USE OF ICT AND SCIENTIFIC AIDS IN POLICING

Being paper delivered

by

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Contents

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Introduction

- One major purpose of Government is the security of lives and property.
- The Police is the agency of Government primarily charged with this responsibility, hence we find the Police even in the remotest areas of most societies where there is claim to Government.
- Crime in society has become more rampant both in frequency and sophistication. Given this scenario, Policing requires more effort in terms of strategy, method and instruments of implementation .
- The 21st century is the Knowledge Century where the advances offered by ICT are available for full deployment to those of us who are lucky to be part of this wonderful opportunity which Science and Technology have provided.
- This lecture therefore aims at examining how the Nigerian Police can enhance its performance by taking advantage of the limitless possibilities which Science and by extension ICT offer. It will focus on world best practices.

Roles of the Police

Some of these are:

- Keeping the peace,
- Law enforcement,
- Protection of persons and property,
- Investigation and detection of crimes,
- Intervention in criminal incidents. (Police officers retain their lawful powers even while off duty).

Roles of the Police and its Governing Bodies

The police has its governing bodies:

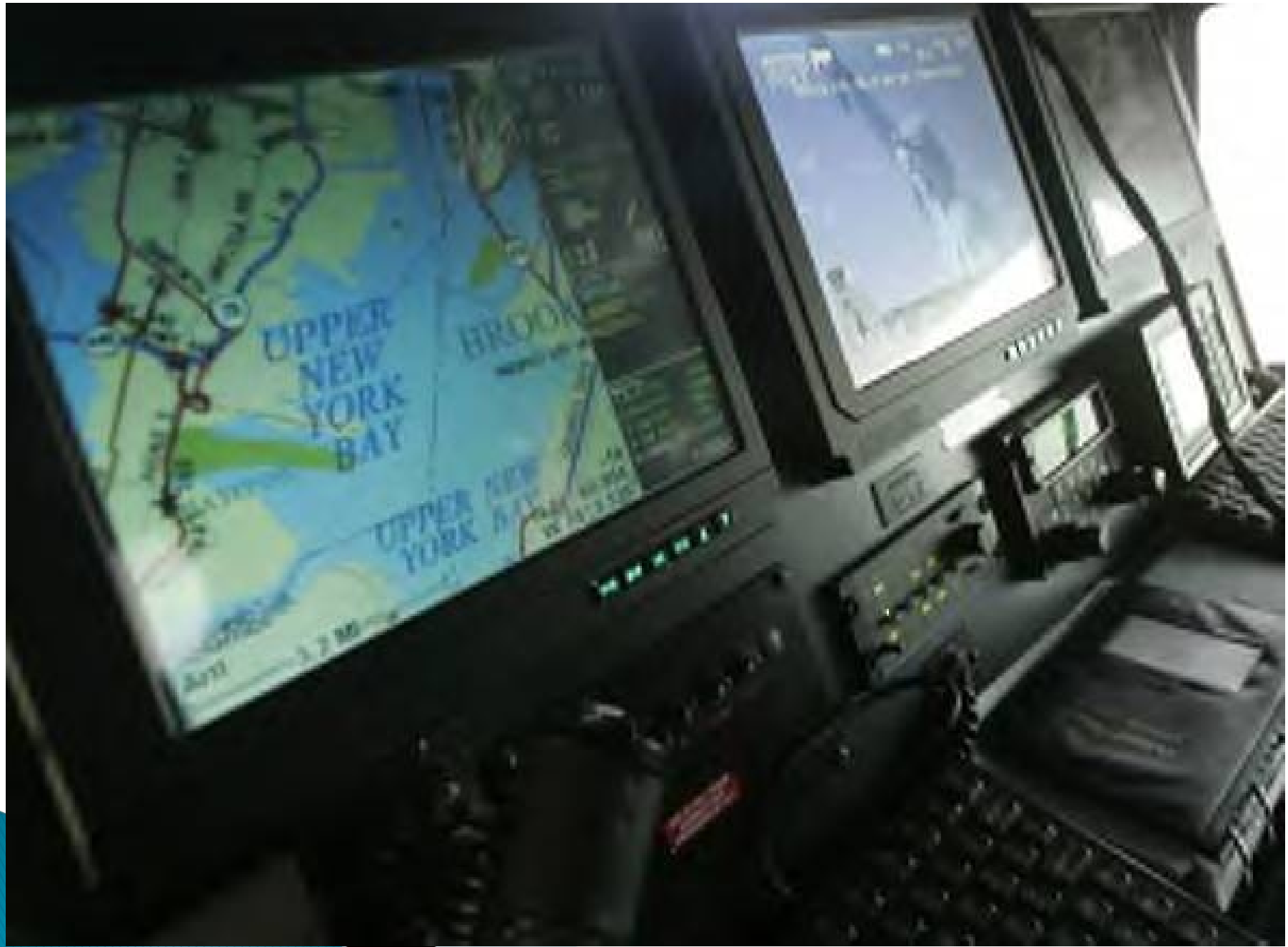
- Police Service Commission
- and/or the Ministry of Police Affairs.

