The virtual workplace: A new alternative merging technology and policy for more environmental, economic and social sustainability

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ABSTRACT

At present, both developed and developing countries alike are facing challenges of a growing "virtualized" world. Organizations and policymakers have to understand the importance of the Virtual Workplace (VW) and constantly make efforts to "re-think" their strategies and policies to deal with this new reality. There is a growing body of literature focusing on the topic of the Virtual Workplace. However, to date there have been few theoretical and empirical studies related to the application of this topic especially in developing countries. This paper represents a first attempt to explore the challenges related to the implementation of the VW concept in the Middle East and North Africa (MENA) region, mainly Egypt. To investigate these challenges empirically, we examined a number of the well-known Egyptian commercial public sector banks that have already taken serious steps towards an e-banking system. The results of an open-question survey distributed to a random sample of employees at the top, middle and executive levels of management suggest that VW has several potential advantages and drawbacks correlated with the environmental, economic, technological and social context in Egypt. For the analysis of textual data and the administration of the large qualitative data sets, we used ATLAS.ti software. The research highlights the fact that female employees have different perspectives than males with respect to the VW concept. Egyptian women tend to be environmentally and socially oriented, while men give more attention to the economic and technological aspects of the VW. The paper concludes with some theoretical and empirical proposals for corporate strategies, as well as for public policies to aid the adoption of an innovative VW programs, in particular to satisfy the requirements of environmental, economic and social sustainability in developing countries.

1. INTRODUCTION

The Virtual Workplace (VW) today represents a new reality facing organizations and policymakers in both developed and developing countries. According to Deloitte Touche Tohmatsu (DTT) TMT group (2006), "the number of employees using mobile e-mail access is estimated to increase from the current millions to at least tens of millions by 2010" [1]. Another study by Gartner, Inc. (2007), estimated that, "by 2011, 46.6 million corporate employees globally will spend at least one day a week teleworking, and 112 million will work from home at least one day a month" [2]. Moreover, surveys by various U.S. business groups confirm that "the number of employees working through virtual means will jump up to reach over 100 million workers in the upcoming years". These current trends are driving employees, organizations and governments alike to "re-invent" the major core believes, techniques, places and terms of work.

The VW can be generally described as an embryonic area of academic study, particularly in developing countries. A literature survey reveals the scarcity of the empirical studies dedicated to the practice of the VW especially in the Middle East and North Africa (MENA) region. This article provides a first step to explore the challenges related to the development of the VW concept mainly in Egypt. First, the paper starts by a presentation of the VW concept. It then proposes a systemic framework to study the virtual workplace and it investigates empirically the challenges facing

the implementation of the VW in Egypt by examining a number of the best-known Egyptian commercial public sector banks. The paper ends with some theoretical and empirical proposals for corporate strategies, as well as for public policies to help advance their understanding of the VW concept and practice.

2. THE VIRTUAL WORKPLACE

Although research in the Virtual Workplace (VW) is increasing, the concept and its practices remain unclear. A proliferation of definitions has existed in the literature and has caused great confusion. Some of these definitions, which often parallel the purpose of our research, are as follows. In a broad meaning, "the virtual workplace (VW) is a workplace where a group of individuals, from the same country or from all over the world, are working together using different communication technologies regardless of where they are or when precisely they start or finish their tasks or how they get done their everyday job, and that, regardless of their culture, nationality, race, gender, disability or age" (for more details see, among others, [3], [4], [5], [6], [7], [8], [9], [10], [11] and [12]). Other authors put forth the concept of "virtual organizations", a term that, for them, represents an "entities without boarders or limits" [13]. This group of authors study "the mutual relationship between the development in information and communication technologies and the organizational structure, behavior, design, functions, practices, culture, values and continuous learning process" (for more details see, among others, [14], [15], [16], [17] and [18]).

3. A SYSTEMIC FRAMEWORK FOR VIRTUAL WORKPLACE STUDY

This paper represents a first attempt to explore the challenges related to the implementation of the VW concept in the MENA region, mainly Egypt. A review of literature dealing with the virtual workplace reveals that researchers are specific in their analysis and that, it is difficult to determine all variables related to the study of this topic (for more details see, among others, [19] and [20]). Most writings examine the VW, mainly at the individuals "micro level" and the intra-organizational context "meso level". Few authors dedicate attention to the inter-organizational context "field level" and/or the external environment "macro level" as crucial variables for studying opportunities and threats related to VW. After a review of literature, we propose the following diagram to present the VW as a continuous process where agent, intra-structure, inter-structure and external environment affect each other in a mutually beneficial manner.

Diagram (1)
Systemic framework to study the virtual workplace (VW)
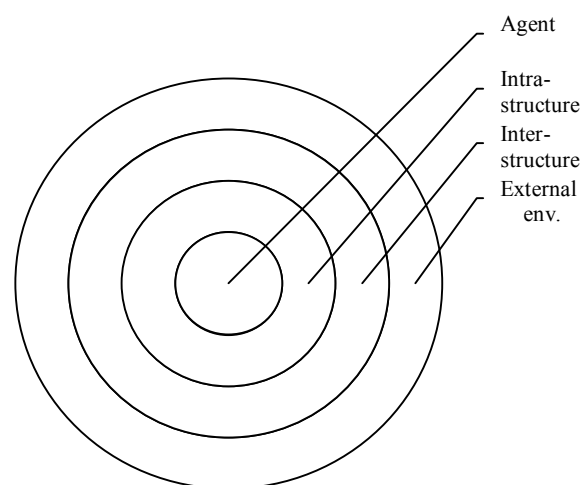
1. **Agent** denotes the individuals working in a virtual environment. These individuals include employees and managers. This level of "micro" analysis would highlight "agents' core beliefs, interests, culture, skills and performance".

