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Information Systems in Developing Countries: Reasons for Failure – Jordan, Case Study

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ABSTRACT

This paper discusses the hindering factors for the success of Information Systems in Developing Countries. As such Jordan was taken as a case study for this paper at hand. The research paper found 15 hindering factors that were discussed in this paper. The research suggests six ways to elevate some of the hindering factors.

1. INTRODUCTION

There are many factors that hinder the success of Information Systems in developing countries. This paper will discuss some of those factors, and propose some ideas to neutralize their effects. In addition, this paper lists some suggestions as how to eliminate some of the listed problems. But first, a definition of the term Information Systems must be established: "1) the entire infrastructure, organization, personnel, and components for the collection, processing, storage, transmission, display, dissemination, and disposition of information. 2) All the electronic and human components involved in the collection, processing, storage, transmission, display, dissemination, and disposition of information. An IS may be automated (e.g., a computerized information system) or manual (e.g., a library's card catalog)."1 This definition incorporates the human component of IS, which is often a source of possible failure.

2. REASONS FOR FAILURE

In this section of the paper, the reasons for the failure of information systems are listed, with a description of each reason. These reasons were derived from informal interviews with the heads of IT departments in governmental agencies in Jordan and from the relevant literature.

1. **Language and culture barriers**: There is frequently a language and cultural barrier between IT personnel and the regular user. Such a barrier is obvious when both are heard discussing or describing a problem. For example, when a system analyst is studying a project and interviewing users, many users will not distinguish between their requirements and the data that will entered in the application program. The result is usually a major disappointment to the user when receiving the application. As one analyst described it, "The user described what he exactly wanted, yet when the application was delivered he was surprised since he insisted on the application with the data in it."[2] The same idea can be seen in the Davison et al (2000) paper.
2. **Individual ownership of data**: Many IT personnel consider the data generated by their department as personal property. Such thinking hinders others from building from that data, which in turn will leave the original data brittle and lacking. Such an idea is not new, as can be seen in Davison et al (2000).
3. **Lack of cooperation**: Many government IT personnel do not cooperate with each other in standardizing the hardware, software, and data. In some cases such lack of cooperation is deliberate, as described by Peled (2000).
4. **No collaboration**: The ideas of teamwork, cooperation, and partnership are lacking, due especially to the highly competitive nature of the small Jordanian market.
5. **Fear of computers**: Many users are afraid of using or experimenting with the computers available to them. The fear of breaking the PC is deep rooted in the users' community, and it might take many years to eradicate this common fear.
6. **Status**: Many members of higher management refuse to enter data into their application programs because they believe typing is only for secretaries and that such a job is beneath them. Many users who are trained and interviewed during the analysis and design phases will cooperate, but, during the implementation, will usually withdraw and let their secretaries do the job that was originally designed for the management. For example, when a work flow system was implemented in the Ministry of Transport, many managers took the training, but when the system was actually installed, many refused to use the new system and asked the IT manager to install the system for their secretaries, so they would retrieve the documents for the managers when needed.
7. **The attitude about computers**: Many users don't take computers and the IS application seriously. For some, the computers are only glorified typewriters. Others use the notebooks as spare part for the data show and only for presentations. Needless to say, this misuse of the computer results in a great deal of wasted energy.
8. **Lack of standardization**: During the 1980's, the United States of America worked diligently on International Standard Organization (ISO) (issues, which prepared the country for the years to come. In Jordan, however, standardization is lacking. Forms and reports (paper-based) vary from ministry to ministry and do not follow one standard. This state of affairs affected the computerized organizations, as computerization was set up in basically the same way as the previous paper-based system, with no thought to cross-ministry standardization. Ministries discovered this fact while working on the e-government project, when trying to exchange data. Another issue that falls under this umbrella is the hardware and software standardization issue. Although the Ministry of Information, Communication and Technology (MoICT) tried to solve this problem by contracting Microsoft for office software, Microsoft is not the solution provider for systems like the Geographic Information System (GIS), or Enterprise Resources Planning (ERP), etc. The ISO organization developed an action plan named ACTION PLAN 2005-2010 for the sole purpose of standardization in developing countries (ISO, 2005).
9. **Lack of coordination:** In Jordan, there is no coordinating body to oversee the needs and wants of the different governmental departments. This lack of coordination reaches a level of chaos in some cases. Although MoICT is working on some of the coordination issues, the lack of regulation and enforcement is blatantly obvious in some cases.

