Canadian Police Information Technologies: Current Overview

by

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Status Report

The study and analysis of police use of available and emerging technologies have been researched at the Canadian Police College (CPC). More specifically, focus has been brought to bear on the impact of information technologies and the use police make of them.

The literature reveals an explosion of technologies at the service of police in the areas of telecommunications and forensic sciences. These technologies help police in prevention, identification, investigations, management and the protection of police officers. Some technologies are used in a number of sectors simultaneously, while others are reserved for a single area. The literature refers to a range of technology categories including telecommunications systems (large networks, mobile data computer, Internet...), expert systems including geomatics, digitized systems for photography, fingerprints and composite imaging, forensic laboratories and certain biometric identification systems (genetic prints) in the areas of detection (thermal imaging) and monitoring (ignition interlocks, alcohol screening devices).

The following observations emerged:

- Technologies are involved in police management and operations.
- Technologies are advancing irremediably, irreversibly and quickly.
- In general, knowledge is fragmented and related to the field it is designed to improve (such as, for example, fingerprints).
- Police are dependent on technologies, just like criminals and businesses.
- The costs inherent in the purchase and use of technologies are not yet well known for public services.
- More or less all police services use technologies in certain operational aspects.

The Canadian Police College therefore proposed to develop a national conference on information technologies and public security. The theme has attracted great interest.

In developing the national conference, we were interested in drawing up a balance sheet of the current status of use of certain technologies by the police. Every police service in the country was surveyed in February 2000. The questionnaire had been previously pre-tested with various police representatives. The final questionnaire required few major corrections, since the questions were clear and the themes relevant, and the technological tools being assessed were accurately targeted.

Three hundred and seventy questionnaires were sent by regular mail to municipal, regional, provincial and aboriginal police services. In addition, every detachment covered by the RCMP electronic mail system received the survey via the intranet (ROSS). Everyone was asked to return the completed questionnaire by fax, by E-mail or finally by regular mail, which was less preferable.

One hundred and ninety-six completed questionnaires came back from municipal, provincial and aboriginal services, yielding a high response rate of 53%. One hundred and thirty-two RCMP detachments returned the completed questionnaire. In total, 328 completed questionnaires from every type of police service in Canada constitute the analytical sample. This sample is large enough to consider that the following results are an accurate portrayal of the police reality and information technologies.

However, given the size of provincial police services, telephone interviews were conducted with representative of Sûreté du Québec detachments (10) and with representative of the Ontario Provincial Police (1).

The survey was an attempt to assess the technological tools which appear to be the most popular or most used at present in the public security field. Excluded were software related to management or

human resources, and leading-edge software involving biometric technologies. Services were asked whether they had the evaluated tools, what use was made of them, what plans had been made for the next two years and what type of training was provided.

We favoured general questions, with no more specific sub-questions which could have assessed specific or future practices. There were two reasons for this. To begin with, this survey is a Canadian first. When we were developing the survey, we were unaware of the current status of the use and development of technological tools. Moreover, we wanted to measure disparities of access to technological tools from service to service. Questions that were too specific or too complex would have further confused a large number of respondents, rather than the converse.

The tools evaluated were the following: the mobile data computer, mobile cameras, the GPS system, cellular telephones, mobile printers, the computerized Bertillon Signaletic System, night vision, the vehicle ignition interlock, laser radar, the electronic breath alcohol tester, the DNA Sample Kit, the taser gun, the in-car panic button, video interrogation, computer-aided composite imaging, photo radar, and others. This report presents a partial evaluation of the tools. It is also intended to be a summary analysis which does not attempt to explain the current status of the use of information technologies by police in Canada.

Major Points of Survey

- According to responses received, municipal police services have more technological tools, all categories combined, than provincial services or the RCMP, all detachments combined.
- Two thirds of respondents do not appear to have any particular interest in having advanced technological tools that would facilitate law enforcement work. Police still appear to be relatively reactionary with respect to acquiring and using ITs, but over half of respondents have an Internet site.
- On the other hand, it seems that once a police service has acquired a leading-edge technological tool, it will continue to acquire others. Yet services that did not have such tools when completing the survey are not planning to acquire any in the next two years.
- In general, specific training is offered to service members when they use a technology tool.

