A STUDY OF CONSUMER BEHAVIOR ON USAGE OF CCTV SURVEILLANCE SYSTEM WITH SPECIAL REFERENCE TO MANUFACTURING INDUSTRIES IN INDIA

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ABSTRACT

Honess and Charman (1992) found that the vast majority of people support the use of CCTV to control crime in public areas. There is also some evidence from the Birmingham case study that CCTV has helped to improve feelings of safety in the city centre streets after dark. However; Honess and Charman also found that one third of people were concerned with "being watched" and the possible expansion of state or police control. Closed circuit television (CCTV) cameras are becoming a very common feature of public life. They can be found in shopping facilities, town centrestreets, banks, building societies, car parks, schools and colleges, transport facilities and housing estates. The presence of CCTV cameras within shopping centres is very common. Centre managers often install cameras as part of an overall management package which deals with a range of activities, including criminal and anti-social behavior. In this research paper researcher basically focused on the need of CCTV camera and the influencing parameter for purchasing of CCTV camera. To analyze all the data, different techniques has been used like regression, coefficients, one-way ANOVA, chi-square test, lambda and contingency coefficient. For this, SPSS v16.0 software package has been used. It was observed that the need of CCTV has significant impact on influencing parameters for purchasing CCTV. It was also observed that the need of CCTV has significant impact on type of cameras and the need of CCTV has significant impact on expected storage capacity.

Keywords: Consumer behavior, Closed circuit television camera.

INTRODUCTION

Humans have always felt very possessive of their belongings. During ancient times, inhabitants used to live in secure caves so that they would be protected from unwanted intrusion and from deadly animals. The advancement of civilization witnessed better and improved means of home security system being implemented by humans. Technological revolution of modern age has resulted in concept of home security finding widespread

popularity. Everyone worth his salt thinks of protecting his hard earned possessions. Urban population specifically has become very conscious of the important aspect of home security. India security system has several useful tools available to protect your beloved home. One can find latest technological innovations being employed to protect not only houses but also offices, buildings, and warehouses etc. Nobody likes to be robbed of his precious possessions and hence opting for a secure system makes sense. Also the fact that, crime rate has kept increasing further emphasizes the need of upgrading the home security. With changing times, even petty thieves have acquired new skills to rob your belongings. Most of the urban cities and metros are witnessing increased rate of crimes and that requires for installation of a safe and secure system to protect your valuables, family and home. One can look for several products pertaining to security systems India. Big corporate giants and many renowned companies have launched quality security products to safeguard homes and precious belongings. One can find burglar alarm, fire alarm, home security kits, new age doors and windows, security cameras, motion detectors, personal safety products, wire and wireless security products and other such products. These products are available in low end as well as high end range. Depending upon one's budget, he or she can go for the required security system suitable to the place to be secured. One can also find numerous security experts who provide customized suggestions for home security**.** Home security system is made up of several crucial components. Security cameras are one of them. Cameras play a great role in safeguarding one's house and office premises. The best part about these cameras is that they manage to catch every frame of intruders. Right from time of intrusion to providing these real time feeds to the network, security cameras are definitely a boon in the field of security systems. Security cameras are of different types. One of them is closed circuit television, popularly known as CCTV. CCTV cameras are in use since 1942. Security cameras represent best mode of surveillance and security. CCTV cameras are no exception. They have become a common feature in many shopping premises, corporate buildings, malls, multiplexes, and other important buildings. Interestingly, they have also been used to monitor processes like nuclear fuel and industrial manufacturing. First used in United Kingdom, CCTVs India has a widespread presence in all the major cities of India. Most of the airports, bus depots and other public transport facilities have CCTV installed so that in case of any untoward event, the identification process can become easier. With changing times, many people have devised new technologies to nullify the effect and functionality of CCTVs but efforts are on to further enhance this wonderful security tool.

Recent times have witnessed great improvement in the functioning of CCTV camera. They are not just cameras providing real time feeds but they have also gone digital. Shutter speeds have increased tremendously. Pixel resolution is impressive and memory capacity has enhanced greatly. Now a day, CCTV cameras take photographs on a continuous basis as well as when alerted by a motion detector. Set up has become very easy and that has further increased its popularity. Additional feature of storing images on computers from CCTV cameras has made these cameras even more appealing. CCTV cameras are available in low as well as high end segment. One can opt for his preferred CCTV cameras based on his requirements.