According to Chief Parry Osayande, Chairman, Police Service Commission, Nigeria, in a recently published interview in the Sunday Tribune of 19th September, 2010, said the Police Service Commission has an oversight role on the activities of the Police and develops policies that will foster and evolve an effective and efficient Nigeria Police.

Historical emergence of ICT use in Policing

Let us take a tour on the timeline of Police Technology development in the US and around the world from 1850 to contemporary times to enable us have a perspective view of how Science and ICT have affected the work of the Police the world over.

A Typical Police Control Room in New York City



1850s – 1888

- The first multi-shot pistol, introduced by Samuel Colt, goes into mass production. The weapon is adopted by the Texas Rangers and thereafter, by police agencies nationwide.

- San Francisco is the site of one of the earliest uses of systematic photography for criminal identification.

- The use of the telegraph by police and fire departments begins in Albany, New York in 1877.

- The telephone comes into use in police precinct houses in Washington, D.C.

- Chicago is the first U.S. city to adopt the Bertillon system of identification. Alphonse Bertillon, a French criminologist, applies techniques of human body measurement used in anthropological classification to the identification of criminals. His system remains in vogue in North America and Europe until it is replaced at the turn of the century by the fingerprint method of identification

1901 - 1932

- Scotland Yard adopts a fingerprint classification system devised by Sir Edward Richard Henry. Subsequent fingerprint classification systems are generally extensions of Henry's system.

- Edmund Locard establishes the first police crime laboratory in Lyon, France.
- The Los Angeles Police Department establishes the first police crime laboratory in the United States.
- The use of the teletype is inaugurated by the Pennsylvania State Police.
- Detroit police begin using the one-way radio.
- Boston Police begin using the two-way radio.
- American police begin the widespread use of the automobile.
- The prototype of the present-day polygraph is developed.
- The FBI inaugurates its crime laboratory which, over the years, comes to be world renowned.

1948-1967

- Radar is introduced to traffic law enforcement.
- The American Academy of Forensic Sciences (AAFS) meets for the first time.
- The New Orleans Police Department installs an electronic data processing machine, possibly the first department in the country to do so. The machine is not a computer, but a vacuum-tube operated calculator with a punch-card sorter and collator. It summarizes arrests and warrants.
- A former marine invents the side-handle baton, a baton with a handle attached at a 90-degree angle near the gripping end. Its versatility and effectiveness eventually make the side-handle baton standard issue in many U.S. police agencies.
- The first computer-assisted dispatching system is installed in the St. Louis police department.

- The National Law Enforcement Telecommunications System, a message-switching facility linking all state police computers except Hawaii, comes into being.
- The President's Commission on Law Enforcement and Administration of Justice concludes that the "police, with crime laboratories and radio networks, made early use of technology, but most police departments could have been equipped 30 or 40 years ago as well as they are today."

1967-70s

- The FBI inaugurates the National Crime Information Center (NCIC), the first national law enforcement computing center. NCIC is a computerized national filing system on wanted persons and stolen vehicles, weapons, and other items of value. One observer notes NCIC was "the first contact most smaller departments had with computers."
- AT&T announces it will establish a special number -- 911 -- for emergency calls to the police, fire and other emergency services. Within several years, 911 systems are in widespread use in large urban areas.

- Beginning in the late 1960s, there are many attempts to develop riot control technologies and use-of-force alternatives to the police service revolver and baton. Tried and abandoned or not widely adopted are wooden, rubber and plastic bullets; dart guns adapted from the veterinarian's tranquilizer gun that inject a drug when fired; an electrified water jet; a baton that carries a 6,000-volt shock; chemicals that make streets extremely slippery; strobe lights that cause giddiness, fainting and nausea; and the stun gun that, when pressed to the body, delivers a 50,000-volt shock that disables its victim for several minutes. One of the few technologies to successfully emerge is the TASER which shoots two wire-controlled, tiny darts into its victim or the victim's clothes and delivers a 50,000-volt shock. By 1985, police in every state have used the TASER, but its popularity is restricted owing to its limited range and limitations in affecting the drug- and alcohol-intoxicated. Some agencies adopt bean bag rounds for crowd control purposes.

