ROLE OF CCTV IN BUSINESS ORGANIZATION: A CASE STUDY

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ABSTRACT
The installation of CCTV system in various sectors produced many changes in those sectors. This study investigates these positive and negative changes in a systematic way. This gives a small introduction about CCTV technology and investigates various aspects in different organizations. The study was conducted among the employers, employees and the public. After pointing out the effectiveness of implementing CCTV system, it describes the limitations and tries to give some suggestions in order to minimise these limitations. This article will provide the readers the effect of implementation of CCTV technology in modern business sector in detail.

KEYWORDS: CCTV technology, Video surveillance, CCTV in business, impact of CCTV, Workplace surveillance

INTRODUCTION

Closed Circuit Tele Vision (CCTV) refers to a visible video system intended only for a limited no. of viewers. In Closed Circuit TV, picture is not broadcast but is viewed or recorded. When developed, it was very expensive and used as a means of security system in banks and hotels. But now it became too simple and inexpensive to use even with home security systems.

The basic technology of CCTV was evolved in the 1960s. Firstly CCTV switch boxes were added. A switch box will allow the operator to switch between cameras. Only one camera can be viewed at a time. In 1970s Multiplexers, VCRs and Solid State cameras were brought. Multiplexers divided the screen in to multiple frames on the same monitor. VCR was used for video recording and video distribution. Solid state cameras improved the reliability and integration of VCRs. This first generation CCTV technology had many performance related problems. VCR recorders were temperamental and the quality of recording was very poor. Images were unclear. The process was time consuming and there was no motion detection capability. The next generation CCTV were arrived in the mid 90s. It used the technology of computer based Digital Video Recorder. DVRs recorded at much higher resolution. It eliminated major problems of first generation CCTV technology. New generation cameras can Pan, Tilt and Zoom (PTZ) , can record at higher resolution. They have large variety of lenses and are capable of operating in night vision also. Audio is also included in CCTV DVR technology. Now the operator can synchronize the motion based video events with audio analysis. Now the operator can give instructions to the staff. It is also possible o record, search, and replay in both audio and video forms.

Nowadays CCTV technology is used in many fields. The main use of it is in Crime Prevention, industrial processes, traffic monitoring, control of retail, in schools etc.

LITERATURE REVIEW
The main abstracts from different literatures are given below

Vivien Carli (2008): The report will provide the readers with a variety of discussions, based on an objective analysis of the available publications throughout the world. It addresses the history of CCTV and its effectiveness and utility. It also evaluates the concept of the rise of surveillance societies and the protection of individual rights and promotes further discussions and analysis through policy recommendations.

Martin Gill and Angela Springs (2005): This report is a complete evaluation of CCTV. According to this, CCTV technology has not been as effective as it was expected to be and it states that CCTV has lead to more of a displacement of crime rather than reducing it. There needed to be good police support in order to be able to put the use of CCTV to proper effect.

Benjamin J Goold (2003): This paper considers whether the presence of surveillance cameras affects the working attitudes and behaviours of individual police officers. This paper asks whether CCTV makes the police more accountable or more cautious in the exercise of their discretion in public space. This paper concludes by arguing that more needs to be done to prevent the police from interfering with the operation of CCTV and gaining unauthorised access to potentially incriminating video evidence.

B.C. Welsh and D.P Farrington (2008): This report suggests that future CCTV schemes should employ high quality evaluation designs with long follow-up periods and should pay attention to the methodological rigor of the evaluation designs. Success of CCTV schemes in car parks was mostly limited a reduction in vehicle crimes and camera coverage was high for those evaluations that reported on it.

STATEMENT OF THE PROBLEM

Nowadays complete surveillance is not possible through human eyes. So millions of CCTV cameras are installed in streets and business throughout the world with a goal to reduce crime and increase public safety. According to industry estimates, the global video surveillance market is expected to grow from $11.5 billion in 2008 to $ 37.7 billion in 2015. CCTV cameras have potentials of creating unintended effects, good and bad. These good and bad effects have to be considered. Today, CCTV video security system is necessary for all business types irrespective of whether it is a small business or multinational companies.

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In the point of view of a business man, even though CCTV system has many bad effects, the overall efficiency of the organization will improve.

