Deployment of CCTV in Saudi Arabia: Security, Culture and Religion

Resheed Almotaeryi[a], M. Akhtar Ali [b], Richard Jiang [a] and Ahmed Bouridane[a]

[a] Computer Science and Digital Technologies, Northumbria University, Newcastle, UK
[b] Mathematics and Information Sciences at Northumbria University
Northumbria University, Newcastle upon Tyne, UK

ABSTRACT

Deployment of CCTV surveillance systems has now become a worldwide practice for securing people and businesses alike. A common goal of all CCTV surveillance systems is to detect crime and disorder in a timely manner, enabling the law enforcers to possibly prevent it from happening. The effective deployment of CCTV in Saudi Arabia is of particular interest to researchers and decision-makers as in addition to the usual cons and pros, cultural and religious factors do severely hinder its effective implementation. In particular, as prescribed in the *sharia law,* men or women are not allowed to take picture/video or acquire picture/video; hence making it very hard to argue in favour of the case for CCTV systems. Based on a simple model of cost-benefit analysis, this study attempts to evaluate the social costs and returns associated with the deployment of CCTV surveillance systems in both public and private places across the country. In so doing, the research has focused on a case study of a large public hospital in Riyadh as a pilot case for evaluation of effectiveness of use of CCTV. Using a large sample of doctors, nurses, workers and patients of the hospital, the study has produced a structured questionnaire survey. The preliminary findings are indicative of several main issues. Firstly, due to lack of education on the part of some patients and workers, over 52% of such participants declared that they had no knowledge about the potential usefulness of the CCTV surveillance in crime reduction. Secondly, a significantly large number of doctors and nurses declared that they were fully supportive of the surveillance systems as they believed it would help reduce theft and provide a safe and secure environment for them to work. Thirdly, although over 50% of participants tend to believe that CCTV systems can help reduce crimes, they were concerned that the staff in charge of such CCTV systems may abuse the power and hence jeopardise the true effectiveness of the system. Finally, according to the initial findings of the study, it is anticipated that there would be more CCTV systems in place in Saudi Arabia as the issue of security tends to overshadow other cultural and religious issues.

Key Words: CCTV Surveillance System, Saudi Arabia, Security, Sharia law

1. INTRODUCTION AND AIM OF THE STUDY

Crime prevention strategies are implemented to reduce the crimes and the effects caused by crimes. The most widely used technology in crime prevention is the use of CCTV (Closed-Circuit Television) Surveillance System (Agustina, 2011). Humans are experiencing the development of technology in modern society like using CCTV System in crime prevention and people's awareness before most people believe that CCTV system can protect them because offenders know they are being watched and they may not risk their life to commit crimes or deviant act (Gill, 2006).

There have also been claims that the very presence of a CCTV surveillance system provides reassurance in the public and thus reduces fear of crime (Yoon, 2014). Another benefit of CCTV systems is to provide valuable business management tools where by using it can protect staff and support health and safety initiatives (Baker, 2007). It also helps in during investigations and providing crucial source of evidence to police and can provide innocence to those people who are not involved (Dumoulin, et al., 2010). Further, it can be helpful in the production and control management in factories where conditions are not suitable. All information in the form

of data can be stored and reviewed when needed. A CCTV System can be designed to fit in all scenarios where it can be installed internally or externally, highly visible or covert, that can be static or moveable depending on position to record and also moveable from remote locations (Ferguson, 2010).

With its rapid development in all sectors it is very important for Saudi Arabia to protect these premises and the most effective technology can be CCTV Surveillance System. Although examination of effectiveness and social costs and benefits of CCTV deployment in other countries can offer insights into such development in Saudi Arabia, religious, cultural and traditional values need to be seriously considered here. According to Swainston (2013) recently the Saudi Ministry of Education has announced that CCTV camera systems are to be installed in around 33,000 schools around the Kingdom in order to protect pupils and students. Further, there are 5 million students and 700,000 teachers[1] who are actively involved in their duties and if these steps successful that would be means one third of Saudi students and teacher will not compromise on safety and security.

Therefore, there is a serious need for the deployment of CCTV Surveillance systems in the country and its booming industry and infrastructure. However, strict Islamic laws can prevent its full deployment because in Islamic laws women or men cannot take picture/video or acquired picture/video. Therefore, it is very hard to make the case for CCTV System. With the government recent initiative, it will provide better initiative steps for CCTV future in the Kingdom. CCTV system will help to ensure the physical and operational security around the country's business, commercial and housing area. It will protect people, properties, and processes.