10. **Lack of interest and devotion:** Many users received applications and computers because of the IT trend in the country, not because the users really need such speed and accuracy. This often leads to a lack of interest in the computers and the data generated, and the user is not likely to dedicate himself/herself to such work.
11. **Laws and regulations**: The current laws and regulations in Jordan do not support documents generated by computers. For example, an email is not a legal document that can be acted upon in the legal venues; therefore, many users will have to duplicate work (paper-based, and computer-based). In such cases, most users will ignore the computer-based option in favor of the document that is legally recognized.
12. **Poor quality data to enter or unavailable data**: The original data in its paper-based format is usually lacking and missing pieces, so when the user wants to enter data, usually s/he must search for the data. For example, in Ministry Of Transport the data pertaining to the public transport sector was distributed among many organizations, in such a manner that, when the application program was ready for use, the users had to search for and collect the data. Also, many of the data sources are still paper-based. So, when one organization builds an application, the organization will often learn that related data is in another organization that is not computerized yet.
13. **Lack of data appreciation**: Users don't value entered data, especially data that do not translate into money. This reflects the lack of interest or lack of education (that must be given by the system developers).
14. **Computer illiteracy:** Computers are new in Jordan and were not considered to be part of the governmental toolset until the early 1990's. Therefore, users in the government sector, especially the older or middle-aged generations, are usually illiterate in the computer arena. Kimaro & Splettstoesser (2000) state that education and knowledge, age, attitude, and expectations are user attributes that can affect the success or failure of IS
15. **Lack of support from higher management:** The higher management does not support IS systems. Although they encourage the use of computers, not many of them appreciate the data produced by it.

3. SUGGESTED SOLUTIONS

In the following section, a number of suggested solutions are discussed. The suggested solutions are also based on literature research and informal interviews with the heads of IT departments in governmental agencies in Jordan:

1. **Educate those who are computer illiterate**: Users and IT personnel must be educated in different arenas. Users must be educated about the value of data and the best way to use computers. IT personnel must be educated on how to best communicate their ideas.
2. **Communicate**: Many communication channels must be established between IT personnel, users, and other IT personnel in different organizations. This will cultivate ground for understanding and coordination. According to Nielsen and Mosse (2004), "Communication within organizations is more than functional transmission of information between different actors. Communication practices are also composed of ritualistic and symbolic aspects, together building a relation between context and practice." They conceptualize communication practices as containing the following aspects:

- *The functional aspect*, relating to the practice of transmitting explicit information (paper-based, computerized, in-person) from one point to another, separated in time and space;
- *The symbolic aspect* of the practices that actors perform to present and legitimize a rational organization to external constituencies;
- *The ritualistic aspect* of this practice that actors perform routinely as a means to reinforce their membership in the particular community to which they belong.

3. **Provide PCs**: Part of the needed education should consist of making PCs and computers generally available to users. To make this technology approachable will eliminate fear from users.
4. **Connect to the Internet**: It is important for the regular user to know and interact with the different technologies available. The Internet is a source of such education. Although such technology may be misused at the beginning, with guidance and patience, things may change. The Internet can give the user an appreciation of the myriad of data available.
5. **Establish a coordinating body**: A coordinating body that facilitates and enforces procedural standards on all organizations should be established. Such a body must have the legal and regulatory authority to perform with optimum force. Ideally, it would follow this example: "The Government of India has set up the Ministry of Information Technology that works with the Department of Electronics to achieve various e-governance objectives with a pledge that at least 25% of government services will be delivered electronically by 2005 (GOI, 2000). Today in India, many different types of e-governance projects are being implemented in parallel as displayed on the website of the World Bank funded E-governance Centre located at the Indian Institute of Management" (Madon, 2004).
6. **Promote IT**: Many countries have used IT promotion as a financial incentive, as Dabla (2004) demonstrated. In such cases, the users will have a motivation for data entry and data entry accuracy.

4. CONCLUSION

This paper discusses the hindering factors for the success of Information Systems in Developing Countries. As such Jordan was taken as a case study for this paper at hand. The 15 hindering factors discussed in this paper are: Language and culture barriers, Individual ownership of data, Lack of cooperation, No collaboration, Fear of computers, Status, The attitude about computers, Lack of standardization, Lack of coordination, Lack of interest and devotion, Laws and regulations, Poor quality data to enter or unavailable data, Lack of data appreciation, Computer illiteracy, Lack of support from higher management. On another note, the paper suggested, to elevate some of the hindering factors , the following : Educate, Communicate, Provide PCs, Connect to the Internet, Establish a coordinating body, Promote IT

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ENDNOTE

[1] www.ciao.gov/ciao_document_library/glossary/I.htm2.

[2] Interview with Ministry Of Transport – Head of IT Dept.