1970s onwards…

- The large-scale computerization of U.S. police departments begins. Major computer-based applications in the 1970s include computer-assisted dispatch (CAD), management information systems, centralized call collection using three-digit phone numbers (911), and centralized integrated dispatching of police, fire, and medical services for large metropolitan areas.
- The National Institute of Justice initiates a project that leads to the development of lightweight, flexible, and comfortable protective body armor for the police. The body armor is made from Kevlar, a fabric originally developed to replace steel belting for radial tires. The soft body armor introduced by the Institute is credited with saving the lives of more than 2,000 police officers since its inception into the law enforcement community.

- The National Institute of Justice funds the Newton, Massachusetts, Police Department to assess the suitability of six models of night vision devices for law enforcement use. The study leads to the widespread use of night vision gear by today's police agencies.

- Rockwell International installs the first fingerprint reader at the FBI. In 1979, the Royal Canadian Mounted Police implements the first actual automatic fingerprint identification system (AFIS).

- Police departments begin implementing "enhanced" 911, which allows dispatchers to see on their computer screens the addresses and telephone numbers from which 911 emergency calls originated.
- Pepper spray, widely used by the police as a force alternative, is first developed. Pepper spray is Oleoresin Capsicum (OC), which is synthesized from capsaicin, a colorless, crystalline, bitter compound present in hot peppers.
- More than 90 percent of U.S. police departments serving a population of 50,000 or more are using computers. Many are using them for such relatively sophisticated applications as ***criminal investigations, budgeting, dispatch, and manpower allocation***.
- Departments in New York, Chicago, and elsewhere increasingly use sophisticated computer programs ***to map and analyze crime patterns***.
- The National Academy of Sciences announces that there is no longer any reason to question the ***reliability of DNA evidence***.

ICT and Scientific Aids

Having looked briefly at major technological developments in police technology, we may go ahead to see the various technologies in use.

- **Crime Lights**: Crime scenes do not always happen in convenient places. Now, with the arrival of a number of flashlights—each with a different preset wavelength designed to detect hair, fibers, and body fluids at crime scenes—these lights allow a crime scene to be processed faster and more thoroughly than ever before. Sites previously unreachable for powerful fluorescence examination are now accessible. The portability of today's crime scene examination light sources makes the remotest of rural locations or the top floor of a city building highly accessible for search.

- **In-Car Camera Systems:** The in-car camera system has become a valued tool to confirm and ensure a high degree of officer professionalism. The ability to record video footage of events involving the public from a patrol car perspective has proven invaluable in such matters as traffic stops, criminal investigations and arrests, internal affairs, and training. These systems are constantly improving and becoming more cost effective.

The greatest value of the in-car camera system is that of a silent witness: the film is able to speak for officers when officers cannot speak for themselves.

- **Photo Enforcement Systems:** Photo enforcement systems automatically generate red light violations and/or speeding summons and as a result greatly improve safety for the motoring public.

  The essentials for establishing a photo enforcement system include good engineering practices, public education, community involvement, and program management.

- **Graffiti Cameras**: Systems exist today that can take photographs of suspects who are vandalizing property and even notify law enforcement agencies that vandalism is in progress. There are also *"talking" surveillance cameras* warning intruders that it is illegal to spray graffiti, commanding the intruders to leave the area and informing them that their photograph has been taken for prosecution. These cameras can also be used to monitor illegal dumping areas as well as to prevent loitering and deter other crimes. Modern graffiti cameras are wireless and solar powered. They can easily be moved to new locations, increasing the effectiveness of the cameras' deployment

- **Thermal Imaging**: Devices are available that produce images of radiated or reflected surface energy in the thermal portion of the electromagnetic spectrum through the use of a nonintrusive electronic device.
  - ✓These devices have numerous uses for the law enforcement community. They can locate a fleeing fugitive or a missing child in a field in a matter of minutes instead of hours. Easy to use, easy to store, and easy to maintain, these imagers can literally mean the difference between life and death for a wandering senior citizen.
  - ✓Different styles are available for different applications, including a roof-mounted model, a handheld model, and a model that fits into a spotlight, with a monitor inside a patrol car.
  - ✓Imagers prevent officers from exposing themselves to dangers in searching such awkward places as under buildings or in crawl spaces or attics. Unlike when officers use a mirror and a flashlight, suspects remain unaware of officers' exact location even after the officers determine the fugitives' location.

