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PUBLISHER

Southampton Solent University

VERSION

AM (Accepted Manuscript)

LICENCE

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REPOSITORY RECORD

Alkahtani, Hend K., Ray Dawson, and Russell Lock. 2019. "The Impact of Culture on Saudi Arabian Information Systems Security". figshare. <https://hdl.handle.net/2134/13814>.

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The Impact of Culture on Saudi Arabian Information Systems Security

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Abstract

Culture has an extensive influence on both Saudi Arabian society and its business environment. Saudi Arabia has a collective group oriented culture with close relationships between people. The Islamic religion is part of Saudi Arabian culture and it plays major roles in Saudis lives. Saudi Arabian cultural factors, including language barriers, hierarchy, gender communication, fear of losing face, nepotism and wealth, affect the performance of organisations and their security. This paper focuses on the impact of the environment and culture of Saudi Arabia on information security and makes some suggestions on how these problems may be overcome.

1.0 Introduction

The word culture derives from the Latin word “cultura”, which means that culture is part of people’s actions [1]. Culture is a complex system of adopted social behaviour based on the way people live and work. Adeyemi-Bello and Kincaid [2, page 4] define culture as “a system of values and norms that are collectively shared between groups of people”. Culture represents the combination of people’s thinking, saying, and making, their costumes, traditions, language, art, literature, attitudes, feelings and values. Culture is adopted, obtained, and carried from one generation to another [3]. According to Ferro, culture is what people have, think, and do in their society [4]. Culture covers traditions, customs and values, written and non-written rules [5]. Culture can be defined as an interlaced system of shared values and rules which form a foundation for the way of life of a particular group. Similar cultures would be those who share ideas, customs and values.

Every country or region has its own culture and therefore its own way of living. Saudi Arabian culture has been influenced by the religion of Islam, the role of history, and its traditions which makes it different from other cultures. Culture in Saudi Arabia has an impact on management styles, management decisions and management behaviour [6]. Understanding Saudi Arabian cultural differences, such as language, text direction, hierarchy, gender communication, fear of losing face, and nepotism, can have strong impacts on the success and security of an organisation. This is illustrated at a high level of abstraction by Figure 1.

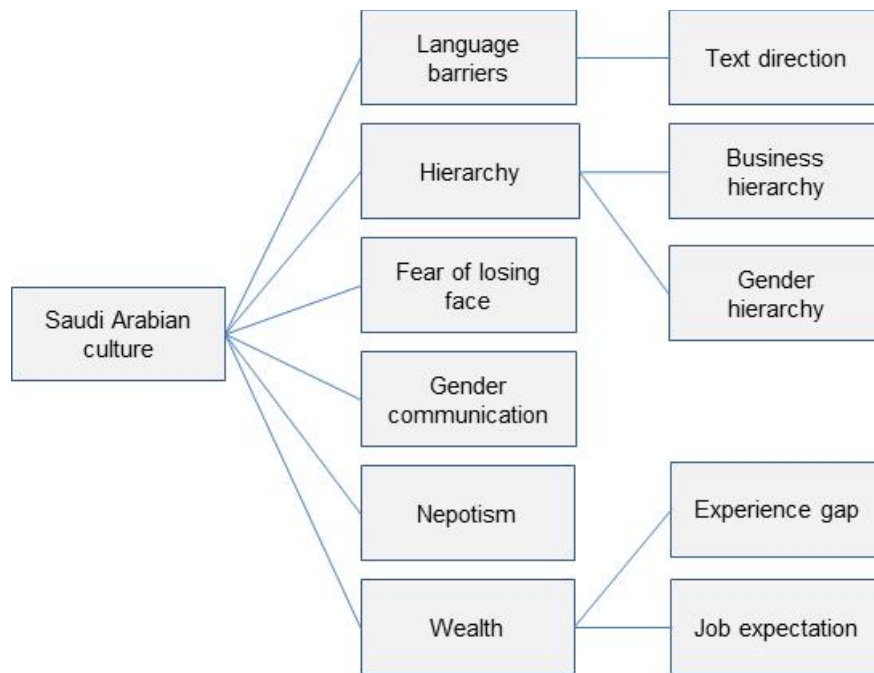


Figure 1: Cultural problems in a Saudi Arabian organisation

The following sections analyse the cultural aspects identified in Figure 1. The research was based on both published literature and also the experience of the first author, who, as an employee of an all-female university in Saudi Arabia and a student at Loughborough University in the UK, has direct experience of the different culture in Saudi Arabia and the problems that arise from this.