In the light of this brief introduction, the aim of the study is to investigate into the CCTV surveillance systems' effectiveness used in Kingdom of Saudi Arabia in consideration of the country's cultural and religious values and norms. The research therefore attempts to find answers to the following two questions:

1. To what extent do the cultural, legal and religious values affect the deployment of CCTV systems in Saudi Arabia?

2. How should the country develop a framework for effective deployment of CCTV system?

2. LITERATURE REVIEW

Any detailed review of literature relating to CCTV must include a whole host of factors such as effectiveness, technological constraints, legal issues, security versus privacy debate, and ethical and cultural values. Although the ethical and cultural values may significantly vary from one country to another, other issues tend to be valid and consistent across countries.

On the issue of effectiveness, a common goal of all CCTV surveillance systems is to detect crime and disorder in a timely manner and possibly prevent it. There have also been claims that the very presence of a CCTV surveillance system provides reassurance in the public and thus reduces fear of crime (Yong-Ik and Jee-Ae 2014). Another benefit of CCTV systems is to provide valuable business management tools where by using it can protect staff and support health and safety initiatives (Baker, Al-Gahtani and Hubona, 2007). It also helps in during investigations and providing crucial source of evidence to police and can provide innocence to those

people who are not involved (Dumoulin, et al., 2010). Further, it can be helpful in the production and control management in factories where conditions are not suitable.

According to Gill and Spriggs (2005) that CCTV Surveillance System works best in small enclosed areas where there are most chances of crimes. Evidence from the UK shows the use of CCTV system can reduce theft of vehicles and other form of acquisition theft (Clark, 2001). The study shows that with the exception of violence against person, all other types of crime are shown to have decreased following the installation of CCTV in these areas. In particular, theft of all kind has been reduced significantly, according to this study. On the whole, Gill and Spriggs (2005) demonstrate that the installation of CCTV in selected UK cities and towns have generated a net benefit giving a cost-benefit ratio of 1.24, meaning that benefits have exceeded cost of CCTV in tune of 24%.

A research study was undertaken by the University of Sydney (2010) into whether CCTV Surveillance System creates safer street or make no effect on the city of Sydney. The research was taken into two period one before installation of six cameras and other part of the report was after the installation of CCTV Surveillance Systems. The study reveals that with the installation of security cameras make huge change in the public life they are feeling more secure than before as shown in figure 2-3 below. Similarly in the case of recently Olympics held in London where security measures were taken seriously to avoid any unwanted situation.

On the other hand, According to Mucchielli (2011) CCTV cameras are in no way a replacement for police presence. For the cameras to be used effectively there should always be a live link between the camera and a monitoring station. Furthermore there should be enough officers on duty to respond to a threat detected. Thus for CCTV to work as a crime prevention tool it should be used as a form of additional support and its overall costs (both monetary and social) must be fully determined prior to installation (Brands et al. 2013).

One possible explanation for lack of effectiveness of the CCTV has been highlighted in Donald (2010) as being the insufficient attention devoted to the human side of CCTV systems and detection processes, namely CCTV surveillance control room operators. It is expected that these operators must sustain high levels of alertness and attention over extended periods of time. Donald (2010) has integrated a whole host of factors into a holistic theoretical model of performance for CCTV operators, covering on areas such as vigilance, human factors in system design, and perceptual-cognitive processes involved in visual search and monitoring. The study concludes that decision-makers must make sure to recruit the control room staff based on their performance on these social, psychological and technological factors.

On the issue of legality of CCTV, Gras (2004) has attempted to arrive at a minimum standards furnishing the safeguard of citizens and their human rights. "The efficacy of regulation will depend not only on its quality, but more on a country's commitment to privacy and the institutional safeguards it has already installed to protect it" (Gras, 2004: 228). In short, Gras (2004) argues that CCTV surveillance has led to changes in definition of privacy and hence creating a challenging arena for regulators and lawyers in most European countries. Whether supporting or rejecting the idea of CCTV deployment, there is always a valid question to pose about the legality of such surveillance system. Norris and Armstrong (1999) have presented a number of cases where the civil

liberty of citizens have been ignored in favour of deployment of CCTV systems which have later proven to have been ineffective in crime reduction. Gill and Spriggs (2005), among many things, have also made a special reference to the issue of privacy and civil liberty in their comprehensive report of the UK CCTV systems. They have particularly referred to cases where the social costs arising from deployment of CCTV has significantly exceeded the social benefits.