LITERATURE REVIEW

Closed circuit television (CCTV) cameras are becoming a very common feature of public life. They can be found in shopping facilities, town centrestreets, banks, building societies, car parks, schools and colleges, transport facilities and housing estates. The presence of CCTV cameras within shopping centres is very common. Centre managers often install cameras as part of an overall management package which deals with a range of activities, including criminal and anti-social behaviour. In an attempt to match the standards set by shopping centres, many local authorities have installed or are planning to install CCTV cameras in their town centre streets. A recent estimate indicated that over 200 areas across the country, ranging from metropolitan cities to small market towns, have installed or are planning CCTV systems (Clarke 1994).

Despite early fears concerning civil liberties, the general public, at the moment, does not appear to be concerned about the proliferation of such schemes within the public domain. As Edwards and Tilley (1994) point out, research conducted for the Home Office in 1992 showed that very few people - 6% of respondents - were worried about the presence of CCTV cameras.

The success of cameras in reducing overall crime levels within different locations, however, has rarely been assessed (or indeed questioned). In their recent survey of retailers carried out on behalf of the British Retail Consortium, Speed *et al* (1995) found that this lack of empirical evidence for the effect of cameras on overall crime levels might be starting to cause some concern. Although retailers have contributed considerable sums of money to support public CCTV schemes, they remain unconvinced about the effectiveness of cameras (for example on apprehension for theft). They also do not believe that public area CCTV schemes have increased either turnover or profits. The lack of empirical evidence for the effect of CCTV, therefore, may affect the willingness of retailers to fund such schemes in the future.

There are a few small scale evaluations that have attempted to assess the impact of security cameras on crime and disorderly behaviour within different locations. Van Straelen (1978) claimed that the installation of CCTV cameras in a large French supermarket had reduced losses by 33 percent. More recently Tesco launched an internally-developed security package known as the 'Totally Integrated Security System' (TISS) to tackle losses incurred at their stores. Although TISS involved changes in store design and procedure, its main component was the provision of CCTV which allowed the monitoring of all vulnerable areas both within and outside the store. When TISS was first introduced into an existing 'problem' supermarket, unknown losses dropped from some £12,000 a week to £5,000 a week (Burrows, 1991) In addition cash losses from tills dropped considerably and violent incidents almost disappeared. This indicated that when CCTV was installed within a shop as part of an integrated security package, it deterred crime within this environment. There were also other benefits in that: …the 'quality' of arrests of more professional thieves is improved and that taped evidence increases the likelihood of "guilty" pleas in the courts. (Page 9, Burrows 1991)

In 1985, a bus company in the North East of England launched a security programme aimed at deterring vandalism on buses (Poyner 1992). Initially, one bus was equipped with a CCTV

camera on the upper deck. In the first month of operation, this camera filmed a number of incidents involving damage caused to the upper deck of the bus. The bus company, with the assistance of a local school, soon identified the perpetrators and took action against them. The success of the video bus was well publicised in the local media. Staff from the bus company visited schools and demonstrated the effectiveness of the system by filming pupils on the top deck of buses and then showing them the tapes. More buses were then equipped with video equipment and incidents of vandalism decreased further.

CCTV cameras can also reduce crime in car parks. Poyner (1992a) showed that when security staff at the University of Surrey installed CCTV cameras in their car parks, car crime (especially theft from vehicles) declined. The author suggests that this effect was because the system had been used to arrest and take action against offenders and that these successes were publicised in the local press. It is important to note that other improvements were made to the car parks at the same time: the lighting was improved and bushes were pruned in order to improve the opportunities for surveillance.