2.0 Language Barriers

A barrier, as defined in the Oxford Dictionary [7], is “a circumstance or obstacle that keeps people or thing apart or prevents communication or progress”. Language barriers can cause communication problems. The Arabic language can cause clear

communication problems as it is not related to any other language and is very different to Western European languages such as English, used by most technology suppliers. A language barrier between two cultures such as Arabic and English can be a cause of frustration and misinformation [8].

Frustration caused by a language barrier is a result of not being understood by someone else and this can create an unfriendly atmosphere between two communicating parties. Another risk can arise when the language is not translated completely accurately, as this can give misinformation due to the word for word translations that come from dictionaries or online language programs. The problem is particularly bad for IT security as nearly all IT suppliers are English speaking and the IT code comments, documentation and help systems are therefore also often represented in English. Even if documentation is supplied in Arabic, the differences in the language means the translation may not be totally accurate. When it comes to legal translation services, interpretations of manuals and instructions, or international conferences, a simple mistake or a well-meaning attempt at finding an equivalent in an Arabic/English dictionary could create an even bigger misunderstanding between the two communicating parties.

3.0 Text direction

The Arabic language is “bi-directional” (BiDi) as it uses right-to-left (RTL) script with Left-to-Right (LTR) elements, such as numbers. Hebrew, Farsi, and Urdu are also considered BiDi languages. To reach the Arabic speaking market, software products, mostly written in the English language, must be translated into Arabic language.

Arabic localization, the process of translating a product, content or application from one language to another, needs careful thought and resource planning when undertaken for the first time [9]. Software application translation into Arabic is challenging because of the linguistic differences. Arabic character order is Right to Left (RTL) [9]. Date, number, and currency are considered sensitive data and translating from Latin alphabet based languages to BiDi languages such as Arabic language is challenging. The Arabic language uses Hindi digits. Numbers are laid out in Left to Right order (LTR) in all BiDi languages. Therefore the physical display of the text in Arabic will be a mixture of RTL order for characters and LTR order for numbers and dates unlike Latin alphabet based languages where character and numbers are both displayed in a consistent, LTR order.

Educational Software translated into Arabic language often suffers from incomplete translation. For example, most help sections in university software such as Microsoft Office and Banner collection are still in English. Also some university information system programs that are translated into Arabic face major problems because of the differences in the order of the texts. For example, in Arabic, a list of students' names starts with the first name, then the middle name and the last name.

While in English it usually starts with the last name, then the first name and any middle name. Most of the university applications that are translated in Arabic present the Arabic list of students in English order which is very confusing.

4.0 Hierarchy

Saudi Arabia business culture is a strictly hierarchical in nature. Saudi Arabian workers tend not to use their initiative to take action, but wait for their manager to direct them. Therefore, the organizational structure in Saudi Arabian companies attends towards strong hierarchical structures. In these structures the manager's job is to make decisions which would be implemented down the chain of command by subordinates. What would be considered micromanagement by many western organisations would be perfectly normal in Saudi Arabia. Saudi organisational structure is a strict hierarchical approach in which subordinates are followers and managers are leaders. If superiors do not tell their subordinates what to do, jobs do not get accomplished. A manager who makes no specific job requests to be performed by subordinates would face immediate problems [10]. Many Saudi superiors spend the majority of their time outside of their official offices and request subordinates to perform their jobs either by phone conversation or via email.

It is of great importance for subordinates to show respect to managers and to not question their authority. Saudi managers are authoritarian leaders. They are expected to provide clear expectations about what needs to be done and how to do it. This is manifested in the wide gap in power between employees and managers in Saudi Arabian firms. Managers who have the most authority should provide complete and specific directives to others. This can be problematic for the organization because it stifles creative thinking and dictates that employees wait to be told what to do rather than making decisions on their own. This impacts the challenges managers face when trying to improve productive behaviour.