From a psychosocial point of view, based on cultural values, it is necessary to find out how individuals and the society can adapt to changes following installation of CCTV surveillance system. Hidalgo et al (2014) have considered this issue in relation to the perception that people may have about the negative impact of CCTV on their lives. Based on a sample of 102 participants in Malaga, Spain, they report that over 60% of participants have declared feeling safer in the presence of CCTV surveillance systems. However, this seems to be at odd with similar cases in less crowded places in Spain. The study therefore attempts to point out to the fact that even in a given country, people's attitudes can change significantly depending on where they live and what they have been experiencing.

Alhadar and McCahill (2011) state that resistance to deployment of CCTV systems in Saudi Arabia is primarily due to religious and cultural backgrounds. However, their study show that the new surveillance technologies used as a pilot case has not only saved businesses against theft, but also has managed to protect public morality; hence arguing in favour of further deployment of such facilities in the kingdom. Similar issues relating to female teachers in Saudi Arabia have been raised in Jamjoon (2010), highlighting the social, cultural and religious pressures imposed on women in adopting and acting liberally towards advancement of technology.

Regardless of all these cultural and religious tensions, both the expenditure and absolute number of CCTVs have grown significantly in all GCC countries, with Saudi Arabia having the highest share of such expenditure (MEED, 2014). It is estimated that spending on surveillance solutions, equipment, software, design and installation services, across the GCC states could exceed $4.0bn or an average of $1.0bn annually. It must be born in mind that these estimates do not include retrofit investments such as the multi-million dollar project being initiated by Saudi Arabia's GACA to upgrade the security and surveillance infrastructure at the kingdom's domestic and international airports (MEED, 2014).

One of the most controversial and heated CCTV surveillance installation projects in Saudi Arabia was related to monitoring the density of pilgrims during the annual Hajj in Mecca. In the end, the government won the case against the opposition by installing a sophisticated surveillance system, built by France's Thales, designed to prevent accidents and stampedes when pilgrims cross over the Jamaraat Bridge, where fatal crushes had previously and almost every year occurred and led to several fatalities and serious injuries (MEED, 2014). Tried and tested on Hajj pilgrims in Saudi Arabia, Dridi (2014) has come up with the model for tracking individual targets in high density crowd scenes where thousands of people are gathered. This study presents a real-time method for pedestrian recognition and tracking in sequences of high resolution images taken by cameras located in different places on the Haram mosque in Mecca, with the aim of estimating pedestrian velocities as a function of the local density.

On the whole, on the basis of recent security scare in the region and at the same time increasing number of

construction and petroleum related projects, it is anticipated that the region in general and Saudi Arabia in particular would see more CCTVs in most strategic areas. In short, as has been discussed earlier, security issues and concerns have seriously overshadowed the other social, political and cultural factors in Saudi Arabia, having led to significant growth of CCTV deployment in the country. In short, in the light of such instability and insecurity measures, the society in Saudi Arabia, like anywhere else in the world, are gradually accepting the fact that CCTV surveillance is here to stay (Esposti et al., 2014; De Pauw and Vermeersch, 2014; Patil, 2014).

3. METHODOLOGICAL ISSUES

As has been elaborated in Healy and Perry (2000), a scientific research paradigm must be treated as an overall conceptual framework within which researchers work. Fossey et al. (2002:718) have defined it in a much wider scope as a set of interrelated "assumptions about the world which is shared by a community of scientists investigating the world". Undoubtedly, the choice of research philosophy is one of the most fundamental aspects to be considered by researchers when seeking to answer the research objective (Collis & Hussey, 2009). According to Easterby-Smith et al. (2002) research philosophy not only helps determine the study design, it provides us with the ability to establish the most appropriate study design; and subsequently creating a study design outside the researcher's prior experience.

Based on this brief background, the method of investigation in this study is naturally a mixed approach resting on both qualitative and quantitative methods. The process of collection of data through the development of a questionnaire constitutes the qualitative aspect of the research. On the other hand, the collected data is to be applied to a number of statistical inferences and this forms the quantitative part of the research. The research is also an inductive approach as the research assumes no underlying theory and that the observations and findings could help shape a theoretical foundation upon which the study can rely.