- ✓Thermal imagers can also be used to scan driveways, parking lots, fields, and roadways for signatures of a hidden vehicle lost in a pursuit
- ✓Crime scene investigations are also aided by these systems in scanning for physical evidence. Imagers can detect disturbed surfaces for graves or other areas that have been dug up in an attempt to conceal bodies, evidence, and objects. The device can also scan roadways for tire tracks or other marks that are not visible to the naked eye.
- ✓Proactive imager surveillance enables officers to scan public parks, public streets, alleys and parking lots, public buildings, transportation corridors, and other areas where individuals do not have an expectation of privacy.
- ✓Indoor marijuana growing operations can also be uncovered by thermal imagers.

- **Criminal Investigations Records Systems:** Newly available records systems designed to aid in criminal investigations extract relevant data from disparate records systems with the intent to match suspects to crimes in ways that otherwise would have never been identified. Partial names, monikers, physical descriptions, and vehicle descriptions are but some of the information that these systems pull out from other participating records systems to identify suspects.

- **Electronic White Boards**: Many meetings use dry-erase boards to take notes, but to keep such notes for future reference, they must be copied. Electronic white boards scan notes kept on them and automate copying. These boards allow the production of multiple copies of information for field distribution as well as the downloading of information to a computer for analysis and/or storage.

- **Radios:** Communication systems are critical equipment in the law enforcement profession. Tremendous advances in wireless and digital capabilities have made this tool more valuable than ever.
  - ✓Officers can share pictures of suspects, criminal records, bulletins, fingerprints, blueprints, and surveillance video footage across thousands of miles in minutes or even seconds.
  - ✓Among the many important issues of communication systems is the interoperability issue. Interoperability is the ability to share information in a secure, real-time environment.
  - ✓Of primary importance is that the systems and officers can actually talk to each other, regardless of the operating architecture. Several models currently exist that allow communications from different radio bandwidths to be synthesized into one system.

- **Lasers:** Especially useful in an era when law enforcement agencies are concerned with the threat of terrorism, handheld laser spectroscopy devices are now available that can determine the chemical composition of a substance within seconds. If an officer needs to scan a suspicious powder, these devices will reveal the chemical makeup of that powder with 95 percent certainty.

Language Translators: Language barriers make it difficult to enforce the law.

- Translation services are available through the telephone and from local translators often affiliated with local colleges and universities, but these services are not the same as translation between an officer and a citizen on the spot. Today, handheld devices have speech recognition abilities. When officers need to communicate with someone who does not speak English, they simply determine the language needed and begin touching the phrases on the touch pad. Two-way translation is not that far away.
- Also available are desktop systems that translate an officer's speech into the desired language. Although this technology is not widely available now and the cost is high, within a few years the cost will come down. Another option is to use Internet translation services. Some sites offer limited free translations (such as www.freetranslation.com); others are pay services that function similarly to telephone translation services, where an operator speaks the requested translated material.

- **Less-Lethal Technology:** Unheard of a generation ago, less lethal technologies are now available in a vast array of options. There is no reason why a modern law enforcement agency should not have several different types of less-lethal operating systems, such as electro-muscular disruption technology (TASER), specialty impact munitions, chemical agents, and projectile systems for chemical agents.

- **Diagramming Systems:** Thanks to improvements in computer technology, crime scenes and collisions can now be diagrammed in a matter of minutes, as compared with hours just a few years ago.
  - ✓The systems that make this possible are highly accurate and easy to use, and they create extremely professional-looking images for use in court or for further analysis.
  - ✓The high end of diagramming technology is the state-of-the-art forensic three-dimensional scanner that uses a high-speed laser and a built-in digital camera to photograph and measure rapidly a scene in the exact state in which the first responder secured it.

- **Crime Mapping:** The ability to depict graphically where crime has occurred and to some extent predict future crime locations enables field commanders to direct patrols through intelligence-led policing.
  - ✓The days when officers patrolled random areas hoping to catch the bad guys are giving way to a new era in which agencies use crime maps of every patrol district to assign officers to patrols in a reasonable and logical manner.

