Preface

Transforming into an information society is essential for the economic and social development of countries or regions. The transition to a digital economy can provide the foundation for growth, competitiveness and job creation. This social transformation is driven predominantly by Information and communication technology (ICT). Information Society may be defined as "A society characterized by a high level of information intensity in the everyday life of most citizens, organizations and workplaces; by the use of common or compatible technology for a wide range of personal, social, educational and business activities, and by the ability to transmit, receive and exchange digital data rapidly between places irrespective of distance" (IBM Community Development Foundation in a 1997 report, "The Net Result - Report of the National Working Party for Social Inclusion)

The 'Arab Countries' region is one of the regions partaking in this form of society by taking proactive measures to adopt policies, frameworks and skilful application of ICT. Countries of the Arab region are striving, each at its own pace, to develop and implement ICT initiatives at both local and regional levels, with the aim of economic growth, motivated by a view of ICT acceptance as a key determinant of productivity and human capital advancement. However, the success of such ICT measures and initiatives has been countered by important challenges when it comes to its adoption and diffusion.

Research has indicated that the adoption and diffusion of ICT in general is strongly influenced by cultural practices and values at both, societal and organizational levels, and that it is not a mere replication of a global standardized template. The Arab world has its own array of cultural values and beliefs, and it has its own distinct business, financial and socio-technical issues and challenges that are reflected on its practices of ICT development, implementation and management. An insight of these challenges is essential considering their far-reaching impact on the success or failure of ICT systems adoption and diffusion at both public and the private sectors.

This book combines a collection of ICT investigations and reflections of ICT implementations encountered at Arab countries, viewed from a cultural perspective. The book covers through its different chapters a wide range of ICT domains including; ERP systems, E-readiness, Internet applications, ICT Strategic Planning, ICT Infrastructure, ICT Education, E-learning and Industry applications. The investigation of cultural practices and values in the Arab World is specifically projected to ICT investment, acceptance and organization.

In addition to the diversified ICT domains that are covered, the book is enriched further by the fact that important ICT applications and experiences that are captured in the book are related to different businesses and industry sectors in the Arab region including; Energy, Utility, Education, Health, Real Estate and Banking. Although it is beyond the scope of this book to examine the whole Arab region and all the related factors of adoption and diffusion, it does however cover a wide range of ICT issues related to Arab countries that can be fitted to the categories of developed, emerging, or developing countries.

This book enriches our understanding of technology adoption and the challenges facing many of the Arab countries in their efforts to transform into information society. The main contribution of the book is the range of ICT applications discussed in different contexts focusing at three levels: Arab region as a whole, country level and organization level. The book should be a valuable source boosting the ICT literature in the developing countries and specifically in the Arab world. There are many valuable lessons to be learned from the implementation experiences discussed throughout the various chapters, and specifically on how Arab countries attempt to adopt and benefit from ICT applications. It aims primarily at understanding the nature, contributions and the potential of ICT development in the Arab world and does highlight the most prevalent success factors for ICT acceptance in the region.

Although the main focus of the book is on the Arab countries, the work should stimulate researchers, practitioners and consultants from other regions to benefit from the captured experiences and findings when considering ICT transfer, adoption, or adaptation in developing countries either by the local governments, private sector or international organizations who may have interest in investing in the developing countries.

The book is organized in 15 chapters, discussing various aspects of ICT applications adoption and diffusion in different contexts. The first Chapter (1) introduces broad ICT status and trends in the Arab world and highlights some of the important challenges and problems hindering ICT adoption. The chapter is an examination of the extant literature on ICT adoption to glean the level of ICT investment, acceptance and to understand the interplay of cultural practices and values on the successful implementations of ICT initiatives. It is suggested to read this chapter first since it sets the background for the rest of the chapters in the book.

The second chapter (2) takes us to Tunisia, the northernmost country in Africa, where the author investigates two denominate cultural values that may have impact on the use of ICT. Data collection was carried out on 378 Tunisian students in three quasi-experimental settings measuring the degree of obedience, and by a pilot questionnaire determining the level of collectivism. The findings are interesting and have implications on Arab institutions to take into account the cultural dimensions in order to redirect their action and improve their social and cultural awareness about technology.

Arab countries have recognized that need to invest heavily in ICT education and training to build their capacity to meet the needs of the emerging information society. Three chapters were selected on ICT in education focusing on the Near East and North Africa region, with a focus on Jordan as having a high maturity level in this area.

Chapter 3 discusses the Jordanian education system's approach to reforming itself through the adoption of ICT. Jordan is envisioned by its leaders to become an IT hub for the region. However, the frequent conflicts and wars in the Middle East have disturbed development and reform. Reform is a challenging task to any education system, and it is even more challenging to systems with limited resources as they are pressured to seek and accept external assistance. The chapter argues that Jordan like other developing countries faces serious challenges while it is trying to update its education system to prepare itself for the information society. The author highlights that ICT initiatives at national level must rely heavily on external aid, but this carries with it a different type of challenge leading sometimes to disputes due to conflicting agendas. In the progress of the chapter the author illustrates how the Ministry of Education established local and international partnership to support technological development, however, the motivation behind such programs has been debated. The chapter reflects on two major large ICT projects at national level to expound the various challenges. The chapter highlights many essential factors that

should be considered for a successful ICT integration including; maintenance, technical support, training, upgrade, new software, and replacement of old technologies and building the capacity of teachers.