In addition to the strict business hierarchy, there is also a gender hierarchy. The male gender dominates the female gender in Saudi Arabian culture. Men typically do not listen to women and they expect women to do as they say. A Saudi man would be very reluctant to have a female as their manager and would consider it to be culturally embarrassing. This means that talented female staff can be severely inhibited from getting any promotion except within an all-female environment. The knowledge and experience of many intelligent female employees in Saudi Arabia is not leveraged effectively by the organisations.

5.0 Gender communication

In addition to gender hierarchy issues, according to the interpretation of the Islamic religion in Saudi Arabia, physical gender segregation in society and organisations is essential. This means that males and females who are not related should not have direct contact with each other. Women in Saudi Arabia can work in male/female organisations but they must not interact with men. Most women work in all female settings where they do not have to interact with men. Women tend to work in girls' schools, women's sections of universities and banks catering for female clients, social work and development programmes for women, medicine and nursing for women, television and radio programming, and computer and library work [11]. For organisations such segregation does have an impact on efficiency of service provisioning, if only through the duplication of services for differing genders.

Although Princess Nora bint Abdul Rahman University (PNU) is an all-female university, some of the high level operational management is handled by men. As a result of the non-communication culture, even senior women employees usually struggle to communicate with men. Most of the communication is conducted either online, via email or verbal communication via land lines phones and mobiles. Because of Saudi culture, direct communication is effectively forbidden, not by the PNU management, but by the female's spouses. Poor communication between female employees and male employees who control the information systems at PNU could easily jeopardize the security of the information held.

6.0 Fear of losing face

'Losing face' means not maintaining the dignity and the respect of others. In Saudi Arabia culture avoiding confrontation and conflict is preferable and dignity and respect are qualities that are key factors affecting behaviour. Dignity and respect are maintained in Saudi Arabia by saving face which is done by the use of compromise, patience and self-control [12]. Arabian culture utilises the concept of face to solve conflicts and to avoid embarrassing or discomforting others.

In a Saudi Arabian business context, avoiding loss of face is important. In fact, saving face is more important than imposing pressure to meet deadlines or improve productivity. It is important for management to show recognition and appreciation of subordinates for their contributions. It is disrespectful for managers to fail to express their appreciation on a continual basis to subordinates. Unfortunately, the fear of losing face mean that Saudis often exhibit:

1. An inability to accept criticism.
2. An inability to admit that anything can be wrong

These inabilities mean that any security problems tend to be ignored and ‘brushed under the carpet’ as to admit to any vulnerability would amount to accepting a criticism and losing face.

7.0 Nepotism

Nepotism is the favouritism of a relative or a friend by those with power in business. Arab people highly value and respect friendship and family relationships. In a business setting, favours based on mutual benefit and trust are ways of enhancing these cultural values. Family and personal relationships take precedence over other governing factors. According to Atiyyah [13], family and personal connections are more influential than other governing factors in the Saudi Arabian business environment. That is why Saudis like to develop a strong social network which can provide help for their families if it is needed. Business in Saudi Arabia is based upon personal connections, so establishing a social network is essential to be successful. Saudi employers like to hire those who they know and trust; therefore it is encouraged and accepted for managers to hire and promote family members or friends [14] and managerial decisions are often affected by the desires of the family [13].

According to Atiyyah [13], as family and personal relationships are important and common in Saudi Arabian businesses, favouritism of a subordinate who has developed a strong relationship with their managers is common and accepted. It is also common for subordinates to replace their current manager because of their strong relationships with higher management.

Atiyyah [15] believes that this type of business practice has both negative and positive aspects. It can serve as a catalyst for building strong relationships with employees up and down the chain of command. However, this could lead to issues relating to ‘unproductive employees’ [10]. It could also weaken the value of performance within an organisation. In this type of environment, the employees may consider that getting a better position is not necessarily a result of working harder but by having a good relationship with organisational leaders. This can lead to resentment amongst other employees and reduce the efficiency of the organisations performance [15]. This could also lead to the hiring of unqualified people in sensitive positions, such as in the information security monitoring department, which then puts the security of information at risk.