Survey Results

Mobile Data Computer

The mobile data computer permits direct and two-way communications between the patrol vehicle and headquarters to indicate status and check information in computerized databanks. It also makes it possible to communicate with other patrol cars without involving the central communications system at HQ. The service call is received directly in the patrol car. It is also possible to download, update and close a file without involving HQ.

At present, 32.1% of police services have computers in their vehicles, 26.4% of municipal services are considering acquiring them within the next two years, while 54.8% of provincial services, 40.0% of aboriginal services and 14.7% of RCMP detachments say they want to acquire them within the next two years. The Sûreté du Québec is presently trying out this tool.

Seventy one and a half percent of respondents use the mobile data computer to access computerized databanks such as CPIC, CRPQ or OMMPAC; 27.6% now use it to draft reports while 21.0 % use it for E-Chat (communications between vehicles). The mobile data computer can be said to foster interpersonal communications without requiring a connection to the central communications facility at HQ.

Mobile Printers

Patrol vehicles can be equipped with printers that plug into the mobile data computer. For example, violation notices can be printed and given to the offender, depositions can be entered directly into the computer and printed for signing, and photographs of wanted or missing persons can printed.

Police Services with mobile printers

	All (%)	Municipal (%)	Provincial (%)	RCMP (%)	Aboriginal (%)
Have tool	6.2	8.7	4.5	3.8	0
Will have it within two years	17.9	23	22.7	9.9	30
Do not plan to acquire it	75.9	68.3	72.8	86.3	70

At present, only 6.2% of all police services combined are equipped with mobile printers. However, 17.9% of respondents, all categories combined, anticipate that they will be equipped with printers within the next two years, the highest percentages being municipal services with 23%, provincial services with 22.7% and aboriginal services with 30%.

Mobile Camera

Considered a closed-circuit television system in the patrol car, the components are a VHS camera and occasionally a microphone worn by the police officer. The system can be used to gather evidence and to protect the officer.

At present, 19.7% of the services in the country have this type of tool. More specifically, they are municipal services (22.1%) and the RCMP (21.2%).

Police services with mobile cameras

	All (%)	Municipal (%)	Provincial (%)	RCMP (%)	Aboriginal (%)
Have tool	20	22.1	0	21.2	0
Will have it within two years	16	18.4	25	10.6	40
Do not plan to acquire it	64	59.5	75	68.2	60

Sixteen percent of all services plan to acquire such a system within two years (18.4% of municipal services, 25% of provincial services and 40% of aboriginal services). The Ontario Provincial Police are now testing this tool.

The mobile camera systems give the following information.

Information from the mobile camera systems	% of systems with this information
Radar data	43.3%
Roof light bar and sirens	58.3%
Police information	21.7%
Date and time	90.0%
Department name and vehicle number	43.3%
Portable microphone	81.7%
Other	1.7%

Of the respondents that have a mobile camera system, 95.4% say that police officers must turn on the camera manually when they deem it appropriate. For the others, the camera is always on and *cannot be turned off*.

Finally, 75% of users have received training in using their systems.

GPS System

The GPS (global positioning system) makes it technically possible to trace patrol vehicles in a given territory at all times via satellite. It thus enables dispatchers to quickly select patrol vehicles on the road and assign them to emergency events.

Very few police services now use a GPS, i.e. 3.1% of respondents. These users are municipal services (3.1%) and the RCMP (3.8%). It was mentioned that some police unions oppose the use of this tool, seeing it as an instrument to monitor officers. All users have received adapted training. It should be noted that 80.7% of respondents do not plan to acquire this tool within the next two years. As to current use, 50% of services use it to locate vehicles, 30% to gather vehicle data (vehicle speed, rooflights lit, etc.) and 20% for computer-aided call dispatch. Other uses are: police officer protection, location of marijuana plants in remote regions, and search and rescue at sea and in remote regions.