As stated above, in collecting data, the study has developed and distributed a questionnaire to a number of stakeholders. This study constitutes a small part of a grand research into all aspects of CCTV in Saudi Arabia. Therefore, this study only examines a single case of a private business – Alfardan Jewellery - in a shopping mall in Riyadh, Saudi Arabia. The findings from the case study will shed light into effectiveness, legality, privacy and cultural religious issues arising from the installation of CCTV in private businesses.

4. DATA AND ANALYSIS OF FINDINGS

A questionnaire was developed and distributed to participants in the early 2014, consisting of several questions regarding knowledge and awareness of CCTV, personal attitudes and perception towards CCTV, privacy issues and religious/cultural backgrounds. To examine the effectiveness and workability of the CCTV system in the jewellery shop, all the 18 working staff as well as 45 randomly selected customers were invited to complete a self-administered questionnaire. The questions were arranged to offer customers and staff to rank their preference in a Likert scale, with zero being the lowest and 4 being the highest level of agreement. The Alfardan jewellery is one of the largest jewellery shops in the shopping mall and has had CCTV system in operation since 2013. The business has recently grown tremendously having now 6 branches in three major cities in Saudi

Arabia, as well as having links with international businesses. The owners have argued that since the installation of their hi-tech CCTV they have been able to save thousands of dollars every year through reducing theft of jewels from the shop, primarily committed by customers.

This process of data collection is deemed to help understand the concerns that both staff and customers exhibit in relation to new surveillance technologies. For the former one, the questionnaire can be about effectiveness, coverage, cost and purpose. For the later one, privacy, culture, economic benefits and social engineering will be considered. This will help understand about the Saudi people psychological/social effects, their concerns about CCTV systems and how to defuse the effect in general. Further, the research will investigate the effects of counter-surveillance, inverse surveillance, and other controversy about CCTV surveillance systems in Saudi Arabia.

Table 1 offers three main characteristics of both the customers and the staff based on gender, education qualifications, and general knowledge about CCTV. As this table suggests of the total of 45 customers, only 25% declared that they had some university degrees, with majority having only high school qualifications. Similarly, only 16% of staff working in the jewellery declared that they had had university degrees. The surprising point in terms of knowledge of CCTV is that nearly three-quarters of customers replied that they had either no or little knowledge of what CCTV does or is good for. On the other hand, around three-quarters of staff stated that they had either enough or full knowledge of CCTV.

Table 1: Selected characteristics of Customers and Staff: Alfardan Jewellery

Characteristic	Customers %	Staff %
Gender:		
Male	70	88
Female	30	12
Education Qualifications:		
High School	33	11
Intermediate	42	72
Undergraduate	14	11
Postgraduate	11	6
General Knowledge of CCTV:		
No knowledge	23	7
Little knowledge	52	21
Enough knowledge	10	62
Full knowledge	15	10

Of the full questionnaire, three questions emerged as vital and crucial in testing our hypotheses. Table 2 presents the responses by customers to the three questions. According to this table just over 50% of customers believe that CCTV is an unreliable source of security. However, a sound majority of customers are of the view that CCTV could help reduce crime. On the other hand, as shown by the median group, the majority of customers feel that CCTV cameras tend to invade privacy. The estimated mean values associated with these variables also suggest whilst the customers are led to believe that the CCTV could reduce crime, they are unsure of the its reliability and that they regard it as an intruder.

Table 2: Customers responses – based on three main questions: Alfardan Jewellery

Response	Weight	%	Cumulative	Mean
Perception on CCTV reliability:				
Highly unreliable	0	24	24	
Unreliable	1	29	53	1.18
Reliable	2	42	95	
Highly reliable	3	5	100	
Perception on CCTV crime reduction:				
Strongly disagree	0	10	10	
Disagree	1	15	25	
Agree	2	28	53	1.94
Strongly agree	3	42	100	
CCTV invading of privacy				
Strongly disagree	0	10	10	
Disagree	1	14	24	
Agree	2	27	51	2.15
Strongly agree	3	49	100	
			Median Group	

As for the staff responses, three main areas form the core of their views about CCTV. Whilst the typical member of staff agrees with theft reduction capability of CCTV system, around 22% tend not to agree. Moreover, up to 90% of staff do agree or strongly agree that the installation of CCTV could improve the working environment or perhaps improve productivity. On the other hand, a large majority of 82% of staff believe that CCTV could not help reduce work incidents. On the whole, the staff at Alfardan Jewellery appear to be more positive in the effectiveness of CCTV system at workplace and in particular in reduction of theft.