**OBJECTIVES**
The fundamental objective of the study is to create awareness among the business people about the usage of modern technology like CCTV system in their organisations. The specific objectives of the study are:
1. To identify the effectiveness of implementation of CCTV in business sector.
2. To point out the good and bad effects of CCTV technology.
3. To give some suggestions in order to mitigate the limitations.

**HYPOTHESIS**
CCTV system has the ability to improve the attitudes and efficiency of workers and to reduce crime in the business sector. It also enhances the relationship between seller and buyer.

**METHODOLOGY**
The study mainly covers 5 different business concerns, employees and public. This study is also using the secondary data collected from various media for identifying similar situations in other types of organizations. The present study is based on the factors such as the condition of organizations before and after the implementation of CCTV technology and the effectiveness of the technology.

**RESULTS AND DISCUSSION**
A detailed questionnaire was distributed among samples to collect data for the study. Table 1 depicts the results.

From Table 1, it is clear that reduction in theft is maximum in textiles and minimum in Production centre after CCTV installation. The effect of CCTV is insignificant in Production centre, because of proper maintenance of stock keeping system. The efficiency of employees is increased to a maximum in textiles and Production centre but this increase is small in jewellery, because in jewellery, service is personalised in nature. The term morale is the state of the spirits of a person or group as exhibited by confidence, cheerfulness, discipline, and willingness to perform assigned tasks. Due to CCTV surveillance, morale is showing a progressive growth rate in every organization. Workplace surveillance creates a feeling among employees that they are continuously being watched and evaluated by their superiors. This will produce distrust and resentment between employers and employees. Thus the employees will be under great pressure to do well and maintain productivity. Since the workers are aware that their performances are being watched, they are at their best service to the customers. They perform very well to the customer’s satisfaction. Hence the customer relationship of the organization will improve. This is true for every sector in the table. After installing CCTV system in each business concern, the supervision, job rotation, Appraisal of employee’s performance, quality of production and products all are improved.

As per the study conducted, the advantages of CCTV installation can be listed as:
1. Cases of theft, malpractices and misconduct of the employees can be detected using CCTV technology. Thus this can be used as a crime detecting device.
2. CCTV camera systems are continuously recording the performance of the employee in every business organisations. Thus the employees are always updated and taking out their best performance. Thus CCTV video security systems are very effective in the continuous utilization of manpower.
3. Human supervision is not possible always. There may be chances for the absence of employees in the working time. CCTV technology can be used as a attendance recording device.
4. If there is any complaint or dispute among the workers, the employer can’t know the exact situation. In such situation, the video clips from CCTV system can be used to analyse the situation.
5. Using the CCTV video clips, the employer can identify the regular customers. By serving them in a better way, the overall business can be developed.
6. The recorded video from CCTV can be kept as evidence. The company can use it when any kind of legal action comes against it in future.

The results of the study conducted among the employees of the above mentioned organizations and the public are shown in figure 1.

From figure 1(a) it is clear that most of the public are agreeing with the positive impact of CCTV systems. This is because use of camera is an effective way for public safety and valid evidence to the Court. It also reduces theft, burglary etc. Most of the public also says that there is a drastic change in the attitude of the staff and they are getting better service after the installation of CCTV security system. Some fraction of the public is in disagreement with the CCTV usage. They are saying that privacy is lost. Moreover cameras are installed in some private area so that there may be chances to abuse the video clips. Most of the women customers have this opinion. Customers are also in fear of unauthorised access to or use of the cameras by lower level employees and outsiders.

From the figure 1(b) it is clear that the major portion of the employees is against CCTV systems. This is because; workplace surveillance may create some serious privacy invasion issues to the employees. These issues are both mental
Table 1: Change in various Business Organizations two years after CCTV installation

