of previous editions of the VSM13, which revealed its items as well as its response format to be problematic. For example, the same study done by Kruger and Roodt (2003) investigating the VSM94 instrument's wording and format construction, concluded that the formulation of the questions and their response format to lack context. A similar sentiment was expressed in the literature by Schmitz and Weber (2013) when they questioned one of the response formats used in the VSM instrument: 1. always, 2. usually, 3. sometimes, 4. seldom, 5. never. The authors criticised the response format for having no fixed reference point and for

essentially allowing the respondent to interpret the scale from their frame of reference. They further elaborated that ‘seldom’ may be perceived to hold the same meaning as ‘sometimes’ to some respondents, and as such, poor inconsistencies can arise.

A confounding of the sub scale items with their constructs was evident in both items 20 and 24 ‘how often, in your experience, are subordinates afraid to contradict their boss (or students their teachers)?’, and ‘A company’s or organization’s rules should not be broken – not even when the employee thinks breaking the rules would be in the organization’s best interest’. Both items reflected different constructs, the PDI and UAI dimensions respectively; however, both items seem to be measuring similar sentiments. Fear of breaking the rules and fear to contradict those in power, is the same underlying theme expressed in two different conceptualised constructs. Similar sentiments have been expressed by Orr and Hauser (2008), in which they observed that the sub items related to the two respective constructs seemed to be conceptually similar to each other, thus shedding more doubt on the exclusivity of each dimension. Moreover, limitations concerning the usage of the VSM13 on a student sample may confine the generalizability of the study. Seeing as a student sample may provide answers that may not be congruent if different sub samples of the population were under study.

#### *The Bass Model (Chapter five: diffusion of innovations theory)*

In general, diffusion models have been criticized in the literature for producing reliable fits only when the data includes the inflection point and sometimes only when there is sufficient data beyond it. In particular, the Bass Model’s high sensitivity to the number of observations limits its ability to predict peak of sales and maturity. This is due to it needing those very same observations included in its dataset to be able to provide reliable estimates. By the time those observations occur, the need to use the model for prediction would be obsolete, since both events would have already occurred. The  $p$  and  $q$  parameters can also fluctuate and vary with the addition of new observations, thus the ability to capture the coefficients underlying influence is sometimes questionable (Mahajan et al., 1990).

The limitations listed on the Bass Model have led to several variations to the model such as the inclusion of the effect of: advertising, pricing, supply restrictions, competitive entry, and successive generations of products (Bass et al., 1990; Jain et al., 1991; Krishnan et al., 2000;

Mahajan and Muller, 1996). These variations have sought to address what some may view as the strength of the original model: its lack of deterministic explanatory variables and thus its simplicity (Chandrasekaran and Tellis, 2007). However, the present study has only used the original Bass Model without any of the new added marketing mix variations. Such discrepancies have led researchers to advise that regardless whether the same product or service is introduced around the world, a choice of one diffusion model to describe the diffusion process within each country may not be feasible (Michalakelis et al., 2008).

According to previous studies, countries who have adopted late in the technology's life cycle usually resulted in shorter penetration rates and a high diffusion speed (Gruber, 2001). Moreover, estimate bias can occur on which longer time series data would usually result in lower estimates for the  $p$  parameter (Van den Bulte and Stremersch, 2004). Such is the case with Iraq, who was the last country to adopt the mobile cellular technology out of the sample, but have, nonetheless, exhibited high  $p$  and  $q$  parameters, thus corroborating with the literature's reasoning. Since the Bass Model is highly sensitive to the number of observations, it typically only generates reasonable estimates when the data covers more periods beyond the inflection point, or when the data reaches maximum number of subscribers (Wu and Chu, 2010). In the case of Lebanon, the data never covered the inflection point and as of 2013, Lebanon has only recorded an 81% penetration levels (ITU, 2014). As such the Bass Model could not calibrate and produce a good fit as seen in Figure 5.8, and therefore, Lebanon is ranked last with a very low innovation coefficient.

*Small sample size, one diffusion indicator, and limited availability of MENA related data (Chapter six: cross national diffusion)*

One of the limitations of the research pertained to the level of association observed, which was only correlational, and as such conclusive causality could not be ascertained. This was due to the small sample size conducted by the present study and is justified because of the limited available means and time horizon afforded to this research project. As such, increasing the number of countries would mean more countries that the present study is required to disseminate the VSM13 survey in, in order to measure their national cultures, which could prove lengthier and costly. Which according to the literature, cultural variables are often difficult to access and expensive to operationalize (Lynn and Gelb, 1996; Helsen et al., 1993). Incidentally, all studies

that were reviewed in cross national diffusion literature utilized Hofstede's database for national culture scores as secondary data, instead of reapplying and disseminating his survey, which was a luxury not afforded to the present study.

Another limitation refers to using only one single indicator (mobile cellular telecommunication subscriptions) to measure the diffusion process. Consequently, there might be different correlates if other products and services were used, and as such, findings may only prove idiosyncratic. Although the extent of which innovators can be generalized across different product classes has been supported by the literature, it is harder to generalize national innovativeness across different product classes (Lee, 1990). Also, segmenting international markets based on their diffusion rates may not result in robust segments since the derived segments would actually vary according to the different product categories of which they were derived from (Helsen et al., 1993). However, the availability of the indicators was limited not only to the rare availability of time series data pertaining to the MENA region, but also to the reliability of the data source. As such only credible sources recommended by the literature were used, which narrowed the databases available to the few selected options outlined in Chapter three. Although results provide insights into the Arab States diffusion processes, it does so mainly through using one industry. Therefore, findings may not be generalizable to every other product category. Nonetheless, the data obtained from the telecommunication sector does provide an otherwise unaffordable opportunity in testing the prevailing theories in diffusion literature.

A related limitation was the inclusion of the sector specific indicators. These variables are considered crucial in the context of mobile telecommunications but may be considered less relevant to other product or service innovations. However, their inclusion is justified because of the innovation under study, which required that any related covariate to be included to provide a more holistic investigation. Moreover, the cultural and socioeconomic variables utilized by the present study are also not the only factors effecting the diffusion and adoption of innovations. The literature contends that there may also be an interactive effect of many other influences in the adoption and diffusion process, which makes the assertion of a dominate factor untenable (Steers et al., 2008). The literature is in agreement that the diffusion of an innovation is a complex process that may involve a large number of interchanging and various individual

decisions, and thus it may sometimes be due to elements of extreme hypothesis (Meade and Islam, 2006).