8.0 Wealth

Saudi Arabia is a newly developed country with an economy which has expanded rapidly with its oil revenues. This expansion has been reflected in the rapid expansion in IT with companies and organisations starting to use interconnected

computer networks and most of the organisations in Saudi Arabia putting the country's new found oil wealth into investment in IT systems to digitalise their information. However, this rapid expansion has meant that there are very few people in Saudi Arabia with sufficient experience and expertise in IT systems and security. People are generally unaware of the problems of IT security, let alone any solutions to the problems. This is made worse by the fact that, generally, the Saudi people have a very trusting nature and an inability to believe that anyone would want to do any harm to them and their systems.

The Saudi Arabian people are rightly proud of their very successful, expanding economy, and they expect to be part of the business it generates. However, this leads to an expectation that they will always have a senior position within any organisation. Most Saudis prefer managerial positions because of the status and position. For example, jobs involving manual labour would not be accepted by most Saudis and as they consider these to be embarrassing positions [16]. Unfortunately, this attitude prevails regardless of whether they are suitably qualified and so, with the shortage of experience and expertise in the country and with jobs being granted through nepotism, many of the senior managers in Saudi Arabia are unqualified and inexperienced. Furthermore, because of the fear of losing face, there is an inability to address this problem or even admit to it. Clearly, this will have a negative effect on IT management and security.

9.0 Conclusions and further work

Saudi Arabia has seen a rapid expansion of information systems. However, the culture in Saudi Arabia has the effect of making the security of this information very vulnerable which, in turn, can have an effect on the success of Saudi organisations. This paper has shown that Saudi Arabian culture adds an additional layer of complexity to the security of any information system. A number of problems specific to Saudi Arabian culture have been identified. The question now arises as to what should be done about these problems. This is the subject of on-going research. However, the analysis of the problems suggests some possible solutions which need to be investigated further:

1. The qualification and security awareness gap needs to be addressed. However, simply providing courses will not in itself solve the problem if attending these courses is seen by senior managers as admitting to inadequacies in their knowledge. The message must be promoted that IT is developing so rapidly that it is essential to not only keep up with developments, but be seen to keep up with developments to have credibility with subordinates. Managers should be persuaded to hang their course certificates on their office walls as a badge of honour to show they are keeping up with technology. This way, even if nepotism does lead to unqualified people being appointed to senior positions, the lack of qualifications can, at least, be addressed over time.

2. A strong information security policy statement needs to be created. This then needs to be endorsed by the highest manager, whether or not that manager is knowledgeable in IT. The policy statement then becomes a form of instruction for all levels of management and employees. As the Saudi culture requires precise instructions to be passed from managers to subordinates, it will be important for the policy statement to be as clear, proscriptive and detailed as possible to ensure all employees follow it to the letter.
3. A means of auditing the security of an organisation needs to be developed such that it is not seen as a criticism of the management if any problem is found. This could be implemented as a form of self-audit for managers to test their own systems security and fix any problems without losing face. The use of the self-audit would, of course, have to be specified in the security policy statement.
4. A culture of openness needs to be developed. This will be difficult as this is not the normal Saudi approach. To help overcome this the message must be given that security attacks are inevitable, and that they will become ever more frequent and sophisticated. Therefore, if there are no security attacks reported it can only mean that either the organisation's security is so unimportant that no-one would bother to attack it or that the attacks were not being detected. Essentially, by encouraging attacks to be seen as a badge of honour, more openness to report these attacks will be generated.

Other problems in Saudi Arabian information system security may prove more difficult to solve. However, IT itself is already helping to overcome some problems such as the use of email to enable male-female communication. It is possible that IT may provide yet more possible ways to overcome the security problems of Saudi Arabia, but this is for future investigation.

Information systems security should be a concern of every company and organisation. However, this paper has highlighted additional problems created by the culture in Saudi Arabia. It is believed that any organisation working in Saudi Arabia should note the potential risks to IT security reported in this paper and should address the problems with care and sensitivity to take the culture into account. This paper has made some suggestions on ways forward for investigation to resolve the problems identified

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