

Policing in India: Technology and Crime Prevention

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ABSTRACT

The twenty first century of technology all over the world is reshaping both the criminal justice system and policing at an unprecedented rate. The latest technologies not only make practical tasks quicker, more efficient and more functional, but also enhance the perception of police as high-tech crime fighters. From the perspective of society as a whole, the best and most useful task that law enforcement agencies can carry out is crime prevention such as surveillance, crime analysis, and offender tracking. Police surveillance is one activity justified by its potential effect on crime prevention. New technological innovations have been developed to prevent crime and to improve the performance of the police. In India despite the adoption of seemingly sophisticated technologies and methodologies, police investigational work remains relatively low-tech. Changes in both the hard and soft technology of policing appear to be transforming local, state, and federal policing departments in a number of fundamental ways but some studies have raised questions about how much has really changed. Crime is increasing day by day with the increase in the complexity of the civilization. It needs a compatibly technological up-gradation to prevent crime and safeguard people of the country. It is in this backdrop that the present paper aims to analyse how and why Indian policing system is lagging behind in technological advancement and producing desired results.

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Introduction:

Today, no sphere of human endeavour remains untouched by computers, internet and information technology (IT). We have become totally dependent on IT, right from elementary education to healthcare, from stock market applications to sending space shuttle into the outer space and so on. Further, the most important technological breakthrough of this century, the *Internet* has transformed the world into a Global Information Village. However, history is a witness to the debatable fact that all the technological inventions have been put to as much destructive use as constructive one. Information technologies are no different. While good people are using IT for finding better alternatives which can improve the quality of human life, bad elements are using it for harming individuals, cheating others of their hard earned money, subverting and defrauding the businesses and to hide their crimes. Earlier, crime was related to physical entities which had monetary value. Although the realization that organizational data is equally, if not more valuable, is attracting the criminals to commit crime in virtual world. Collectively these criminal activities in the virtual cyberspace are being called *Cyber Crimes*. Cyber crime can be described as harmful, illegal, dangerous activities committed using a computer or against a computer, computer network or information on the computer. Cyber crime is affecting everyone individual, organisations and even the governments. Cyber crime is a harmful activity committed in cyberspace by using computer and internet technologies. Cyber crimes can be broadly classified into two types. Under the **first category** are the new types of crimes which came into existence as a result of development in computer and internet technologies. They include spreading computer viruses, hacking, denial of service (DoS) attacks, distributed denial of services (DDoS) attacks, identity theft, spamming, interception of e-mails, cyber stalking. The **second category** involves crimes from the real world that migrated to the cyberspace. They include theft, fraud, forgery, piracy, pornography, gambling, money laundering, terrorism etc. Each of these crimes have their own peculiarities and the effect of these crimes are varied (Prasad, 2004).

If we take crime as the base, then technology acts as strong pillars to target the crucial aspects of the crime. Technology has helped in solving criminal cases to a great extent. The use of technology has helped fight crime through the medium of CCTV cameras and other hi-tech devices. Thus in the 21st century, the rise of technology in the criminal justice landscape signals a remarkable progress in the adjective law of various common law countries. Various soft and hard technologies are changing the face of traditional policing. Advances in information and communications technologies (ICTs) have worked wonders for law enforcement. They have transformed the way police do their business, from helping investigators reconstruct crime scenes to facilitating information sharing between agencies. With the advent of technology, the “torture” inflicted during the investigation upon the accused has diminished considerably. However practically it is not so easy to prevent crime through the use of technology, especially in Indian context it is observed that police officials are not adequately trained in terms of crime detection and also with respect to

the existing technology. Criminals remain one step forward from the police in making use of the latest technology including ICT (Worrall & Schmalleger, 2013). As societies are getting developed in civilization, freedom education and in communication, the expectations increase from police organisations, which are the organs of the state. Especially, the society is not only expecting the police to do its basic duties, but also expecting him to carry these out with tolerance and compatibility (Stainslas, 2014).

Information Communication Technology (ICT) is terms used for a host of technologies used in India to gather retrieve process analyse and transmit information. These functions are carried on by various existing soft and hard technology. With the adoption of soft and hard technology crime prevention and detection has helped the investigation process and significant results. It is evident that there is a motive to prevent crime, but it will produce effective results only if used with certain strategies (Worrall & Schmalleger, 2013). **Technology and Crime Prevention:**

Literally the word technology includes the application of scientific knowledge for practical purposes, or machinery and devices developed from scientific knowledge. In other words technology is the collection of techniques, skill, methods and processes used in the production of goods or services or in the accomplishment of objectives, such as scientific investigation. ICT (information and communications technology or technologies) is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. With the increasing access of ICT technology, a major change has taken place from readiness to practice of ICT for different purposes. These revolutionary technologies have a greatest potential to achieve good governance goals. Each and everything from business to governance is changing (<http://searchcio.techtarget.com/definition/ICT-information-and-communications-technology-or-technologies>).