<table>
<thead>
<tr>
<th>Objective</th>
<th>Organization</th>
<th>Change in percentage</th>
<th>Is this significant?</th>
</tr>
</thead>
<tbody>
<tr>
<td>To reduce Theft</td>
<td>Jewellery</td>
<td>-60</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Textiles</td>
<td>-72</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Production Centre</td>
<td>-9</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Chain Store</td>
<td>-41</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Malls &amp; Supermarket</td>
<td>-6</td>
<td>No</td>
</tr>
<tr>
<td>To increase Efficiency of employees</td>
<td>Jewellery</td>
<td>30</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Textiles</td>
<td>90</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Production Centre</td>
<td>80</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Chain Store</td>
<td>65</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Malls &amp; Supermarket</td>
<td>50</td>
<td>Yes</td>
</tr>
<tr>
<td>To increase morale</td>
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<td>48</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Textiles</td>
<td>90</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Production Centre</td>
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</tr>
<tr>
<td></td>
<td>Chain Store</td>
<td>78</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Malls &amp; Supermarket</td>
<td>64</td>
<td>Yes</td>
</tr>
<tr>
<td>To increase customer relationship</td>
<td>Jewellery</td>
<td>52</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Textiles</td>
<td>82</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Production Centre</td>
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</tr>
<tr>
<td></td>
<td>Chain Store</td>
<td>80</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Malls &amp; Supermarket</td>
<td>84</td>
<td>Yes</td>
</tr>
<tr>
<td>Overall Management</td>
<td>Jewellery</td>
<td>80</td>
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</tr>
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<td>Chain Store</td>
<td>82</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Malls &amp; Supermarket</td>
<td>70</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Fig 1 (a): Response of the Public
and physical. CCTV cameras installed in employees rest rooms, changing areas and other private areas will create a confusing situation among employees because they require some minimum privacy. If such private video clips were recorded, there may be chances to get that in some criminal’s hands or that can be misused. This situation will create stress and fear among the employees. Due to workplace surveillance, the employer may get access to the employee’s computers, email accounts, net usage records and phone conversations. Thus any small mistake from the side of employee can be easily detected by the employer. In some situation, this may lead to the termination of the job of the employee. In some organizations this is frequently happening. Thus a kind of job insecurity will be created in the employee. A small fraction of the employees agrees with the CCTV system because it offers some sort of security from disturbing customers.

SUGGESTIONS

• Positioning of camera is very important in the installation process. Cameras are placed in such a way that they should monitor areas intended to be covered by the CCTV system. Lighting level including shadowing, maximum lux level, direction of sun etc should be kept in mind.
• CCTV operators should not monitor individuals based on characteristics such as sex, race, disability etc.
• Clearly visible warning should be given to the workers that they are entering in to a zone which is under the surveillance of CCTV system. The signs should give information about the identity of the organization responsible for the scheme, its intention and details of the person to contact regarding the scheme. This contact should be available during the work time and the workers at the contact point should be aware of the relevant policies and procedures.
• The images obtained from the CCTV are as clear as possible to ensure that they are suitable for the intended purpose. The proper maintenance of camera is also necessary. It should record with suitable resolution. If dates and time are recording, these should be accurate. Because video clips from CCTV are powerful evidences for future. The physical condition of the camera should be good. The sound should be recorded only when it is necessary. All access and disclosure of the images should be documented.

A 2010 document from the European Forum for Urban Security, “Charter for a Democratic Use of Video-Surveillance” provides a useful overview of the issues at stake as well as a set of principles and tools to ensure that citizens’ rights are respected with CCTV systems. These include:

• Necessity: The use of camera systems must be justified empirically, ideally by an independent authority. Objectives and intended outcomes must be defined.
• Proportionality: CCTV equipment must be appropriate for the problem it is intended to address. Technology should “respond to the established objectives, without going further.” Data should be protected and the length of time it is retained be clearly defined.
• Transparency: Citizens should know what the objectives of a CCTV system are, what its installation and operational costs are, the areas being surveyed, and what the results are. Reports should occur regularly so citizens can make informed decisions.
• Accountability & Responsibility: Those in charge of public CCTV systems should be clearly identified and accountable to the public, whether the systems are run by the government or private firms.
• Independent oversight: An external body should be charged with ensuring that systems respect the public’s
rights and are achieving their stated objectives. Ideally citizens would have a voice in the oversight process.

CONCLUSION

In spite of some disadvantages, CCTV technology plays a luminous role in the present scenario of the business organizations. Every technology has good and evil impacts on society. Evil effects can be mitigated by implementing the suggestions of this study. In the modern cutthroat competitive business world, usage of such technologies will help the organizations to increase their productivity, utilization of manpower, other resources, better service with customers etc to their maximum and can make an edge over their competitors.

REFERENCES

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