Tilley (1993), in possibly the most thorough evaluation of the effect of CCTV on crime to date, also found that the presence of CCTV cameras within car parks could reduce car crime. He too remarked that: The effect of CCTV appears to be enhanced when it is installed alongside other complementary measures, raising its credibility as a source of increased risk to the offenders. (Page 23, Tilley 1993). However, he also discovered that the systems did not have to be technically sophisticated or monitored continuously to have an impact on car crime in car parks. Since he found that very few arrests took place in the car parks included in the study, he concluded that the removal of offenders does not constitute the mechanism through which CCTV currently reduces car crime. (Page 23, Tilley 1993). This failure to apprehend offenders might have affected the long term effectiveness of some of the camera systems evaluated by Tilley. In sonic cases the cameras became less effective at deterring crime as time passed, an effect that is common to many crime prevention efforts. Regular publicity concerning the role of the cameras in apprehending suspects was recommended to maintain the perceived effectiveness of the system amongst offenders.

Both Webb and Laycock (1992) and Mayhew *et al* (1979) found that installing CCTV cameras as part of general security package at selected London Underground stations had reduced the number of robberies within these premises. Consistent with Tilley, Webb and Laycock found that after 12 months the effect of the project began to wear off, possibly because offenders realised that the risk of being caught had not increased. Mayhew *et al* also found that the number of thefts from the person had declined, but their data indicated that these offences might have been displaced to neighbouring stations.

One of the main arguments against the effectiveness of cameras is that they simply displace rather that deter or prevent crime. Evidence indicates, however, that cameras within some locations may in fact lead to a 'diffusion of benefits'. For example Poyner (1992, 1992a) found that the presence of cameras within one location had a beneficial effect on the number of offences within another, unprotected location. When cameras were introduced to reduce vandalism on buses, reductions in the incidence of vandalism occurred on all buses and not just those which had cameras. When cameras were installed at University of Surrey parking facilities, car crime decreased not only in the car parks that were covered by cameras, but also a nearby car park where there was no camera coverage.

The aim of this study is to understand the need of CCTV camera and the influencing parameter for purchasing of CCTV camera. Based on the review of literature, researcher develops following objectives for this study,

OBJECTIVE OF RESEARCH

1. To understand the usage/need of CCTV camera
2. To understand the Influencing parameter for purchasing of CCTV cameras

HYPOTHESIS OF RESEARCH

1. Need of CCTV has significant impact on influencing parameters for purchasing CCTV
2. Need of CCTV has significant impact on type of cameras
3. Need of CCTV has significant impact on expected storage capacity of CCTV

RESEARCH METHODOLOGY

For any research; deciding the sample size and sampling technique is an important part. There are various methods for deciding the sample size. For this study, the data collection was done by random sampling and the sample size is 95 manufacturing industries in pune city. A survey was conducted, consisting of a sample of randomly selected manufacturing industries which install CCTV camera in various MIDC area in pune which includes Bhosari, Chakan, Kothrud, Ranjangaon etc. Researcher used questionnaire method for collecting primary data. The questions were framed keeping in mind the objectives of research. A simple random sample of 95 manufacturing industries in pune city was selected and a primary data was collected through direct filling of questionnaire by the respondents. To analyze all the data different techniques has been used by the researcher which mainly includes regression, coefficients, one-way ANOVA, chi-square test, lambda and contingency coefficient. For this, SPSS v16.0 software package has been used.

DATA ANALYSIS

1. Influencing parameter for purchasing CCTV versus expected price per camera

		Expected price per camera				Total
		Rs. 5000-15000	Rs. 15000-50000	Rs. 50000-80000	Rs. 80000+	
INFLUENCING PARAMETERS FOR PURCHASING CCTV	Resolution	40	0	0	0	40
	Price	2	22	4	0	28
	Brand	0	0	21	6	27
Total		42	22	25	6	95

A bivariate cross-tabulation has been done by combining the two variables, influencing parameter for purchasing CCTV and expected price per camera, and tabulating the data together. Though it is not necessarily a fact that the independent variable (influencing

parameter for purchasing CCTV) causes a change in the dependent variable (expected price per camera), direct effect is an assumption made based on information extracted from the database of companies. We wanted to test at 95% confidence level, what is the level of significance of association between influencing parameter for purchasing CCTV and expected price per camera. These two variables are cross-tabulated for 95 observations. A cross-tabulation with a Chi-squared test was requested from the computer SPSS package, the output of which is shown in the following tables.