Capacity building of stakeholders is essential when adopting and implementing reform in ICT projects. Substantial efforts and resources should be directed to building capacity at all levels of the education system. Chapter 4 focuses on capacity building at the Ministry of Education in Jordan. The chapter discusses a successful program that has been in operation for the past four years in partnership with Ohio University. The program had positive impact on teachers' lives, and had altered their pedagogical beliefs and practices. The chapter discusses in details the specifics of the program and the challenges faced by students and instructors. The chapter concludes with a list of recommendation that should act as a useful guide for researchers and agencies who may have interest in investing in education in the developing countries and specifically in the Arab countries.

Chapter 5 reflects on the experience of a knowledge and information practitioner engaged in building an online community of practice in the education sector in the Near East and North Africa (NENA) region. Countries in this region share important common similarities, such as language, culture, the traditional values of their education systems, low internet connectivity, a shortage of computers, educational resources and skilled teachers. The author reflects on the three year project that was filled with successes and pitfalls. The chapter looks at both the early stages of the project, and how it evolved to include strategic leadership in ICT, together with the technicalities and infrastructures, culture, outcomes and challenges. The project discussed in the chapter shows how ICT in education has brought impact on the delivery of teaching in class and also how online forums creates an opportunity to exchange information and knowledge across different countries. The author spells out clearly the challenges be it with technicalities, infrastructures or skills, and calls on countries that have these limitations to consider carefully changing their procedures, as technology is advancing at a speedy pace.

The next several chapters shift the focus to various business and industry specific sectors to examine the issues, problems and encountered challenges. Chapter 6 reports on the findings of an exploratory research to investigate Strategic Information Systems Planning (SISP) approaches in UAE organizations, and their potential impacts on IS&T investment. The study uses a survey and simple model to characterize, classify and examine SISP approaches in 17 UAE organizations. Typical cases representative of the main SISP categories were put to the test to determine specific strengths and weaknesses, and to appraise the suitability and effectiveness of each category considering the organization culture and business environment. On the positive side, the study confirms that some of the UAE organizations do have SISP approaches and which can be improved in both formalization and effectiveness. However, it is a major concern to know that the majority of ICT investment was not based on proper strategic planning, and therefore carrying risks of problems and failures. The study highlights the importance of SISP to UAE organizations' ability to achieve their business goals and objectives. It also suggests that the SISP classification model can be benefited from by UAE and other Arab organizations to pin-point inadequacies in their existing approaches and to understand the cultural shift needed to adjust these approaches, so they can guide effective ICT investment, ensuring alignment of technology solutions to business strategy, and focusing on the realization of business goals and objectives. The study also anticipates that major ICT investment savings could be realized should a suitable SISP approach is implemented by UAE and Arab organizations.

Chapter 7 discusses a topic of importance to many Arab organisations who have implemented ERP systems or planning to do so. The chapter reflects the findings of a study to explore the challenges and barriers pertinent to ERP adoption and adaptation in post the implementation phase within Developing

Countries organization culture and business environment. The study investigates the impact of human and cultural issues on the success or failure of ERP systems in Arab countries business environment, using a framework of post-implementation use of cross-functional information systems in a longitudinal case study. The study uses focus group teams, composed of business units' end-users, managers and IT specialists (employment cohorts) to elicit the causes of failing ERP services. The study succeeds in developing improved understanding organizational and human factors that can potentially decide the levels of acceptance, usage and utilization of ERP systems in Arab organizations. This is viewed as an opportunity for Arab organizations to be conscious and prepared for managing issues and challenges that could lead to ERP failures. The scope of this research fits within the studies that target the analysis of organizational adoption and use of ERP, using feedback loops analysis method to analyze the complex dynamic socio-technical behavior in enterprises, leading to understand the relationships among the many non-linear variables prevalent in the post implementation stage of the ERP lifecycle.

Chapter 8 examines the challenges, issues and success factors that have been observed by practitioners during the implementation of enterprise systems, specifically focusing on factors that are of importance in ERP implementations in the Arabian Gulf context. The study successfully identifies the main ERP critical success factors (CSF) and highlights the main risks and challenges that threaten the success of ERP projects. The study proposes a structured approach based on CSF to address issues and to overcome challenges and mitigate risks. Such approach if dynamically reviewed and improved could contribute positively to increase the chances of ERP projects success and to provide lessons learned. The study raised some important challenges and factors that influence the preparation of stakeholders in enterprise systems implementation. Although the proposed approach to ensure ERP success can be useful in different contexts, it is essential due to cultural differences between organizations that engage in ERP implementation, its effectiveness is subject to ERP implementation teams to be aware of their context and tailor their processes to their organization, and stakeholders.