The impact of factors on diffusion can be difficult to measure due to a number of reasons including but not limited to: multiple channels through which varying effects can occur, multiple levels of analysis, difficulty of determining causation, limited resources, and inability to measure certain aspects related to the diffusion process because of poorly measured or unavailable data (Tsang et al., 2011). The same argument is also used in relation to the measurement of culture, theories on culture, and particularly Hofstede's theory of national culture. It has been often attested by the literature that the diffusion process rarely takes place in a static and stable environment (Meade and Islam, 2006) and as such the cross sectional method adopted by the present study may not be the most optimal choice. However, in both cases, it is seen as justified because of the time limit and scope of the present research, as well as the numerous usage of the cross sectional method by the cross national diffusion literature.

## **7.6 Recommendations and conclusion**

As a result of the research's outcome, a number of recommendations are offered and will be detailed in this section, along with the thesis's concluding remarks.

Even though the research's findings provided the imitator and innovator country profile, and may be intuitively applicable to other innovations, more empirical research is evidently needed to justify the leap. The present study could be extended to include more countries from the MENA region, seeing as there is still more potential research in this area. It could also be extended to investigate other aspects of the diffusion process, such as lead and lag time, as mentioned in Chapter two. Other studies could also extend more sets of indicators, preferably consumer durables, so as to allow for a more complex set of analysis as well as the ability to increase the generalizability of the results. Likewise, more qualitative studies could be undertaken to understand the nuance differences amongst the sampled Arab States. Such studies could supplement their national culture profiles garnered from this present study, and allow for a more in-depth understanding of the MENA region's national cultures. Another recommendation pertains to the sample used for this study. Future research should consider utilizing a different

sample other than students to test Hofstede's theory, so as to ascertain the generalizability of the present study.

This chapter concludes the research project which investigated the effect of national culture on the diffusion of innovations in regards to the MENA region's Arab States. The chapter began with the research's findings, contributions, implications, and followed it by the present study's limitations and recommendations for further research. As such, the recommendations are intended for future researchers who could refer to this present study for a better understanding of the national cultures and diffusion patterns of the MENA region and hopefully overcome the limitations faced and enrich the body of cross national diffusion research.

## References

- Ajzen, I. (1991). The theory of planned behaviour. *Organizational behaviour and human decision processes*, 50(2), 179-211.
- Alajmi, S., Dennis, C., & Altayab, Y. (2011). The effect of national culture on service provision within Takaful industry: A comparative study in Kuwait and Egypt. *Journal of Islamic Marketing*, 2(3), 225-245.
- Alsayed, W. (2014). The Impatience of Youth: Political Activism in the Gulf. *Survival*, 56(4), 91-106.
- Aman, M. M., & Jayroe, T. J. (2013). ICT, Social Media, and the Arab Transition to Democracy: From Venting to Acting. *Digest of Middle East Studies*, 22(2), 317-347.
- At-Twajjri, M. I., & Al-Muhaiza, I. A. (1996). Hofstede's cultural dimensions in the GCC countries: An empirical investigation. *International Journal of Value-Based Management*, 9(2), 121-131.
- Bakir, V. (2010). *Sousveillance, Media and Strategic Political Communication: Iraq, USA, UK*. New York: Continuum.
- Baskerville-Morley, R. F. (2005). A research note: the unfinished business of culture. *Accounting, Organizations and Society*, 30(4), 389-391.
- Bass, F. (2004). Comments on "a new product growth for model consumer durables the bass model". *Management science*, 50(12), 1833-1840.
- Bass, F. (1969). A New Product Growth Model for Consumer Durables. *Management Science*, 15(5), 215-227.
- Baumgartner, H., & Steenkamp, J. B. E. (1996). Exploratory consumer buying behaviour: Conceptualization and measurement. *International Journal of Research in Marketing*, 13(2), 121-137.
- Bell, J. (2010). *Doing Your Research Project*. Maidenhead: McGraw-Hill Open University Press.
- Bergiel, E. B., Bergiel, B. J., & Upson, J. W. (2012). Revisiting Hofstede's Dimensions: Examining the Cultural Convergence of the United States and Japan. *American Journal of Management*, 12(1), 69-79.
- Bhimani, A. (1999). Mapping methodological frontiers in cross-national management control research. *Accounting, Organizations and Society*, 24(5), 413-440.

- Blodgett, J. G., Bakir, A., & Rose, G. M. (2008). A test of the validity of Hofstede's cultural framework. *Journal of consumer marketing*, 25(6), 339-349.
- Bond, M. H. (1988). Finding universal dimensions of individual variation in multicultural studies of values: The Rokeach and Chinese value surveys. *Journal of personality and social psychology*, 55(6), 1009.
- Bond, M. (2002). Reclaiming the individual from Hofstede's ecological analysis--A 20-year odyssey: Comment on Oyserman et al. (2002). *Psychological Bulletin*, 128(1), 73-77.
- Bowen, D., & Early, E. (2002). *Everyday life in the Muslim Middle East*. Bloomington: Indiana University Press.
- Boyle, G. J. (1991). Does item homogeneity indicate internal consistency or item redundancy in psychometric scales?. *Personality and individual differences*, 12(3), 291-294.
- Brewer, P., & Venaik, S. (2012). On the misuse of national culture dimensions. *International Marketing Review*, 29(6), 673-683.
- Bryman, A. (2012). *Social research methods* (4th ed.). Oxford: Oxford University Press.
- Bryman, A., & Bell, E. *Business research methods* (3rd ed.). Oxford: Oxford University Press.
- Calantone, R. J., Griffith, D. A., & Yalcinkaya, G. (2006). An empirical examination of a technology adoption model for the context of China. *Journal of International Marketing*, 14(4), 1-27.
- Cardon, P. W. (2008). A Critique of Hall's Contexting Model: A Meta-Analysis of Literature on Intercultural Business and Technical Communication. *Journal of Business and Technical Communication*, 22(4), 399-428.
- Cia.gov,. (2015). *The World Factbook*. Retrieved 19 September 2015, from <https://www.cia.gov/library/publications/the-world-factbook/geos/br.html>
- Chan, D. (1998). Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of applied psychology*, 83(2), 234.
- Chandrasekaran, D., & Tellis, G. J. (2007). A critical review of marketing research on diffusion of new products. *Review of marketing research*, 3(1), 39-80.
- Chu, C. P., & Pan, J. G. (2008). The forecasting of the mobile Internet in Taiwan by diffusion model. *Technological Forecasting and Social Change*, 75(7), 1054-1067.
- Clark, T. (1990). International marketing and national character: A review and proposal for an integrative theory. *Journal of Marketing*, 54(4), 66.