Chi-Square Tests

	Value	df	Asymp. Sig.(2-sided)
Pearson Chi-Square	1.558E2[a]	6	.000
Likelihood Ratio	167.483	6	.000
Linear-by-Linear Association	83.066	1	.000
N of Valid Cases	95		

a. 3 cells (25.0%) have expected count less than 5. The minimum expected count is 1.71.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Lambda	Symmetric	.833	.047	9.247	.000
		INFLUENCING PARAMETERS FOR PURCHASING CCTV Dependent	.891	.042	10.060	.000
		EXPECTED PRICE PER CAMERA Dependent	.774	.060	7.846	.000

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on chi-square approximation

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.[a]
Nominal by Nominal	Contingency Coefficient	.788			.000
Interval by Interval	Pearson's R	.940	.013	26.580	.000[c]
Ordinal by Ordinal	Spearman Correlation	.957	.015	31.673	.000[c]
N of Valid Cases		95			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

The Chi-squared test revealed the significant association between the influencing parameter for purchasing CCTV and expected price per camera. From the Chi-squared test output table, we see that a significance level of 0.0001 (Pearson's) has been achieved. This means Chi-squared test is showing a significant association between the above two variables at 95% confidence level (100-0.01).

Thus, we conclude that at 95 % confidence level the influencing parameter for purchasing CCTV and expected price per camera are associated significantly with each other. From the obtained contingency coefficient (C) of 0.788, it can be inferred that the association between dependent and independent variable is significant as the value 0.788 is closer to 1 than to 0. Also from the lambda asymmetric value of 0.833 we conclude that there is high level of association between the two variables. This lambda value tells us that there is a 83.3% reduction in predicting expected price per camera when we know influencing parameter for purchasing CCTV.

This leads us to conclude that influencing parameter for purchasing CCTV plays a vital role in determining expected price per camera.

2. Type of camera versus expected life cycle of CCTV

A bivariate cross-tabulation has been done by combining the two variables, type of camera and expected life cycle of CCTV, and tabulating the data together. Though it is not necessarily a fact that the independent variable (type of camera) causes a change in the dependent variable (expected life cycle of CCTV), direct effect is an assumption made based on information extracted from the database of companies. We wanted to test at 95% confidence level, what is the level of significance of association between types of camera and expected life cycle of CCTV. These two variables are cross-tabulated for 95 observations. A cross-tabulation with a Chi-squared test was requested from the computer SPSS package, the output of which is shown in the following tables.

		EXPECTED LIFE CYCLE OF CCTV				Total
		1-3 Yrs.	3-5 Yrs.	5-8 Yrs.	8+ Yrs.	
TYPE OF CAMERAS	Analog Camera	9	9	0	0	18
	Digital Camera	0	29	3	0	32
	IP Digital Camera	0	0	26	0	26
	IP Digital MP Camera	0	0	10	9	19
Total		9	38	39	9	95

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.513E2[a]	9	.000
Likelihood Ratio	152.770	9	.000
Linear-by-Linear Association	73.912	1	.000
N of Valid Cases	95		

a. 8 cells (50.0%) have expected count less than 5. The minimum expected count is 1.71.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Lambda	Symmetric	.639	.055	10.621	.000
		TYPE OF CAMERAS Dependent	.651	.064	7.574	.000
		EXPECTED LIFE CYCLE OF CCTV Dependent	.625	.070	6.602	.000

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.[a]
Nominal by Nominal	Contingency Coefficient	.784			.000
Interval by Interval	Pearson's R	.887	.018	18.498	.000[c]
Ordinal by Ordinal	Spearman Correlation	.908	.017	20.948	.000[c]
N of Valid Cases		95			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

The Chi-squared test revealed the significant association between the type of camera and expected life cycle of CCTV. From the Chi-squared test output table, we see that a significance level of 0.0001 (Pearson's) has been achieved. This means Chi-squared test is showing a significant association between the above two variables at 95% confidence level (100-0.01).