Police services with GPS

	All (%)	Municipal (%)	Provincial (%)	RCMP (%)	Aboriginal (%)
Have tool	3.1	3.1	0	3.8	0
Will have it within two years	16.1	19.3	19	11.5	20
Do not plan to acquire it	80.8	77.6	81	84.7	80

Within 2 years, 16.1% of respondents hope to acquire the GPS system. Of these, 85% will use it to locate patrol vehicles, 75% for computer-aided call dispatch and 25% to gather information on patrol vehicles.

Computerized Bertillon Signaletic System

A computerized Bertillon Signaletic System makes it possible to digitize a suspect's fingerprints and

photograph. This information is then sent electronically to the databank in Ottawa. The system facilitates and accelerates the work of investigators, including the examination of a print taken at a scene.

Only 8.6% of the police services in Canada have a computerized Bertillon Signaletic System; 21.5% of the services in Quebec use it, which is by far the highest percentage, and 78 % do not plan to acquire it within two years.

A parallel study on technologies used by criminal identification sections in Canada was conducted in December 1999. Results are available on the Internet at: http://www.cpc.gc.ca/ident.

Computer-aided Composite Drawing

The advent of high-performance computers and software has made it possible to produce a computer-aided photo gallery. Conventional composite imaging has been integrated into the computer, and can now be manipulated to create a digital photograph with an exceptional resemblance to a suspect.

This tool is used by 29.3% of services, with the RCMP having the lowest use figure, 11.4%. However, 10.8% of respondents say they want to acquire it within two years. Realistically, computer-aided drawing is not likely to become a tool used by the majority of police services in the years to come.

Video Interrogation

Suspects, accused persons and witnesses in investigative procedures have been videotaped for a number of years. From 1985 to 1988, the Halton Regional Police Force was already conducting an experimental study of videotaped interrogation.

Generally speaking, 54.9% of all respondents say they use this type of questioning. The figure is 85.7% for provincial police services. Within the next two years, 13.7% of all respondents say they are thinking of doing so.

Police services with video integration

	All (%)	Municipal (%)	Provincial (%)	RCMP (%)	Aboriginal (%)
Have tool	54.9	52.5	85.7	55.2	22.2
Will have it within two years	13.7	19.4	0	7.2	33.3
Do not plan to acquire it	31.4	28.1	14.3	37.6	44.5

Night Vision System

Essentially, this infrared system makes it possible to see very clearly in the dark or in locations which are underlit or poorly lit.

Although no aboriginal service has a system of this nature, 24.4% of services do have one. Projections for the next two years are in the order of 8.9%, with 10% of aboriginal services and 11.7% of municipal services saying they want to acquire a system.

Laser Radar

Laser radar makes it possible to target a vehicle in traffic and obtain its exact speed and distance from the radar. Unlike conventional radar (Doppler), the presence of other vehicles does not influence the reading.

Police services with laser radar

	All (%)	Municipal (%)	Provincial (%)	RCMP (%)	Aboriginal (%)
Have tool	40.4	50.3	10	34.9	10
Will have it within two years	10.4	13	15	5.6	20
Do not plan to acquire it	49.2	36.7	75	59.5	70

The general average of services using laser radar is 40.4%. Of this percentage, municipal services lead with 50.3%, followed by the RCMP (34.9%) and aboriginal police (10%). However, 49.2% of respondents say they will not be acquiring this tool within two years.

Photo Radar

Photo radar is actually an automatically taken photograph of vehicles crossing a photographic beam at a speed higher than the posted limit. Vehicle owners receive a violation notice by mail. This practice is not tolerated in certain provinces.

British Columbia does permit its use, hence the high response rate (34%). However, 89.1% of respondents say they do not use the tool, nor will they do so within the next two years. It must be understood that such use must be permitted by provincial legislation.