2. **Intra-structure** analyzes the framework that any organization would adopt to facilitate a VW. This level of "meso" analysis puts emphasis on procedural, social and technological processes.

Procedural processes include "laws, rules and norms of the organization". Social processes represent all "ties, networks and trust elaborated between the organization's agents". Technological processes embody "all technological facilities for improving the VW".

3. **Inter-structure** refers to the "field" level of analysis which studies "the relationship between organizations or entities collaborating with each other through virtual means".

4. **External environment** is the "macro" level of analysis that takes into consideration the "environmental, economic, technological and social context, at the country level", which may represent opportunities or threats for the application of the VW.

4. RESEARCH METHODOLOGY

This work represents exploratory research that investigates the challenges related to the implementation of the VW concept in Egypt. To explore these challenges empirically, we examined a number of the well-known Egyptian banks that have already taken serious steps towards an e-banking system. We have limited our research to study only the commercial public sector banks in Egypt. These include the following banks: Banque Misr, National Bank of Egypt, Bank of Alexandria, and Banque Du Caire. An open-question survey has been distributed to a random sample of employees (500 anonymous candidates) at the top, middle and executive levels of management, mainly in the branches existing in Cairo. For the analysis of textual data and the administration of the large qualitative data sets, we used ATLAS.ti software.

5. ANALYSIS AND INTERPRETATION: THE EGYPTIAN CASE

As general interpretation, it is interesting to mention that the research highlights the fact that the perspectives of female employees differ from males with respect to the concept of the VW. Egyptian women tend to be environmentally and socially oriented, while men give more attention to the economic and technological aspects of the VW.

1- The VW environmental concerns:

Unit of Analysis	Advantages	Challenges
Agent	-Less energy consumed for daily transportation -Less CO_2 emissions per capita -Improved health conditions & fewer diseases -Less waste coming from daily routine transactions per person	-Changing core beliefs toward the environmental issues -Convincing people about the connection between the VW & the environment -Resistance of individuals to change
Intra-Structure	-Use of friendly environment technologies -More effective Corporate Social Responsibility (CSR)	-More electricity consumption resulting from working 24/7
Inter-Structure	-Less energy and fewer CO_2 emissions coming from transportation between organizations -Less waste coming from daily routine transactions	-Accommodation of organizations to the VW world

Unit of Analysis	Avantages	Challenges
	between organizations	
External Env.	-Better air quality -Adherence to Kyoto Protocol -Improved Waste management systems -More sustainable cities	-Accommodation of people and organizations to the VW/environment relationship - Formulation and implementation of new environmental policies and programs, taking into consideration the VW at the organizational & governmental level

2- The VW economic and technological concerns:

Unit of Analysis	Avantages	Challenges
Agent	-Empowerment of women in the marketplace -Empowerment for people with special needs in the marketplace -Individuals can easily combine different jobs at the same time -Individuals are able to search for highest available wages	-No accurate calculation for productivity -No accurate reward system for real hours spent on the job - Special skills and knowledge are required to deal with advanced technology
Intra-Structure	-Increased productivity due to flexible work hours -Decrease of facilities and administration costs -More accessible employees	-Cost increase for capacity buildings and training - Establishing for a new system for performance reward -Increased costs for expanding an advanced internal technological system

Unit of Analysis	Avantages	Challenges
Inter-Structure	-Easier and faster inter-organizational relationships, local & worldwide -Easier & more profitable to contract work -Geographical expansion	-Increased costs for elaborating an advanced external technological system to network organizations
External Env.	-More efficient markets & increased productivity -Faster & more flexible responses to consumer needs at the national & international levels	-Dependency of developing countries on developed countries, international organizations and foreign aids for hi-tech industries -Inability of developing countries budget to afford hi-tech -Formulation and implementation of new economic and technological policies and programs, taking into consideration the VW at the organizational & governmental level

3- The VW social concerns:

Unit of Analysis	Avantages	Challenges
Agent	-Women balance careers & domestic responsibilities -Time taken for daily transportation is invested in more family & social life -Ability to work anytime at anyplace	-Lack of human contact with colleagues -Employee difficulties regulating work time -Employee self-control, especially in the absence of a supervisor

		-Lack of privacy
Intra-Struct. & Inter-Struct.	-Openness to different cultures at the international level	-Elaboration of strong ties, networks and trust in virtual teamwork -Elaboration of specific laws, rules and norms for virtual teamwork -Elaboration of new social and benefits system while taking the VW into consideration
External Env.	-More social & cohesive society -Less stressful societies -Increased civic contentment	-Formulation and implementation of new social policies and programs, taking into consideration the VW at the organizational & governmental level

6. CONCLUSIONS

The existing literature demonstrates the need of a systemic framework to study the VW concept, especially in developing countries, taking into considerations all possible variables related to this subject. To overcome this issue, our research has elaborated a framework for this purpose. It is interesting to mention that most theoretical and empirical research places great emphasis on the agents/individuals "micro level" and the intra-structure variables "meso level" as key units of analysis in their study of the VW. Few works have been done to date to study the inter-structure "field level" and/or external environment variables "macro level" of the VW. This paper represents a first attempt to explore the challenges related to the implementation of the VW concept in the MENA region, mainly Egypt. The research

highlights the fact that female employees have different perspectives than males regarding the VW concept. Egyptian women tend to be environmentally and socially oriented, while men give more attention to the economic and technological aspects of the VW. For the adoption of an innovative VW program in developing countries, organizations and policymakers have to understand the importance of the VW and constantly make efforts to "re-think" their strategies and policies in order to deal with this new reality.

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