- **Automatic License Plate Recognition**: Technology now enables officers to check thousands of license plates per shift to determine if vehicles are stolen, if registered owners are wanted, or if there are restraints on registered owners' driver's licenses.
  - ✓The automatic license plate recognition (ALPR) system is an integrated camera-database technology. The system takes a picture of the car license plate and then processes the numbers and letters using optical character recognition software against a known database. Suspected "hits" are relayed to users either visually or verbally.
  - ✓This technology can be deployed in a fixed position or as a mobile system. Mobile ALPR systems can be mounted in patrol vehicles and used while moving. Mobile systems are often used in vehicle theft interdiction, but as more databases are connected through ALPR systems, the data available from the systems will expand to include more information on vehicles and their owners.

- **Global Positioning System:** New systems that integrate the ability to track a suspect vehicle. It is a device that attaches to the suspect vehicle and reduces the need for police pursuits.
  - ✓This technology enables officers to apprehend a dangerous suspect at a later date when the safety of the community can be maximized.
  - ✓GPS technology allows dispatch centers to know what patrol units are closest to respond to an emergency. Low-cost applications include equipping detective cars with portable units for improved efficiency.

- **Video Sunglasses**: This is a simple device. It allows the user take a video of whatever is in his view. It comes in several memory sizes ranging from two to thirty-two gigabytes.
- **Wrist Phones**: A phone designed like a wristwatch, it enables one transmit an on-going conversation via the GSM network without anyone suspecting whatever is going on since the phone is hidden under the sleeves.

- **Camera Pens:** Another simple investigation device that helps take footages of events surreptitiously. It is a pen with a camera in it and has memory range of two to sixteen gigabytes.
- **CCTV:** Cameras constantly monitor what we do whilst we are out and about. There are people watching the cameras who will instantly report signs of trouble to the police.

Benefits and Challenges

Benefits

- Motivation
- Excitement
- Impersonal (No I beg, it's me)
- Pride in the Job
- Accuracy/ Precision
- Effectiveness
- Improved Security
- Wider Security Coverage
- Less Physical Energy
- Substantial Evidence
- Valuable Records/Details for Future Purposes
- Higher Level of Discipline (within the force)
- Automatic Lesser Crime Rate
- Reduces Room for Compromise and Corruption
- Deterrent factor
- Less risky

Benefits and Challenges …

- Concealed (Some)
- Timeliness of action
- Allows them to focus on more strategic cases

Challenges:-

- High Cost of acquisition/maintenance
- Vandalization
- Sabotage
- Low level of social infrastructure
- Technical capacity among the police
- Low level of GIS coverage in country.

What to do

- Let's take a cue from the statement of the PSC chairman: "What policing means is that you have the equipment, you have trained and trainable manpower and you support them with vehicles and communication gadgets but all these were lacking. All we have to do is to have well equipped control room with walkie talkie and other communication facilities mounted on patrol vehicles so that when they receive distress calls they will be there immediately."

What to do …

- Going by this, what needs to be done is to improve on the synergy between policing and ICT. Imagine how easier it can be to review a CCTV footage to confirm a suspect's involvement in crime than to start asking about entry and exit into the crime scene.

- Adequate Funding: The Police of any nation needs adequate funding as without proper security, other sectors are insecure and are vulnerable to criminal attacks.

What to do …

- Public-Private Partnership: Partnership must be sought with the private sector where they will provide the police with some of these scientific aids. It can also be a part of the ***CSR*** of major organisations
- More Training: The police at all levels must be made to undergo more relevant training especially in the area of Science and Technology. Regular attendance and participation in seminars and capacity building programmes both locally and internationally.
- ICT Initiatives: relevant ICT initiatives must be welcome as this will encourage capable organisations to come up with incredibly effective concepts in the technological scope.
- Digital mapping: this is a necessary investment which government must undertake to enable the police identify every location with precision.

Summary and Conclusion

- It must be noted that most police technological and scientific aids are aimed at performing key functions: safeguarding life, protecting citizens, curbing crimes, communicating with citizens and police colleagues, traffic enforcement, and managing the Police itself.
- Policing today can never be divorced from technology. As technological development is taking over every sector, there is the urgent need for the police to merge human skills with technology to keep abreast of safety and surveillance techniques.

Summary and Conclusion...

- The technologies listed in this presentation are but a few of the current generation of technologies with which today's Police and its superintending organs should be familiar. Because these technologies are changing the way Police operate, many Police Chiefs are changing their purchasing priorities as well, dedicating funds either from grants or from their operating budgets to keep their agencies technologically up to date.

Summary & Conclusion …

- All Police chiefs are encouraged to stay current in the field of emerging technology, because these technologies are not for the next generation—they are for this one.
- On considerable deployment of these technologies, it will be possible for the citizen to see the Police as his friend.

Thank You