- Clarke, H. D., Kornberg, A., McIntyre, C., Bauer-Kaase, P., & Kaase, M. (1999). The effect of economic priorities on the measurement of value change: New experimental evidence. *American Political Science Review*, 93(3), 637-647.
- Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education* (7th ed.). London: Routledge Falmer.
- Cooper, R. B. (1994). The inertial impact of culture on IT implementation. *Information & Management*, 27(1), 17-31.
- Craig, C. S., & Douglas, S. P. (1996). Developing Strategies for Global Markets: An Evolutionary Perspective. *The Columbia Journal of World Business*, 31(1), 70-81.
- Craig, C. S., & Douglas, S. P. (2006). Beyond national culture: implications of cultural dynamics for consumer research. *International Marketing Review*, 23(3), 322-342.
- Crane, K., Simon, S., & Martini, J. (2011). *Future Challenges for the Arab World*. Santa Monica, CA: RAND Corporation. Retrieved from [http://www.rand.org/content/dam/rand/pubs/technical\\_reports/2011/RAND\\_TR912.pdf](http://www.rand.org/content/dam/rand/pubs/technical_reports/2011/RAND_TR912.pdf)
- Creswell, J. (2014). *Research design* (4th ed.). Thousand Oaks, Calif.: Sage Publications.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297-334.
- Cuervo-Cazurra, A. (2011). Selecting the country in which to start internationalization: The non-sequential internationalization model. *Journal of World Business*, 46(4), 426-437.
- Daghfous, N., Petrof, J. V., & Pons, F. (1999). Values and Adoption of Innovations: A Cross-Cultural Study. *Journal of Consumer Marketing*, 16(4), 314-331.
- Darmawan, I. G. N. (2001). Adoption and implementation of information technology in Bali's local government: A comparison between single level path analyses using PLSPATH 3.01 and AMOS 4 and Multilevel Path Analyses using MPLUS 2.01. *International Education Journal*, 2(4), 100-125.
- David, F.N. (1938). Tables of the ordinates and probability integral of the distribution of the correlation coefficient in small samples. Cambridge: Cambridge University Press.
- Davis, D. W., & Davenport, C. (1999). Assessing the Validity of the Postmaterialism Index. *American Political Science Review*, 93(3), 649-664.
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS quarterly*, 13(3), 319-340.

- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management science*, 35(8), 982-1003.
- De Mooij, M., & Hofstede, G. (2010). The Hofstede Model: applications to global branding and advertising strategy and research. *International Journal of Advertising*, 29(1), 85.
- De Mooij, M., & Hofstede, G. (2011). Cross-cultural consumer behaviour: A review of research findings. *Journal of International Consumer Marketing*, 23(3-4), 181-192.
- Dekimpe, M. G., Parker, P. M., & Sarvary, M. (1998). Staged estimation of international diffusion models: An application to global cellular telephone adoption. *Technological forecasting and social change*, 57(1), 105-132.
- Dekimpe, M. G., Parker, P. M., & Sarvary, M. (2000). "Globalization": Modeling technology adoption timing across countries. *Technological Forecasting and Social Change*, 63(1), 25-42.
- Denscombe, M. (2010). *The good research guide* (4th ed.). Maidenhead: Open University Press.
- Dimitratos, P., Petrou, A., Plakoyiannaki, E., & Johnson, J. E. (2011). Strategic decision-making processes in internationalization: Does national culture of the focal firm matter?. *Journal of World Business*, 46(2), 194-204.
- Dolowitz, D., Buckler, S., & Sweeney, F. (2008). *Researching online*. Houndmills, Basingstoke, Hampshire: Palgrave Macmillan.
- Donthu, N., & Yoo, B. (1998). Cultural influences on service quality expectations. *Journal of Service Research*, 1(2), 178-186.
- Dorfman, P., Javidan, M., Hanges, P., Dastmalchian, A., & House, R. (2012). GLOBE: A twenty year journey into the intriguing world of culture and leadership. *Journal of World Business*, 47(4), 504-518.
- Dwyer, S., Mesak, H., & Hsu, M. (2005). An exploratory examination of the influence of national culture on cross-national product diffusion. *Journal of International Marketing*, 13(2), 1-27.
- Field, A. P. (2014). *Discovering statistics using SPSS (4<sup>th</sup> edition)*. London: Sage.
- Fischer, O., & Al-Issa, A. (2012). In for a surprise piloting the Arab version of the VSM 94. *International Journal of Intercultural Relations*, 36(5), 737-742.
- Fischer, R., & Poortinga, Y. (2012). Are cultural values the same as the values of individuals? An examination of similarities in personal, social and cultural value structures. *International Journal Of Cross Cultural Management*, 12(2), 157-170.

- Fischer, R., Vauclair, C. M., Fontaine, J. R., & Schwartz, S. H. (2010). Are individual-level and country-level value structures different? Testing Hofstede's legacy with the Schwartz Value Survey. *Journal of Cross-Cultural Psychology, 41*(2), 135-151.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior*. Reading, Mass.: Addison-Wesley Pub. Co.
- Freedomhouse.org. (2014). *Freedom on the Net 2014*. Retrieved October 10, 2014 from <http://www.freedomhouse.org/report/freedom-net/freedom-net-2014>
- Ganesh, J. (1998). Converging trends within the European Union: Insights from an analysis of diffusion patterns. *Journal of International Marketing, 6*(4), 32-48.
- Ganesh, J., Kumar, V., & Subramaniam, V. (1997). Learning effect in multinational diffusion of consumer durables: An exploratory investigation. *Journal of the Academy of Marketing Science, 25*(3), 214-228.
- Gannon, M., & Pillai, R. (2013). *Understanding global cultures*. Thousand Oaks, California.: Sage Publications.
- Garfield, M. J., & Watson, R. T. (1997). Differences in national information infrastructures: the reflection of national cultures. *The Journal of Strategic Information Systems, 6*(4), 313-337.
- Gatignon, H., & Robertson, T. S. (1985). A propositional inventory for new diffusion research. *Journal of consumer research, 8*, 849-867.
- Gatignon, H., Eliashberg, J., & Robertson, T. S. (1989). Modeling multinational diffusion patterns: An efficient methodology. *Marketing Science, 8*(3), 231-247.
- Gelvanovska, N., Rogy, M., & Rossotto, C. M. (2014). *Broadband Networks in the Middle East and North Africa: Accelerating High-Speed Internet Access*. Washington DC: World Bank Publications.
- Ghannam, J. (2011). Social Media in the Arab World: Leading up to the Uprisings of 2011. *Center for international media assistance, 3*, 1-44.
- Gruber, H. (2001). Competition and innovation: The diffusion of mobile telecommunications in Central and Eastern Europe. *Information Economics and Policy, 13*(1), 19-34.
- Gruber, H., & Verboven, F. (2001). The diffusion of mobile telecommunications services in the European Union. *European Economic Review, 45*(3), 577-588.
- Gupta, V., Hanges, P. J., & Dorfman, P. (2002). Cultural clusters: Methodology and findings. *Journal of world business, 37*(1), 11-15.