The estimated mean values also support the view that the installation of CCTV would seriously improve the working condition and that is shown as the mean value of 2.4. Moreover, with the mean value of 1.93, the staff believe that CCTV system can help reduce crime significantly.

Table 3: Selected responses by staff: Alfardan Jewellery

Response	Weight	%	Cumulative	Mean
Perception on CCTV reduction of theft:				
Strongly disagree	0	7	7	
Disagree	1	15	22	
Agree	2	51	73	1.93
Strongly agree	3	27	100	
Perception on CCTV improving work:				
Strongly disagree	0	0	0	
Disagree	1	10	10	
Agree	2	40	50	2.40
Strongly agree	3	50	100	
CCTV reducing work incidents:				
Strongly Disagree	0	50	50	0.76
Disagree	1	32	82	
Agree	2	10	92	
Strongly agree	3	8	100	

	Median Group

A brief interview of the manager of one of the Alfardan jewellery showed that a large number of theft tends to be committed by women who would easily hide the jewels in their long traditional cloaks and that the management finds it extremely difficult to trace such criminals. In addition, the interview revealed that a large number of male customers did not wish their spouses or relatives accompanying them to be video recorded or picked up by CCTV, since following the Sharia law Muslim women must not be seen or videoed through CCTV or any similar forms of surveillance.

In identifying the sources of opposition to CCTV, the same customers and members of staff were given a simple one-question additional questionnaire to write what they regard as the most important factor. Table 4 gives the summary of factors perceived as intrusion by CCTV system in percentages. As this table show, the majority of customers and staff have stated that the use of CCTV is against the Islamic law. While the customers attach lower values to legality and the misuse of CCTV, the staff regard these two factors as important. On the whole, as this table suggest, the religious factor appears to be the most significant one in individuals opposing the CCTV installation.

Table 4: Customers response in opposing the CCTV – Alfardan Jewellery

Factor	Customers (%)	Staff (%)
* It is against the Sharia law	58	41
* It is against human right	24	22
* It is illegal	13	20
* CCTV evidence may be misused	5	17

5. CONCLUSIONS

The paper represents a small part of a large undergoing PhD research programme at Northumbria University looking into the potential effectiveness of CCTV deployment in private businesses and public organisations in Saudi Arabia. The paper has identified, using a case study of a large jewellery in Riyadh, that as far as the customers are concerned, a majority do agree with the crime reduction of CCTV but oppose to its potential intrusion. Further investigation into the sources of opposition to CCTV revealed that nearly 50% of all staff and customers regard the deployment and use of CCTV as un-Islamic and against the Sharia law. Furthermore, less than a quarter of the customers and staff also regard CCTV as against the Saudi culture, tradition and values.

Saudi Arabia is on the forefront of Islam and Islamic beliefs and hence the country has taken it for granted that they should support all aspects of Sharia law to its very roots. Islamic traditions are well rooted in a majority of the country's population and form the very basis of the Saudi culture and life. To create an environment in which CCTV systems are accepted in both businesses and public places, for example, spread awareness of usefulness of surveillance system by the government and businesses. Data analysis revealed that around three-

quarters had either no or little knowledge of CCTV usefulness, and that appeared to be adversely related to higher levels of educational attainment.

In short, Saudi Arabia has seen a significant rises in the deployment of CCTV surveillance systems in both businesses and public places. Nevertheless, there is still a considerable resistance to further installation of CCTV primarily based on lack of knowledge on the usefulness of CCTV and the religious beliefs and values. In combating this attitude and preparing the society for further deployment of surveillance systems, the government and businesses alike must introduce a grand country-wide campaign of educating people about the potential usefulness of CCTV in protecting and securing the public against any criminal activities.

REFERENCES

Agustina, J. R. (2011). The impact of CCTV on fundamental rights and crime prevention strategies: The case of the Catalan Control Commission of Video surveillance Devices. *Computer Law & Security Review, 27*(2), 168--174

Alhadar and McCahill (2011) The use of surveillance cameras in a Riyadh shopping mall: protecting profits or morality? *Theoretical Criminalogy*, 15(3), 315-330.