Thus, we conclude that at 95 % confidence level the type of camera and expected life cycle of CCTV are associated significantly with each other. From the obtained contingency coefficient (C) of 0.784, it can be inferred that the association between dependent and independent variable is significant as the value 0.784 is closer to 1 than to 0. Also from the lambda asymmetric value of 0.639 we conclude that there is high level of association

between the two variables. This lambda value tells us that there is a 63.9% reduction in predicting expected life cycle of CCTV when we know type of camera.

This leads us to conclude that type of camera plays a vital role in determining expected life cycle of CCTV.

HYPOTHESIS TESTING

Hypothesis 1: Need of CCTV has significant impact on influencing parameters for purchasing CCTV, type of cameras and expected storage capacity of CCTV.

H_0 = Need of CCTV has no impact on influencing parameters for purchasing CCTV

H_1 = Need of CCTV has significant impact on influencing parameters for purchasing CCTV

Hypothesis 1.1:

H_{01} = Need of CCTV has no impact on type of cameras

H_{11} = Need of CCTV has significant impact on type of cameras

Hypothesis 1.2:

H_{02} = Need of CCTV has no impact on expected storage capacity of CCTV

H_{12} = Need of CCTV has significant impact on expected storage capacity of CCTV

One way ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
INFLUENCING PARAMETERS FOR PURCHASING CCTV	Between Groups	55.221	2	27.611	254.017	.000
	Within Groups	10.000	92	.109		
	Total	65.221	94			
TYPE OF CAMERAS	Between Groups	77.314	2	38.657	174.226	.000
	Within Groups	20.413	92	.222		
	Total	97.726	94			
EXPECTED STORAGE CAPACITY OF CCTV	Between Groups	66.041	2	33.020	305.028	.000
	Within Groups	9.959	92	.108		
	Total	76.000	94			

If the F probability value in the ANOVA table is less than 0.05, we reject null hypothesis (at the 95% confidence level) that need of CCTV has no impact on influencing parameters for purchasing CCTV, type of cameras and expected storage capacity of CCTV (H_0, H_{01} and H_{02}). From the output table for the one-way ANOVA, we see that the probability value of F is 0.000. Therefore, we reject the null hypothesis and conclude that need of CCTV has significant impact on influencing parameters for purchasing CCTV, type of cameras and expected storage capacity of CCTV (H_1, H_{11} and H_{12}).

Hypothesis 2: Influencing parameter for purchasing CCTV has significant impact on difficulties with existing system

H_0 = Influencing parameter for purchasing CCTV has no impact on difficulties with existing system

H_1 = Influencing parameter for purchasing CCTV has significant impact on difficulties with existing system

One way ANOVA

Difficulties with existing system

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	90.697	2	45.349	273.389	.000
Within Groups	15.261	92	.166		
Total	105.958	94			

If the F probability value in the ANOVA table is less than 0.05, we reject null hypothesis (at the 95% confidence level) that the influencing parameter for purchasing CCTV has no impact on difficulties with existing system (H_0). From the output table for the one-way ANOVA, we see that the probability value of F is 0.000. Therefore, we reject the null hypothesis and conclude that the influencing parameter for purchasing CCTV has significant impact on difficulties with existing system (H_1).

HYPOTHESIS 3: Type of cameras has significant impact on difficulties with existing system

H_0 = Type of cameras has no impact on difficulties with existing system

H_1 = Type of cameras has significant impact on difficulties with existing system

One way ANOVA

Difficulties with existing system

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	89.846	3	29.949	169.151	.000
Within Groups	16.112	91	.177		
Total	105.958	94			

If the F probability value in the ANOVA table is less than 0.05, we reject null hypothesis (at the 95% confidence level) that the type of cameras has no impact on difficulties with existing system (H_0). From the output table for the one-way ANOVA, we see that the probability value of F is 0.000. Therefore, we reject the null hypothesis and conclude that the type of cameras has significant impact on difficulties with existing system (H_1).