- Hall, E. (1966). *The hidden dimension*. Garden City, N.Y.: Doubleday.
- Hall, E. (1976). *Beyond culture*. Garden City, N.Y.: Anchor Press.
- Haller, M. (2002). Theory and method in the comparative study of values: Critique and alternative to Inglehart. *European sociological review*, 18(2), 139-158.
- Hampden-Turner, C., & Trompenaars, F. (1997). Response to Geert Hofstede. *International Journal of Intercultural Relations*, 21(1), 149-159.
- Harmancioglu, N., Droge, C., & Calantone, R. J. (2009). Theoretical lenses and domain definitions in innovation research. *European Journal of Marketing*, 43(1/2), 229-263.
- Harrison, G. L., & McKinnon, J. L. (1999). Cross-cultural research in management control systems design: A review of the current state. *Accounting, Organizations and Society*, 24(5), 483-506.
- Harrison, R. L. (2013). Using mixed methods designs in the Journal of Business Research, 1990–2010. *Journal of Business Research*, 66(11), 2153-2162.
- Helsen, K., Jedidi, K., & DeSarbo, W. (1993). A New Approach to Country Segmentation Utilizing Multinational Diffusion Patterns. *Journal of Marketing*, 57(4), 60.
- Herbig, P., & Dunphy, S. (1998). Culture and innovation. *Cross Cultural Management: An International Journal*, 5(4), 13-21.
- Riquelme, H., Rios, R., & Al-Sharhan, N. (2011). Antecedents of ostentatious consumption in Kuwait. *Journal of Islamic Marketing*, 2(3), 295-308.
- Hofstede, G. (1983). The cultural relativity of organizational practices and theories. *Journal of international business studies*, 14(2), 75-89.
- Hofstede, G. (1994). The business of international business is culture. *International business review*, 3(1), 1-14.
- Hofstede, G. (1995). Multilevel research of human systems: Flowers, bouquets and gardens. *Human Systems Management*, 14(3), 207-217.
- Hofstede, G. (1996). Riding the waves of commerce: A test of Trompenaars' "model" of national culture differences. *International Journal of Intercultural Relations*, 20(2), 189-198.
- Hofstede, G. (2002). Dimensions do not exist: A reply to Brendan McSweeney. *Human relations*, 55(11), 1355-1361.
- Hofstede, G. (2003). What is culture? A reply to Baskerville. *Accounting, Organizations and Society*, 28(7), 811-813.

- Hofstede, G. (2006). What did GLOBE really measure? Researchers' minds versus respondents' minds. *Journal of International Business Studies*, 37(6), 882-896.
- Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online readings in psychology and culture*, 2(1), 8.
- Hofstede, G. (2013). Replicating and extending cross-national value studies: Rewards and pitfalls—An example from Middle East studies. *Academy of International Business Insights*, 13(2), 5-7.
- Hofstede, G. (2001). *Culture's consequences*. Thousand Oaks, Calif.: Sage Publications.
- Hofstede, G., & McCrae, R. R. (2004). Personality and culture revisited: Linking traits and dimensions of culture. *Cross-cultural research*, 38(1), 52-88.
- Geerthofstede.com,. (2013). Retrieved 6 May 2014, from <http://www.geerthofstede.com/media/2186/Manual%20VSM%20%202013%202013%2008%2025.docx>
- Hofstede, G., Hofstede, G., & Minkov, M. (2010). *Cultures and organizations*. New York: McGraw-Hill.
- Geerthofstede.nl,. (2008). *Value Survey Module 2008*. Retrieved 6 May 2014, from <http://www.geerthofstede.nl/media/253/VSM08English.doc>
- House, R. J, Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (2004). *Culture, leadership, and organizations*. Thousand Oaks, Calif.: Sage Publications.
- House, R., Javidan, M., Hanges, P., & Dorfman, P. (2002). Understanding cultures and implicit leadership theories across the globe: an introduction to project GLOBE. *Journal of world business*, 37(1), 3-10.
- Imm Ng, S., Anne Lee, J., & Soutar, G. N. (2007). Are Hofstede's and Schwartz's value frameworks congruent?. *International marketing review*, 24(2), 164-180.
- Inglehart, R. (2000). Globalization and postmodern values. *Washington Quarterly*, 23(1), 215-228.
- Inglehart, R., & Baker, W. E. (2000). Modernization, cultural change, and the persistence of traditional values. *American sociological review*, 65(1), 19-51.
- Inglehart, R., & Welzel, C. (2005). *Modernization, cultural change, and democracy*. Cambridge, UK: Cambridge University Press.

Inkeles, A., & Levinson, D. J. (1969). National character: The study of modal personality and sociocultural systems. *The handbook of social psychology*, 4, 418-506.

ITU ICT Indicators Database (Version 16). (2013). Geneva, Switzerland.

ITU, I. (2014). *ICT facts and figures*. Geneva, Switzerland.

Jacob, N. (2005). Cross-cultural investigations: emerging concepts. *Journal of Organizational Change Management*, 18(5), 514-528.

Jang, S. L., Dai, S. C., & Sung, S. (2005). The pattern and externality effect of diffusion of mobile telecommunications: the case of the OECD and Taiwan. *Information Economics and Policy*, 17(2), 133-148.

Javidan, M., House, R. J., Dorfman, P. W., Hanges, P. J., & De Luque, M. S. (2006). Conceptualizing and measuring cultures and their consequences: a comparative review of GLOBE's and Hofstede's approaches. *Journal of international business studies*, 37(6), 897-914.