Baker, E., Al-Gahtani, S. and Hubona, G. (2007) The effects of gender and age on new technology implementation in a developing country: Testing the theory of planned behaviour (TPB), *Information Technology & People*, 20(4), 352–375.

Cerezo, A. (2013) CCTV and crime displacement: a quasi-experimental evaluation. *European Journal of Criminology*, 10(2), 222-236.

Clark, R. (2001) Person location and person tracking - Technologies, risks and policy implications, Information Technology & People, 14(2), 206 – 231.

Cohen, L., Manion, L. and Morrison, K. (2007) *Research Methods in Education*. Sixth Edition, New York: Routledge.

Collis, J. and Hussey, R. (2009), *Business research: a practical guide for undergraduate and postgraduate students* (3rd Ed), Basingstoke: Palgrave-Macmillan.

Easterby-Smith, M., Thorpe, R. and Lowe, A. (2002) *The Philosophy of Research Design in Management Research: An Introduction*, London: Sage.

Fossey, E., Harvey, C., McDermott, F. and Davidson, L. (2002) Understanding and evaluating qualitative research. *Australian and New Zealand Journal of Psychiatry*, 36, 717-732.

Gill, M. (2006) *The Handbook of Security*. New York: Palgrave Macmillan.

Gill and Spriggs (2005) Assessing the impact of CCTV. *Home Office Research Study 292*.

Goold, B.J. (2000) Public area surveillance and police work: the impact of CCTV on police behaviour and autonomy. *Surveillance and Society*, 1(2), 191-203.

Gras, A.M. (2004) The legal regulations of CCTV in Europe. *Surveillance and Society*, 2 (2), 216-229.

Healy, M., & Perry, C. (2000). Comprehensive Criteria to Judge Validity and Reliability of Qualitative Research within the Realism Paradigm. *Qualitative Market Research: an International Journal*, 3(3), 118-126.

Mathews, K. (2014) Saudi Arabia CCTV market to grow at 23% during 2014-19. [online]. Available at: http://www.prnewswire.co.uk/news-releases/saudi-arabia-cctv-market-to-grow-at-23-during-2014-19-finds-techsci-research-study-266055241.html . (accessed: 10 October, 2014).

MEED (2014) Smart surveillance in the GCC: key trends and outlook. [online] available at: http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCMQFjAA&url=http%3A%2F%2Fwww.meed.com%2FJournals%2F2014%2F09%2F18%2Fo%2Fw%2Fa%2FMEED-Insight-Surveillance-Research-paper-WEB.pdf&ei=_zBjVNrWJ8bBOcu2gIgH&usg=AFQjCNEAL10HXJHPUjRHrc80ctJTaOijnw&sig2=gK9D8_4n3xBk4fLEDgJUGQ&bvm=bv.79189006,d.ZWU. (accessed: 8 August 2014).

Norris, C. and Armstrong, G. (1997) *The unforgiving Eye: CCTV Surveillance in public space*. Hull: Hull University Publication.

Norris, C., & McCahill, M. (2006) CCTV: Beyond penal modernism? *British Journal of Criminology*, 46(1), 97–118.

Osborne, H. (2013) Hajj 2013: Saudi Arabia installs 1700 CCTV cameras to monitor Mecca pilgrims. [online]. Available at: http://www.ibtimes.co.uk/hajj-2013-saudi-arabia-security-install-cctv-511745 . (accessed: 18 December 2013).

Said et al (2007) Information Technology in Saudi Arabia: The acceptance of use of IT. *Information and Management*, 44, 681-691.

SASO (2013) CCTV surveillance system for public buildings. Saudi Standards, Metrology and Quality Organisation, Saudi Arabia.

SMC (2013) Information about Specialised Medical Centre, Saudi Arabia. [online]. https://www.smc.com.sa/main/index.php?option=com_content&view=article&id=44&Itemid=38&lang=en. (accessed: 20 March 2013).

Straub et al (1997) Testing the technology acceptance across cultures: A three country study. *Information and Management*, 33, 1-11.

Swainston, D. (2013) CCTV Cameras for 33,000 Saudi Arabia Schools. [Online]. Available at: http://www.securitynewsdesk.com/2013/09/26/cctv-cameras-for-33000-saudi-arabia-schools/ (accessed: 19 December 2013).