Electronic Breath Alcohol Test

This device produces an electronic reading of breath samples. It checks its own calibration and after analyzing the sample, it issues a precise result, specifying whether the sample is insufficient, inadequate or whether a susbstance other than alcohol is detected.

Of all the categories combined, 44.1% of respondents have this type of device. Provincial services are the least represented, with a figure of 21.1%. It is interesting to note that 17% of respondents say they are going to acquire one within the next two years, or to express these numbers differently and more specifically, 25.2% of municipal services, 10.5% of provincial services and 20% of aboriginal services.

DNA Sample Kit

Canada adopted legislation authorizing DNA sampling in 1995. Since then, a national bank of genetic data has been created by law.

With the exception of aboriginal police, 33.3 % of police services have a DNA sample kit. An additional 17% say they are going to acquire one within two years. However, 49.7% say they do not want to acquire one. The result is 66.7% for aboriginal police services.

Internet Sites

Many public services including the police have developed an Internet site to inform their clients and fellow citizens of the services they offer. Frequently used as a low-cost public relations undertaking, a police service's Web site makes it possible to inform the public of crime prevention initiatives or crime statistics in a specific region, or to provide information support with respect to missing persons.

Approximately half of the police services in Canada, i.e. 53.8%, have developed a Web site (or are thinking of doing so). The sites contain a broad range of information.

Kinds of information on police Web sites	% of sites displaying information
Overview of the organization	76.8%
Facility for the public to send email	73.7%
General crime prevention information	55.6%
New items, press releases, publications	47.5%
Information about emergency services	45.5%
Recruiting and employment information	40.4%
Safety tips (bicycles, Halloween…)	34.3%
Crime statistics	32.3%
Description of the service's emblem	30.3%
Drug prevention	25.3%
Wanted suspects	24.2%
Missing persons	22.2%
Other	18.2%

Internet Connection

The Internet offers numerous possibilities, for police services and others: computer crimes investigations, information searches, E-mail, etc. The following table indicates the percentage of police services connected to the Internet. Overall, 57.4% of respondents are connected. The percentage of provincial services connected is high, 93.8%, as is that of aboriginal services, 77.8%.

Police services with internet connections

Connected to Internet	All (%)	Municipal (%)	Provincial (%)	RCMP (%)	Aboriginal (%)
No	42.6	26.5	6.2	69.9	22.2
Yes	57.4	73.5	93.8	30.1	77.8

The least connected service is the RCMP. This low rate is due to the fact that the RCMP has an intranet which provides, among other things, E-mail service between all employees. It should be noted that since April 2000, the RCMP has offered its employees an Internet connection from their intranet station.

Moreover, within two years, only 8.9% of municipal services will apparently not be connected to the Internet.

As for computers, police services were asked to indicate Internet access. The results indicate that police officers working in Internet-related sectors always or almost always (69.5%) have access.

Finally, 82.9% of Internet-connected police services offer their officers a personal e-mail address.

Computers Used in Offices

Computers have become a very important working tool for all police services. The following table lists the types of computer used in the majority of these services.

Police services with office computers

Computer type	All (%)	Municipal (%)	Provincial (%)	RCMP (%)	Aboriginal (%)
Macintosh/Apple	0	0	0	0	0
PC (486 or -)	9.6	3.7	0	19	0
PC (Pentium)	88.8	95.7	100	78.6	88.9
Other	1.6	0.6	0	24	11.1

It is noted that 88.8% of police services work with Pentium type computers. The RCMP still has many 486 or less recent type computers (19.6%)

Computer type is a good indicator of the use made of this equipment. A second informative element is computer accessibility.

Accessibility of computers

Accessibility Level	All (%)	Municipal (%)	Provincial (%)	RCMP (%)	Aboriginal (%)
Always available	94.9	92.6	93.8	97.6	100
Rarely available	3.8	4.9	6.2	2.4	0
Never available	1.3	2.5	0	0	0

For 94.9% of the respondents, all types of services combined, computers are always available for police officers. What remains to be assessed is the number of computers per officer.