Kabasakal, H., & Dastmalchian, A. (2001). Introduction to the Special Issue on Leadership and Culture in the Middle East. *Applied Psychology*, 50(4), 479-488.

Kabasakal, H., Dastmalchian, A., Karacay, G., & Bayraktar, S. (2012). Leadership and culture in the MENA region: An analysis of the GLOBE project. *Journal of World Business*, 47(4), 519-529.

Kamli, A. (2012). *Arab ICT use and social networks adoption report*. Dubai, UAE: Madar Research and Development.

Katz, E., & Lazarsfeld, P. (2005). *Personal influence* (2nd ed.). New Brunswick, New Jersey: Transaction Publishers.

Ardalan, K. (2009). Globalization and culture: four paradigmatic views. *International Journal of Social Economics*, 36(5), 513-534.

Kirkman, B. L., Lowe, K. B., & Gibson, C. B. (2006). A quarter century of culture's consequences: A review of empirical research incorporating Hofstede's cultural values framework. *Journal of international business studies*, 37(3), 285-320.

Kruger, T., & Roodt, G. (2003). Hofstede's VSM-94 revisited: Is it reliable and valid?. *SA Journal of Industrial Psychology*, 29(1), p-75.

Kumar, V., & Krishnan, T. V. (2002). Multinational diffusion models: An alternative framework. *Marketing Science*, 21(3), 318-330.

- Kumar, V., Ganesh, J., & Echambadi, R. (1998). Cross-National Diffusion Research: What Do We Know and How Certain Are We?. *Journal of Product Innovation Management*, 15(3), 255-268.
- Kwon, T. H., & Zmud, R. W. (1987). Unifying the fragmented models of information systems implementation. *Critical issues in information systems research*, 227-251
- Lee, C. (1990). Determinants of national innovativeness and international market segmentation. *International Marketing Review*, 7(5).
- Leedy, P., & Ormrod, J. (2005). *Practical research*. Upper Saddle River, N.J.: Prentice Hall.
- Leidner, D. E., & Kayworth, T. (2006). Review: a review of culture in information systems research: toward a theory of information technology culture conflict. *MIS quarterly*, 30(2), 357-399.
- Lenartowicz, T., & Roth, K. (1999). A framework for culture assessment. *Journal of International Business Studies*, 30(4), 781-798.
- Lynn, M., & Gelb, B. D. (1996). Identifying innovative national markets for technical consumer goods. *International Marketing Review*, 13(6), 43-57.
- Mahajan, V., (2012). *The Arab world unbound*. San Francisco: Jossey-Bass.
- Mahajan, V., & Peterson, R. (1985). *Models for innovation diffusion*. Beverly Hills, Calif.: Sage Publications.
- Mahajan, V., Muller, E., & Bass, F. M. (1990). New product diffusion models in marketing: A review and directions for research. *The Journal of Marketing*, 54(1), 1-26.
- Marković, D., & Jukić, D. (2013). On parameter estimation in the bass model by nonlinear least squares fitting the adoption curve. *International Journal of Applied Mathematics and Computer Science*, 23(1), 145-155.
- Marsella, A. J. (1998). Urbanization, mental health, and social deviancy: A review of issues and research. *American Psychologist*, 53(6), 624.
- Matthiesen, J., & Binder, M. (2009). *How to survive your doctorate*. Maidenhead, England: Open University Press/McGraw-Hill Education.
- McSweeney, B. (2002). Hofstede's model of national cultural differences and their consequences: A triumph of faith-a failure of analysis. *Human relations*, 55(1), 89-118.
- McSweeney, B. (2002). The essentials of scholarship: A reply to Geert Hofstede. *Human Relations*, 55(11), 1363-1372.

- McSweeney, B. (2009). Dynamic diversity: Variety and variation within countries. *Organization Studies*, 30(9), 933-957.
- McSweeney, B. (2013). Fashion founded on a flaw: The ecological mono-deterministic fallacy of Hofstede, GLOBE, and followers. *International Marketing Review*, 30(5), 483-504.
- Meade, N., & Islam, T. (2006). Modelling and forecasting the diffusion of innovation—A 25-year review. *International Journal of forecasting*, 22(3), 519-545.
- Mellahi, K., Demirbag, M., & Riddle, L. (2011). Multinationals in the Middle East: Challenges and opportunities. *Journal of World Business*, 46(4), 406-410.
- Michalakelis, C., Varoutas, D., & Sphicopoulos, T. (2008). Diffusion models of mobile telephony in Greece. *Telecommunications Policy*, 32(3), 234-245.
- Midgley, D. F., & Dowling, G. R. (1978). Innovativeness: the concept and its measurement. *Journal of consumer research*, 4(4), 229-242.
- Minkov, M., & Hofstede, G. (2011). The evolution of Hofstede's doctrine. *Cross Cultural Management: An International Journal*, 18(1), 10-20.
- Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information systems research*, 2(3), 192-222.
- Myers, M., & Tan, F. (2002). Beyond Models of National Culture in Information Systems Research. *Journal of Global Information Management*, 10(1), 24-32.
- Nunnally, J. (1978). *Psychometric theory*. New York: McGraw-Hill.
- Orr, L. M., & Hauser, W. J. (2008). A re-inquiry of Hofstede's cultural dimensions: A call for 21st century cross-cultural research. *Marketing Management Journal*, 18(2), 1-19.
- Parthasarathy, M., Rittenburg, T. L., & Ball, A. D. (1995). A re-evaluation of the product innovation-decision process: the implications for product management. *Journal of Product & Brand Management*, 4(4), 35-47.
- Patai, R. (1952). The Middle East as a culture area. *Middle East Journal*, 6(1), 1-21
- Patel, T. (2013). *Cross-Cultural Management*. New York: Routledge.
- Perry, C. (1998). A structured approach for presenting theses. *Australasian Marketing Journal (AMJ)*, 6(1), 63-85.
- Peterson, M. F. (2007). The Heritage of Cross Cultural Management Research Implications for the Hofstede Chair in Cultural Diversity. *International Journal of Cross Cultural Management*, 7(3), 359-377.