Chapter 9 reflects on different factors that are linked to the success of an IT implementation project in a large Egyptian bank. The case highlights leadership actions, as well as other related factors to the effectiveness of IT implementation that are linked to strategic competitiveness and value creation. Findings of the investigation indicate that successful implementation was influenced by the interplay of several management practices, which eventually, had an impact on strategic competitiveness through their impact on some in-house attributes; notably, a dominating constructive cultural pattern leading to higher levels of organizational commitment, and the bank's value chain. This chapter describes the activities and management practices adopted by the bank throughout implementation of two IT-based delivery systems, namely ATMs and Internet Banking, and links the successful outcomes and business gains of the IT implementation to a set of practices and measures that have been adopted. It is anticipated that other organizations of similar cultural settings in the Arab region can benefit from this experience to ensure effective adoption and adaptation of technology that yields tangible business gains and investment returns.

Chapter 10 discusses probably a common but an important factor on why ICT integration fails within organizations in the Arab region. The author places a research lens on a Marketing department in one of the organizations in the United Arab Emirates. The author discusses in details the operation of the department and its implementation of IT applications. Several problems and challenges are highlighted that were factors for unsuccessful implementation. The author aims at emphasising the importance of understanding the components of IS and the interplay between them.

The following five chapters of the book have focused on Internet technologies, applications including e-government, e-learning and e-communities with a focus on the e-readiness of the Saudi Society.

Chapter 11 and Chapter 12 are somewhat related, as both chapters discuss the readiness of an Arab country for adopting ICTs. Chapter 11 focuses on assessing cultural issues that may impede the diffusion of ICT within the Saudi society. The author developed and used an assessment framework of ICT readiness to evaluate 87 organizations in Saudi Arabia. The study revealed seven cultural factors that can have impact on ICT adoption and diffusion. The author also presents a number of recommendations to be considered for enhancing ICT adoption within the Saudi society. Chapter 12 addresses the same subject, but with specific focus on the readiness of Saudi health organizations to adopt electronic health. The study highlights 11 issues related to how ICTs are being integrated in the health organizations. The study revealed through a specifically designed assessment readiness instrument that the health organizations in Saudi Arabia are making initial positive progress towards that endeavour.

Chapter 13 examines the e-learning sphere in the Arab World. The authors discuss the status and quality of e-learning in Arab Universities located in the Middle East. The need for e-learning solutions for the Arab world is essential for bridging the digital divide as there are over 130 million illiterate Arab children with no formal education. The adoption of e-learning systems is of paramount importance as the average yearly population growth in the Arab States is on high increase. Although e-learning systems can help to address the high cost of education, however, according to this chapter such an approach suffers from many different challenges which need to be addressed, if in the long term, e-learning is to be a successful combat to illiteracy. The authors conclude with different solutions and recommendations in order to make a successful match that will result in a better adoption of e-learning technology appropriate to the Arab world environment.

The context of Chapter 14 is not about any specific Arab location but about an Arab virtual space. The chapter examines a set of factors that affect the adoption of emerging technologies such as virtual communities by group of Arab Academics. The author examines a non-profit organization established in North American with members mostly graduate students, have moved from an Arab country to North America to pursue graduate studies at either Canadian and American universities. The organization is a form of socio-academic virtual network aims at integrating and supporting its member living in North America and to introduce Arabic and Islamic culture to the American society, in addition to other interesting values described in the chapter. The chapter provides anecdotal evidence on the motivations and the challenges of the adoption of Internet applications by the society's' members. The success of the network was hampered by explicit and implicit cultural practices. The chapter sheds lights on managerial, cultural and technical changes that are required to improve the adoption of e-services by its members. The presented model has great potential to leverage online academic communities as a mean for social, political, economic and educational reform.

In Chapter 15 the authors examine social software commonly known as Web 2.0 and related implementation in the Western World, it turns focus to the Arab World and puts forward thoughts on the potential, opportunities and challenges for both citizens and governments for embracing this new wave of web-based services. The paper concludes that Web 2.0 applications have great potential to leverage the mission of Arab e-governments through connecting and collaborating with businesses, educational institutions, private and non-government initiatives, and of course individual citizens, many of whom are already beginning to embrace social media. The chapter also highlights the current condition of Arab e-governments and how Web 2.0 can supplement their mission. The authors make a recommendation that before making the paradigm shift and cultural change, governments must make sure they and their

citizens are ready for this new channel and need to determine the best way to proceed towards more dynamic governments that can respond and meet the expectations of their supporting communities.

To this end, the primary objective of this book was to bring together diverse views and insightful experiences from researchers and practitioners from around the Arab region to reflect on the nature of ICT adoption at the individual, organizational or country level. In effect, the book offers a unique opportunity to serve multiple purposes to serve researchers, professionals, policy makers, teachers, and students. We expect that this book will be an essential resource for ICT adoption in developing countries.

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