Correlation

		Need of cctv	Influencing parameters for purchasing cctv	Type of cameras	Expected life cycle of cctv	Expected price per camera	Difficulties with existing system	Expected storage capacity of cctv
Need of cctv	Pearson Correlation	1	.920**	.889**	**.811****	.880**	.872**	.926**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	95	95	95	95	95	95	95
Influencing parameters for purchasing cctv	Pearson Correlation	.920**	1	.880**	.826**	.940**	.923**	.923**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	95	95	95	95	95	95	95
Type of cameras	Pearson Correlation	.889**	.880**	1	.887**	.875**	.884**	.870**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	95	95	95	95	95	95	95
Expected life cycle of cctv	Pearson Correlation	**.811****	.826**	.887**	1	.863**	.880**	.831**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	95	95	95	95	95	95	95
Expected price per camera	Pearson Correlation	.880**	.940**	.875**	.863**	1	**.968****	.939**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	95	95	95	95	95	95	95
Difficulties with existing system	Pearson Correlation	.872**	.923**	.884**	.880**	**.968****	1	.925**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	95	95	95	95	95	95	95

Expected storage capacity of cctv	Pearson Correlation	.926**	.923**	.870**	.831**	.939**	.925**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	95	95	95	95	95	95	95

Note: **. Correlation is significant at the 0.01 level (2-tailed).

The correlation table shows all the pair wise correlations. The values in the correlation table are standardized and ranges from 0 to 1(positive and negative).We observe that all variables are highly correlated with each other ranging from 0.811 to 0.968. This means that we may have chosen a fairly good set of independent variables. These correlations are one to one correlations of each variable with the others.

The correlation table also shows that independent variables are highly correlated with each other. This indicates that they are not independent of each other and none of them can be used to predict the dependent variable (influencing parameters for purchasing CCTV). Regression is helpful in eliminating some of the independent variables as all of them are not required. Some of them, being correlated with other variables, do not add any value to the regression model.

Regression Analysis

Following variables are taken into consideration while performing regression analysis.

Variable entered/removed[b]

Model	Variables Entered	Variables Removed	Method
1	EXPECTED STORAGE CAPACITY OF CCTV, EXPECTED LIFE CYCLE OF CCTV, TYPE OF CAMERAS, NEED OF CCTV, DIFFICULTIES WITH EXISTING SYSTEM, EXPECTED PRICE PER CAMERA[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: INFLUENCING PARAMETERS FOR PURCHASING CCTV

Model Summery

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.961[a]	.923	.918	.23817

a. Predictors: (Constant), EXPECTED STORAGE CAPACITY OF CCTV, EXPECTED LIFE CYCLE OF CCTV, TYPE OF CAMERAS, NEED OF CCTV, DIFFICULTIES WITH EXISTING SYSTEM, EXPECTED PRICE PER CAMERA

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	60.229	6	10.038	176.964	.000[a]
	Residual	4.992	88	.057		
	Total	65.221	94			

a. Predictors: (Constant), EXPECTED STORAGE CAPACITY OF CCTV, EXPECTED LIFE CYCLE OF CCTV, TYPE OF CAMERAS, NEED OF CCTV, DIFFICULTIES WITH EXISTING SYSTEM, EXPECTED PRICE PER CAMERA

b. Dependent Variable: INFLUENCING PARAMETERS FOR PURCHASING CCTV

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.143	.098		1.458	.148
	NEED OF CCTV	.415	.096	.382	4.344	.000
	TYPE OF CAMERAS	.069	.068	.084	1.012	.314
	EXPECTED LIFE CYCLE OF CCTV	-.080	.075	-.077	-1.069	.288
	EXPECTED PRICE PER CAMERA	.439	.112	.518	3.915	.000
	DIFFICULTIES WITH EXISTING SYSTEM	.074	.100	.094	.737	.463
	EXPECTED STORAGE CAPACITY OF CCTV	-.013	.101	-.014	-.129	.898

a. Dependent Variable: INFLUENCING PARAMETERS FOR PURCHASING CCTV

The significance F is observed to be 0.0001 indicating that the model is statistically significant at the confidence level of 95%.