- Petre, M., & Rugg, G. (2010). *The unwritten rules of PhD research*. Maidenhead, England: McGraw Hill/Open University Press.
- Phillips, E., & Pugh, D. (2010). *How to get a PhD*. Maidenhead: Open University Press.
- Png, I., Tan, B., & Khai-Ling Wee,. (2001). Dimensions of national culture and corporate adoption of IT infrastructure. *IEEE Transactions On Engineering Management*, 48(1), 36-45.
- Polsa, P. (2013). The crossover-dialog approach: The importance of multiple methods for international business. *Journal of Business Research*, 66(3), 288-297.
- Punnett, B. J., & Clemens, J. (1999). Cross-national diversity: Implications for international expansion decisions. *Journal of World Business*, 34(2), 128-138.
- Putsis, W., Balasubramanian, S., Kaplan, E., & Sen, S. (1997). Mixing Behavior in Cross-Country Diffusion. *Marketing Science*, 16(4), 354-369.
- Rane, H., & Salem, S. (2012). Social media, social movements and the diffusion of ideas in the Arab uprisings. *Journal of International Communication*, 18(1), 97-111.
- Robinson, W. S. (2009). Ecological correlations and the behaviour of individuals. *International journal of epidemiology*, 38(2), 337-341.
- Roehrich, G. (2004). Consumer innovativeness: concepts and measurements. *Journal of Business Research*, 57(6), 671-677.
- Rogers, E. M. (1976). New product adoption and diffusion. *Journal of consumer Research*, 2(4), 290-301.
- Rogers, E. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.
- Rogers, E., & Shoemaker, F. (1971). *Communication of innovations*. New York: Free Press.
- Rogers, E., Singhal, A. and Quinlan, M. (2010). Diffusions of Innovations. In: D. stacks and M. Salwen, ed., *An integrated approach to communication theory and research*, 1st ed. New York: Routledge.
- Sahin, I. (2006). Detailed review of Rogers' diffusion of innovations theory and educational technology-related studies based on Rogers' theory. *TOJET: The Turkish Online Journal of Educational Technology*, 5(2).
- Sasaki, I., & Yoshikawa, K. (2014). Going beyond national cultures—Dynamic interaction between intra-national, regional, and organizational realities. *Journal of World Business*, 49(3), 455-464.

- Saunders, M., Lewis, P., & Thornhill, A. (2012). *Research methods for business students* (6th ed.). Harlow, Essex, England: Pearson Education Limited.
- Schmitz, L., & Weber, W. (2014). Are Hofstede's dimensions valid?: a test for measurement invariance of uncertainty avoidance. *Journal interculture journal: Online-Zeitschrift für interkulturelle Studien*, 13(22), 11-26.
- Schneider, S. C. (1989). Strategy formulation: The impact of national culture. *Organization Studies*, 10(2), 149-168.
- Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in experimental social psychology*, 25(1), 1-65.
- Schwartz, S. H. (1994). Are there universal aspects in the structure and contents of human values?. *Journal of social issues*, 50(4), 19-45.
- Schwartz, S. (2006). A Theory of Cultural Value Orientations: Explication and Applications. *Comparative Sociology*, 5(2), 137-182.
- Schwartz, S. H., & Bilsky, W. (1990). Toward a theory of the universal content and structure of values: Extensions and cross-cultural replications. *Journal of personality and social psychology*, 58(5), 878.
- Schwartz, S. H., & Sagiv, L. (1995). Identifying culture-specifics in the content and structure of values. *Journal of cross-cultural psychology*, 26(1), 92-116.
- Sekaran, U. (2003). *Research methods for business* (4th ed.). New York: Wiley.
- Shane, S. (1993). Cultural influences on national rates of innovation. *Journal of Business Venturing*, 8(1), 59-73.
- Shi, X., & Wang, J. (2011). Interpreting Hofstede Model and GLOBE Model: Which Way to Go for Cross-Cultural Research?. *International Journal of Business & Management*, 6(5).
- Shore, B., & Venkatachalam, A. R. (1996). Role of national culture in the transfer of information technology. *The Journal of Strategic Information Systems*, 5(1), 19-35.
- Singh, S. (2006). Cultural differences in, and influences on, consumers' propensity to adopt innovations. *International Marketing Review*, 23(2), 173-191.
- Smith, P. B., Dugan, S., & Trompenaars, F. (1996). National culture and the values of organizational employees a dimensional analysis across 43 nations. *Journal of cross-cultural psychology*, 27(2), 231-264.
- Soares, A. M., Farhangmehr, M., & Shoham, A. (2007). Hofstede's dimensions of culture in international marketing studies. *Journal of business research*, 60(3), 277-284.

- Søndergaard, M. (1994). Research note: Hofstede's consequences: a study of reviews, citations and replications. *Organization studies*, 15(3), 447-456.
- Spector, P. E., Cooper, C. L., & Sparks, K. (2001). An international study of the psychometric properties of the Hofstede Values Survey Module 1994: A comparison of individual and country/province level results. *Applied Psychology*, 50(2), 269-281.
- Srinivasan, V., & Mason, C. H. (1986). Technical note-nonlinear least squares estimation of new product diffusion models. *Marketing science*, 5(2), 169-178.
- Stanton, A. L., Ramsamy, E., Seybolt, P. J., & Elliott, C. M. (2012). *Cultural Sociology of the Middle East, Asia, and Africa: An Encyclopedia*. Los Angeles, California: SAGE.
- Steenkamp, J. B. E. (2001). The role of national culture in international marketing research. *International Marketing Review*, 18(1), 30-44.
- Steenkamp, J. B. E., Hofstede, F. T., & Wedel, M. (1999). A cross-national investigation into the individual and national cultural antecedents of consumer innovativeness. *Journal of marketing*, 63(2).
- Steers, R. M., Meyer, A. D., & Sanchez-Runde, C. J. (2008). National culture and the adoption of new technologies. *Journal of World Business*, 43(3), 255-260.
- Stremersch, S., & Tellis, G. J. (2004). Understanding and managing international growth of new products. *International Journal of Research in Marketing*, 21(4), 421-438.
- Suh, T., & Kwon, I. W. G. (2002). Globalization and reluctant buyers. *International Marketing Review*, 19(6), 663-680.
- Sundqvist, S., Frank, L., & Puumalainen, K. (2005). The effects of country characteristics, cultural similarity and adoption timing on the diffusion of wireless communications. *Journal of Business Research*, 58(1), 107-110.
- Takada, H., & Jain, D. (1991). Cross-National Analysis of Diffusion of Consumer Durable Goods in Pacific Rim Countries. *Journal of Marketing*, 55(2).
- Talukdar, D., Sudhir, K., & Ainslie, A. (2002). Investigating new product diffusion across products and countries. *Marketing Science*, 21(1), 97-114.
- Tellis, G. J., Stremersch, S., & Yin, E. (2003). The international take-off of new products: The role of economics, culture, and country innovativeness. *Marketing Science*, 22(2), 188-208.
- Thatcher, J. B., Srite, M., Stepina, L. P., & Liu, Y. (2003). Culture, overload and personal innovations with information technology: extending the nomological net. *Journal of Computer Information Systems*, 44(1).

