Effectiveness of Closed-Circuit Television Cameras (CCTV) in the Deterrence and Prevention of Crimes

Hila Mazon
GIS Operator and Project Manager
Research Department, Israel Ministry of Public Security

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Violence in Israel is a major factor that negatively affects the sense of personal security among Israeli citizens and has a detrimental effect on their quality of life.

Preparations are underway in the Ministry of Public Security to establish a network of closed-circuit cameras (CCTV) in municipalities in which the “City without Violence” program operates.

The CCTV cameras will serve as a law enforcement and crime prevention tool for both the Israel Police and the local authorities, as an additional way to combat violence and anti-social behavior.

The study presented below is the first part of an extensive study to be held in local authorities in Israel.
What is CCTV?

“CCTV is a surveillance technique thought to prevent crime because of the deterrent effect on potential offenders, when they are aware that the cameras may be watching their activities. Cameras, located at predetermined points to ensure optimal coverage, collect images that are transferred to a monitoring station or are stored for subsequent analysis and review (Verga, 2010).”

Goals of CCTV

- Deterrence and Crime Prevention
- Increase the Sense of Security
- Improve the Ability to Analyze and Decipher Crime
- Monitor and Regulate Law Enforcement Resources

Research Goals

- Examine the efficiency of existing cameras
- Create a tool to help determine the location of future cameras
Research Question

Are the cameras effective in preventing and reducing crime and quality-of-life offenses in the tested local authorities?
A review of the literature paints a mixed picture of the effectiveness of CCTV in reducing crime.

Most cases presented in the review found that the CCTV system’s effectiveness depends on the location and type of crime.

A consistent drop in crime was observed mainly in types of crime that imply intent and premeditation, such as property offenses and disorderly conduct, and where the implementation of the CCTV system was in addition to other interventions.

Most studies did not observe a decrease in violent crimes.

Methodology

Data about the cameras from the local authority

Camera positions
Beer Sheba as example

Defining viewing range for each camera

Data analysis

Location of Police response to events
The **BLUE** box indicates the year the municipality joined the Municipal Policing program.

The **RED** box indicates the year CCTV cameras were installed.

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**Percentage of events that fell within actual camera viewing range**

<table>
<thead>
<tr>
<th>Year</th>
<th>Violence</th>
<th>Quality of Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td></td>
<td></td>
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<tr>
<td>2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
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<tr>
<td>2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td></td>
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</tbody>
</table>

**Multi-Year Average**

- Violent Crimes: 10%
- Quality-of-Life Crimes: 8%

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Initial analysis of the data from a number of local authorities indicates that the number of events occurring within the viewing range of the camera is small, and that these events, on average, make up a tiny percentage of the total events occurring in the local authority.

Additionally, the data indicates that the current positioning of the cameras is not optimal, and that there are "hot spots" that are not within range of any camera.
The initial conclusions paint a mixed picture of the effectiveness of CCTV cameras.

- The majority of events that take place in the municipality are not within the camera's range.
- This study can aid in planning the positions of future cameras and using them to their full potential in areas with high crime rates and hot spots.
Limitations of the Study

A limited, experimental study

Difficulty proving the effectiveness of the cameras

Future Directions

- Evaluation of sense of security among local population
- Surveys among residents
- Incorporating event data from municipal hotline into database
- Incorporating data from municipal hotline
- Examination of cameras' effect on planned crime
- Utilizing research tools to examine the cameras' effect on specific locations with potential for property crimes
Thank you
Camera Locations

Beer Sheba as case study

225 cameras
77 locations
Defining viewing range for each camera

Site: Parks
Cameras: 1
Year Installed: 2013

Site: Entertainment Facility
Cameras: 10
Year Installed: 2006

Site: School
Cameras: 1
Year Installed: 2011

*The study area was chosen randomly*
Camera simulation in 3D
There is a change in the dispersion of events between the second and third quarters of 2014. In both quarters, the camera locations do not optimally cover the hot spots.

*The study area was chosen randomly*
## Violent Crimes

<table>
<thead>
<tr>
<th>Violent Crime</th>
<th>Crime Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molestation</td>
<td>Trespassing</td>
</tr>
<tr>
<td>Threat or attack on public official</td>
<td>Firecrackers</td>
</tr>
<tr>
<td>Calls for help</td>
<td>Restriction of movement</td>
</tr>
<tr>
<td>Brawl</td>
<td>Disorderly conduct</td>
</tr>
<tr>
<td>Illegal parking</td>
<td>Animal abuse</td>
</tr>
<tr>
<td>Reckless driving</td>
<td>Abuse of defenseless people</td>
</tr>
<tr>
<td>Abandoned/burned vehicles</td>
<td>Illegal protest or march</td>
</tr>
<tr>
<td>Drunkenness</td>
<td>Mugging</td>
</tr>
<tr>
<td>Possession of weapons</td>
<td>Blocking cross walk</td>
</tr>
<tr>
<td>Assault</td>
<td>Suspected of burglary</td>
</tr>
<tr>
<td>Attack on officer, officer in distress</td>
<td>Danger to life</td>
</tr>
<tr>
<td>Mentally ill/dangerous/drug addict</td>
<td>Mentally ill/dangerous/drug addict</td>
</tr>
<tr>
<td>Suspicious person</td>
<td>Suspicious person</td>
</tr>
<tr>
<td>Suspicious person in automobile</td>
<td>Suspicious person in automobile</td>
</tr>
<tr>
<td>Threats</td>
<td>Threats</td>
</tr>
<tr>
<td>Animal abuse</td>
<td>Threats</td>
</tr>
<tr>
<td>Abuse of defenseless people</td>
<td>Burglary</td>
</tr>
<tr>
<td>Illegal protest or march</td>
<td>Vandalism</td>
</tr>
<tr>
<td>Stabbing</td>
<td>Stabbing</td>
</tr>
<tr>
<td>Possession of knife</td>
<td>Possession of knife</td>
</tr>
<tr>
<td>Harassment</td>
<td>Harassment</td>
</tr>
<tr>
<td>Sexual harassment</td>
<td>Sexual harassment</td>
</tr>
</tbody>
</table>
Quality of Life Crimes

- Prowling/violent animal
- Making noise indoors
- Making noise in public spaces
- Making noise in a place of business
- Disturbing during rest time
- Noise disturbance
- Littering