The measure of strength of association in the regression analysis is given by the coefficient of determination denoted by R^2. This coefficient varies between 0 and 1 and represents the proportion of total variation in the dependent variable that is accounted for by the variation in the factors. From the table, value of R^2 is 0.923 which shows that 92.3% of the variation in influencing parameters for purchasing CCTV can be explained by the independent variables. We also note that the t-test for significance of individual dependent variables indicated that at the significance level of 0.05(confidence level 95%), need of CCTV and expected price per camera is statistically significant in the model. The other four independent variables are individually not significant at 95% confidence limit.

The regression model of the following form has been used by entering all the six variables in the model:

$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6$

Where Y = Influencing parameters for purchasing CCTV

In the output of regression model the value of B gives all the coefficients of the model which are as follows:

a = Constant	= 0.143
X_1 = Need of CCTV	= 0.415
X_2 = Type of cameras	= 0.069
X_3 = Difficulties with existing system	= 0.074
X_4 = Expected life cycle of CCTV	= -0.080
X_5 = Expected price per camera	= 0.439
X_6 = Expected storage capacity of CCTV	= -0.013

These values can be substituted in the above equation to get the value of Y as follows –

Y (Influencing parameters for purchasing CCTV) = 0.143 + 0.415 * (Need of CCTV) + 0.069 * (Type of cameras) + 0.074 * (Difficulties with existing system) – 0.080 * (Expected life cycle of CCTV) + 0.439 * (Expected price per camera) – 0.013 * (Expected storage capacity of CCTV)

The equation we have obtained, mentioned above, means that influencing parameters for purchasing CCTV will increase if need of CCTV increases or if type of cameras increases or if difficulties with existing system increases or if expected price per camera increases of if expected life cycle of CCTV decreases or if expected storage capacity of CCTV decreases. The estimated increase in influencing parameters of CCTV for every unit increase or decrease in this variable is given by the respective variables.

There is one coefficient, expected storage capacity of CCTV variable, which does not make too much intuitive sense. If we decrease the expected storage capacity of CCTV, influencing parameters for purchasing CCTV is estimated to increase by 0.013. But, if we look at the individual variable t-tests, we find that coefficient of the independent variable expected storage capacity of CCTV is statistically not significant (significance level 0.898). Therefore, it is not to be used when interpreting regression, as it may lead to wrong conclusion. So, we conclude that only need of CCTV and expected price per camera is statistically significant at 95% confidence level since sig T is less than 0.05.Therefore, one should look at the relationship of influencing parameters for purchasing CCTV with these independent variables.

CONCLUSION

There is no doubt that the presence of so many cameras does represent a significant increase in the degree of surveillance in people's daily lives. It is important to ensure, therefore, that public support for cctv in town centers is not taken for granted. In particular, it should be

recognized that any abuse or perceived abuse of cctv may affect public support for these schemes. People are mainly concerned about who is responsible for controlling the systems and the way in which the systems are used (Honess and Channan 1992). In this sense, these concerns are less about the cameras *per se*, and are more about the impartiality and accountability of the people and organizations using these systems, and how they are using the information they are getting. Researcher depicts the conclusion based on the objectives of this study. First objective is to understand the usage/need of cctv camera it was observed that the usage or need of cctv camera by the customer is to Strengthening of Security followed by Government Compulsion and Problems with Existing System. Second objective is to understand the Influencing parameter for purchasing of cctv cameras. It was observed that the basic influcing parameter for purchasing of cctv is resolution followed by price and brand of cctv. It was also observed that type of camera plays a vital role in determining expected life cycle of cctv. It was also observed that the influencing parameters for purchasing cctv will increase if need of cctv increases or if type of cameras increases or if difficulties with existing system increases or if expected price per camera increases of if expected life cycle of cctv decreases or if expected storage capacity of cctv decreases.