- Tian, K., & Borges, L. (2011). Cross-cultural issues in marketing communications: An anthropological perspective of international business. *International Journal of China Marketing*, 2(1), 110-126.
- Tornatzky, L., & Klein, K. (1982). Innovation characteristics and innovation adoption-implementation: A meta-analysis of findings. *IEEE Transactions On Engineering Management*, 29(1), 28-45.
- Triandis, H. C. (1995). *Individualism & collectivism*. Boulder: Westview Press.
- Triandis, H. C. (2004). The many dimensions of culture. *The Academy of Management Executive*, 18(1), 88-93.
- Trochim, W., & Donnelly, J. (2007). *Research methods knowledge base* (3rd ed.). Mason, Ohio: Atomic Dog/Cengage Learning.
- Trompenaars, A. (1994). *Riding the waves of culture*. Burr Ridge, Ill.: Irwin Professional Pub.
- Tsang, F., Yaqub, O., van Welsum, D., Thompson-Starkey, T., & Chataway, J. (2011). *The impact of information and communication technologies in the Middle East and Africa*. Santa Monica: RAND Corporation. Retrieved from [http://www.rand.org/content/dam/rand/pubs/technical\\_reports/2011/RAND\\_TR1163.pdf](http://www.rand.org/content/dam/rand/pubs/technical_reports/2011/RAND_TR1163.pdf)
- Van den Bulte, C. (2002). Want to know how diffusion speed varies across countries and products? Try using a Bass model. *PDMA visions*, 26(4), 12-15.
- Van den Bulte, C., & Stremersch, S. (2004). Social contagion and income heterogeneity in new product diffusion: A meta-analytic test. *Marketing Science*, 23(4), 530-544.
- Van Everdingen, Y. M., & Waarts, E. (2003). The effect of national culture on the adoption of innovations. *Marketing Letters*, 14(3), 217-232.
- Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision sciences*, 39(2), 273-315.
- Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: four longitudinal field studies. *Management science*, 46(2), 186-204.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 27(3).
- Wang, G., Dou, W., & Zhou, N. (2008). Consumption attitudes and adoption of new consumer products: a contingency approach. *European Journal of Marketing*, 42(1/2), 238-254.

- Waarts, E., & Van Everdingen, Y. (2005). The Influence of National Culture on the Adoption Status of Innovations: An Empirical Study of Firms Across Europe. *European Management Journal*, 23(6), 601-610.
- Williams, B., Brown, T., & Onsmann, A. (2010). Exploratory factor analysis: A five-step guide for novices. *Australasian Journal of Paramedicine*, 8(3)
- Williamson, D. (2002). Forward from a critique of Hofstede's model of national culture. *Human Relations*, 55(11), 1373-1395.
- Wirth, L. (1938). Urbanism as a Way of Life. *American journal of sociology*, 44(1), 1-24.
- Wolfe, R. A. (1994). Organizational innovation: Review, critique and suggested research directions. *Journal of management studies*, 31(3), 405-431
- World Bank. (2016). Data retrieved March 5, 2016, from World Development Indicators Online (WDI) database.
- Wright, M., & Charlett, D. (1995). New product diffusion models in marketing: an assessment of two approaches. *Marketing Bulletin*, 6(1962), 32-41.
- Wu, F. S., & Chu, W. L. (2010). Diffusion models of mobile telephony. *Journal of Business Research*, 63(5), 497-501.
- Yalcinkaya, G. (2008). A culture-based approach to understanding the adoption and diffusion of new products across countries. *International Marketing Review*, 25(2), 202-214.
- Yaveroglu, I. S., & Donthu, N. (2002). Cultural influences on the diffusion of new products. *Journal of International Consumer Marketing*, 14(4), 49-63.
- Yeniyurt, S., & Townsend, J. D. (2003). Does culture explain acceptance of new products in a country?: An empirical investigation. *International Marketing Review*, 20(4), 377-396.
- Yoo, B., Donthu, N., & Lenartowicz, T. (2011). Measuring Hofstede's five dimensions of cultural values at the individual level: Development and validation of CVSCALE. *Journal of International Consumer Marketing*, 23(3-4), 193-210.
- Zaltman, G., Duncan, R., & Holbek, J. (1973). *Innovations and organizations*. New York: Wiley.

# V S M 2013

VALUES SURVEY MODULE 2013

QUESTIONNAIRE

English language version

*MAY BE FREELY USED FOR RESEARCH PURPOSES  
FOR REPRODUCTION IN COMMERCIAL PUBLICATIONS,  
PERMISSION IS NEEDED*

*Release May 2013*

Copyright © Geert Hofstede BV

[www.geerthofstede.eu](http://www.geerthofstede.eu)

## INTERNATIONAL QUESTIONNAIRE (VSM 2013)- page 1

Please think of an ideal job, disregarding your present job, if you have one. In choosing an ideal job, how important would it be to you to ... (please circle one answer in each line across):

1 = of utmost importance

2 = very important

3 = of moderate importance

4 = of little importance

5 = of very little or no importance

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 01. have sufficient time for your<br>personal or home life | 1 | 2 | 3 | 4 | 5 |
| 02. have a boss (direct superior)<br>you can respect       | 1 | 2 | 3 | 4 | 5 |
| 03. get recognition for good performance                   | 1 | 2 | 3 | 4 | 5 |
| 04. have security of employment                            | 1 | 2 | 3 | 4 | 5 |
| 05. have pleasant people to work with                      | 1 | 2 | 3 | 4 | 5 |
| 06. do work that is interesting                            | 1 | 2 | 3 | 4 | 5 |

07. be consulted by your boss  
in decisions involving your work      1   2   3   4   5
08. live in a desirable area      1   2   3   4   5
09. have a job respected by your  
family and friends      1   2   3   4   5
10. have chances for promotion      1   2   3   4   5

In your private life, how important is each of the following to you: (please circle one answer in each line across):

11. keeping time free for fun      1   2   3   4   5
12. moderation: having few desires      1   2   3   4   5
13. doing a service to a friend      1   2   3   4   5
14. thrift (not spending more than needed)      1   2   3   4   5

15. How often do you feel nervous or tense?

1. always
2. usually
3. sometimes
4. seldom
5. never

16. Are you a happy person ?

1. always
2. usually
3. sometimes
4. seldom
5. never

17. Do other people or circumstances ever prevent you from doing what you really want to?

1. yes, always
2. yes, usually
3. sometimes
4. no, seldom
5. no, never

18. All in all, how would you describe your state of health these days?

1. very good
2. good
3. fair

4. poor
5. very poor

19. How proud are you to be a citizen of your country?

1. very proud
2. fairly proud
3. somewhat proud
4. not very proud
5. not proud at all

20. How often, in your experience, are subordinates afraid to contradict their boss (or students their teacher?)

1. never
2. seldom
3. sometimes
4. usually
5. always

### **INTERNATIONAL QUESTIONNAIRE (VSM 2013) – page 3**

To what extent do you agree or disagree with each of the following statements? (please circle one answer in each line across):

- 1 = strongly agree
- 2 = agree
- 3 = undecided
- 4 = disagree
- 5 = strongly disagree

21. One can be a good manager

without having a precise answer to every question that a subordinate may raise about his or her work

1 2 3 4 5

22. Persistent efforts are the surest way to results

1 2 3 4 5

23. An organization structure in which certain subordinates have two bosses should be avoided at all cost

1 2 3 4 5

24. A company's or organization's rules should not be broken - not even when the employee thinks breaking the rule would be in the organization's best interest

1 2 3 4 5

ترجمة

---

في اس ام 2013  
V S M 2013

إستبيان وحدة قياس القيم 2013

نسخة اللغة العربية

صدر في مايو 2013

Copyright @ geert hofstede BV

[www.geerthofstede.eu](http://www.geerthofstede.eu)

## ترجمة

### إستبيان دولي ( في اس ام 2013 )

فكر في وظيفة مثالية ( متناسيا عملك الحالي إذا كان لديك عمل ) في تلك الوظيفة المثالية , حدد درجة أهمية كل من الأمور التالية مستخدما المعيار التالي ( جواب واحد فقط لكل سؤال ) :

1 = في غاية الأهمية

2 = مهم جدا

3 = متوسط الأهمية

4 = قليل الأهمية

5 = قليل الأهمية بشكل كبير أو ليست له أهمية

5	4	3	2	1	01 أن يكون لديك الوقت الكافي لحياتك الشخصية أو المنزلية
5	4	3	2	1	02 أن يكون لديك رئيس (أعلى منك درجة بشكل مباشر) يمكنك أن تحترمه
5	4	3	2	1	03 أن تتلقى التقدير مقابل أداؤك الجيد
5	4	3	2	1	04 أن يكون لديك ضمان في العمل
5	4	3	2	1	05 أن يكون هناك أشخاص تترتاح للعمل معهم
5	4	3	2	1	06 أن تقوم بالعمل الذي يثير اهتمامك
5	4	3	2	1	07 أن يستشيرك رئيسك في القرارات التي تتعلق بعملك
5	4	3	2	1	08 أن تعيش في منطقة أنت راغب فيها

09 أن يكون لديك عمل يحترمه أفراد عائلتك وأصدقاؤك 1 2 3 4 5

10 أن تكون لديك فرص للترقية 1 2 3 4 5

في حياتك الخاصة، ما مدى أهمية كل مما يلي: (يرجى وضع دائرة حول إجابة واحدة في كل سطر):

11 أن يكون لديك وقت فراغ تمرح فيه 1 2 3 4 5

12 القناعة: ان تكون رغباتك قليلة 1 2 3 4 5

13 تقديم خدمة إلى صديق 1 2 3 4 5

14 أن تكون مُقتصد (لا تنفق أكثر من الحاجة) 1 2 3 4 5

15 ما مقدار ما تشعر به من قلق أو توتر؟

(1) دائما

(2) عادة

(3) في بعض الأحيان

(4) نادرا

(5) مطلقا

16 هل أنت شخص سعيد؟

(1) دائما

(2) عادة

(3) في بعض الأحيان

(4) نادرا

(5) مطلقا

17 هل تعتقد أن الآخرين أو الظروف أعاقوك عن عمل شيء عازمت على القيام به - هل يمنعك الأشخاص الآخرون أو الظروف من عمل ما تريد فعله؟

(1) نعم، دائما

- (2) نعم، عادة
- (3) في بعض الأحيان
- (4) نادرا
- (5) كلا، مطلقا

18 بشكل عام ، كيف تصف حالتك الصحية هذه الأيام؟

- (1) جيدة جدا
- (2) جيدة
- (3) متوسطة
- (4) سيئة
- (5) سيئة جدا

19 إلى أي درجة أنت فخور بإنتمائك لوطنك ؟

- (1) فخور جدا
- (2) فخور بشكل متوسط
- (3) فخور بشكل أو بآخر
- (4) لست فخورا جدا
- (5) لست فخورا بالمرّة

20 وفقا لتجربتك، ما مقدار خوف الموظفين في معارضة مدرائهم (أو معارضة الطلبة لمعلميهم)؟

- (1) مطلقا
- (2) نادرا
- (3) في بعض الأحيان
- (4) عادة
- (5) دائما

إلى أي مدى توافق أو تختلف مع كل من العبارات التالية؟  
يرجى وضع دائرة حول إجابة واحدة في كل سطر:

1 = أوافق بشدة

2 = أوافق

3 = لا أقرر

4 = أختلف

5 = أختلف بشدة

- |   |   |   |   |   |    |  |
|---|---|---|---|---|----|--|
| 5 | 4 | 3 | 2 | 1 | 21 | يمكن للمرء أن يكون مديرا جيدا دون أن يجيب بدقة عن كل تساؤلات الموظفين لديه حول قضايا العمل |
| 5 | 4 | 3 | 2 | 1 | 22 | الجهد و المثابرة هي أضمن طريقة لتحقيق النتائج  |
| 5 | 4 | 3 | 2 | 1 | 23 | يجب تجنب أي نظام وظيفي يسمح بوجود رئيسين لنفس الموظف                                       |
| 5 | 4 | 3 | 2 | 1 | 24 | لا يمكن انتهاك قوانين شركة أو هيئة ما حتى وإن ظن الموظف أن ذلك في صالح الشركة أو الهيئة    |