REFERENCES

1. **Aldridge, J.** (1994) CCTV Operational requirements manual Version 3.0. Public ation number 17/94,Sandridge (He rtfordshire): Home Office Police Scientific Development Branch.
2. **Webb, B. and Laycock, G. (1991)** Reducing crime **oii** the London Unilerground: An evaltiation of three pilot projects. Crime Prevention Unit series paper 30.London: Home Office Police Department.
3. **Brantingham, P. J. and Faust, F.** L. (1976) A conceptual model of crime prevention. Crime and Delinquency, **22:130-46.**
4. **Burrows, J.** (1991) Making crime prevention pay: Initiatives from business. Crime Prevention Unit series paper 27. London: Home Office Police Department.
5. **Clarke, M.** (1994) Blind Eye on the street. Police Review, August 5, pp 28-29.
6. **Clarke, R. V.** (1992). Situational crime prevention: Successful case studies. New York: Harrow and Heston.
7. **Clarke, R.V. and Cornish, D.B.** (1985) Modelling offenders' decisions: A framework for research and policy, in M. Tonry and N. Morris (eds) Crime and Justice, vol. 6, pp 147-85. Chicago: University of Chicago Press.
8. **Cohen, L.E. and Felson, M.** (1979) Social change and crime rate trends: A routine activity approach. American Sociological Review, 44: 588-608.
9. **Durham, P.** Villains in the Frame. Police Review, January 20, pp 20-21.
10. **Edwards, P. and Tilley N.** (1994) Closed circuit television: Looking out for you. London: Home Office Police Department.
11. **Ekblom, P. and Heal, K.** (1982) The police response to calls from the public. Home Office Research and Planning Unit paper no. 9. London: HMSO.

12. **Gabor, T.** (1990) Crime displacement and situational prevention: Toward the development of some principles. Canadian Journal of Criminology, January 1990, pp 41-73.
13. **Honess, T. and Charman, E.** (1992) Closed circuit television in public places: its acceptability and perceived effectiveness. Crime Prevention Unit series paper 35. London: Home Office Police Department.
14. **Kennedy, D.B.** (1990) Facility site selection and analysis through environmental criminology. Journal of Criminal Justice, Vol 18, pp 239-252.
15. **Laycock, G.** (1985) Property marking: a deterrent to domestic burglary? Crime Prevention Unit series paper 3. London: Home Office Police Department.
16. **Mayhew, P., Clarke, R. V. G., Burrows, J. N., Hough, J.M. and Winchester, S. W. C.** (1979) Crime in public view. Home Office Research study 49. London: HMSO.
17. **Murray, C.** (1983) The physical environment and the community control of crime. In J. Wilson (ed) Crime and public policy. San Francisco: ICS Press.
18. **Pease, K.** (1994) Crime Prevention, in M. Maguire, R. Morgan and R. Reiner (eds) The Oxford handbook of criminology. New York: Oxford University Press.
19. **Pawson, R. and Tilley, N.** (1994) What works in evaluation research? British Journal of Criminology, Vol. 34, No. 3, Summer 1994, pp 291-306.
20. **Poyner, B.** (1992) Video cameras and bus vandalism in R V. Clarke, (ed) Situational crime prevention: Successful case stndies. New York: Harrow and Heston.
21. **Poyner, B.** (1992a) Situation crime prevention in two parking facilities, in R.V. Clarke (ed) Situational crime prevention: Successful case studies. New York: Harrow and Heston.
22. **Stockdale, J.E & Gresham, P.J.** (1995) Combating burglary: an evaluation of three strategies. Home Office Police Research Group Crime Detection and Prevention Paper 59. London: Home Office
23. **Speed, M., Burrows, J. and Bamfield, J.** (1995) Retail crime costs 1993/94 survey: The impact of crime and the retail response. London: British Retail Consortium.
24. **Tilley, N.** (1993) Understanding car parks, crime and CCTV: Evaluation lessons from Safer Cities. Crime Prevention Unit series paper 42. London: Home Office Police Department.
25. **URBED (Urban and Economic Development Group)** (1994) Vital wul viable town centres: Meeting the challenge. London: HMSO.
26. **Van Straelen, F. W. M. (1978)** Prevention and technology, in J Brown (ed) Cronfield Papers. London: Peel Press.
27. **Waddington, P.A.J. (1993)** Calling the police: The interpretation of, and response to calls for assistance from the public. Aldershot: Avebury.
28. http://www.securitysystems.co.in/
29. http://www.securitysystems.co.in/category/cctv-camera
30. http://en.wikipedia.org/wiki/Closed-circuit_television