ICTs (information and communications technologies) have radically changed the organization of police work and the expectations of various police services. The advent of the Internet age has fuelled the boom in Internet cafes, though Internet access rate is currently very low in numbers. This is bound to pick up with the development of mobile telephony networks to support Internet access. The importance of the latest developments in technology, as seen with mobile telephony, cannot be overemphasized in enhancing effective, responsive and efficient policing to the community. Here, three such functions are surveillance, crime analysis, and offender tracking. With respect to video and night vision surveillance technologies, the major barrier to attainment is cost identified by state and local police departments. This likely reflects both the absolute costs of these technologies and the trade-offs that must be made between the benefits of these versus other investments. A smaller number of departments cited training, technology questions, and public

opinion as barriers to adoption. Crime mapping and geo-coding of law enforcement data are performed by one quarter to just more than a third of local departments. The fraction of departments using these techniques increases with the size of the populations they serve. Police surveillance is one activity justified by its potential effect on crime prevention. Proponents of surveillance claim that it prevents crime by deterrence, especially when overt surveillance activities remind potential criminals of police presence and observation. Critics contend that surveillance may simply displace crime to unobserved locations, rather than prevent it (https://www.rand.org/content/dam/rand/pubs/monograph_reports/MR1349/MR1349.ch2.pdf).

Problems of Indian Policing:

India is an extremely complex country to police, described as the world's largest democracy and an emerging economic powerhouse. The Indian population has now crossed the one billion mark and the diversity of the country is such that the state officially recognizes 17 different languages and over 5000 dialects. The numbers of police officers in country may seem huge at 1563301 officers, however many of these are in state agencies and many in reserve battalions. Officially the data revealed that there is one civil officer per 761 Indian people, but often in rural areas the number of officers can be as low as one per 10000. Over 90% of the civil police are in the ranks between constables and inspectors and they have to face some significant problems including armed insurgency, religious and caste violence and organized crime (Neyroud & Wain, 2014). According to National Crime Record Bureau (NCRB) statistics in 2013, actual strength of police force was 17, 31,537 against sanctioned strength of 22, 43,288, thus denoting the vacancies of 5, 11,751 police personnel. In 2013, 529 police stations were notified women police stations (<http://ncrb.nic.in/CD-CII2013/compendium%202013.pdf>). The current survey of sanctioned strength and vacant positions in Indian jails in 2014 presents a grim picture of Indian police. An analysis of the actual and sanctioned strengths of jail staff shows a grim picture of Indian prisons. Against the sanctioned strength of 7826 there are only 2179 prison staffs in jails of Bihar. Bihar is followed by Jharkhand, Uttarakhand and Chhattisgarh. Surprisingly the national capital too is understaffed by about 47% which is the fifth worst in the country (The Times of India, Oct. 15, 2015).

The Indian policing and legislative system is based upon the British colonial system. Still, the Indian police system is guided by the Police Act of 1861, a state military model of police force, passed by the British in the aftermath of the Indian Mutiny or first war of independence. The nature of colonial policing is serving the interest of the elite and British Empire was such that from the outset the force was Para-military in nature resembling more the model of the Royal Irish constabulary than the metropolitan police. From the outset the police in India have been the responsibility of the state. Each of the 29 states and 7 union territories has its own police force, although there are central agencies also. Article 246 of the Indian

constitution places the police under the state legislature which makes police reform difficult for central government. The Criminal Procedure Code required all crimes to be recorded at a police station and all investigation work to be carried out from their yet currently out of 10000 police stations, 350 did not have a working telephone and 108 had no form of radio communication. While officers based at these stations carry out some patrol work, a number have no access to vehicles. Apart from a lack of communication equipment there is often shortage of stationary and complainants will often have to provide their own pen. Constables at these stations have no definite rest periods and technically they are supposed to be on-duty 24x7. The working conditions result in many officer taking short cuts such as refusing to record crimes and poor treatment of detainees in order to extract confessions. On the other hand, fear of not receiving attention and demands for bribe and possible abuse keep many people away from the police. These conditions and lack of appropriate facilities are central to the challenges facing the Indian Police service. In 2006, The Model Police Act was passed by the central government. This act included a number of training recommendations including an absolute requirement for basic training of new officers and further training upon transfer, annual refresher courses with linkages to career development schemes and state governments to upgrade training establishments and produce a clear training policy for all ranks. Yet despite this very few states have implemented the Supreme Court judgement in full manner (Neyroud & Wain, 2014). Indian police force is facing number of problems in the maintenance of law and order such as lack of adequate and proper techniques in policing, very poor in service conditions, lack of career progress facility for the large number of the constabulary despite the recommendations of several commissions, committees. Lack of integrated information systems for the smooth functioning of the police, lack of ability to share information with other related state and national level agencies and multiple entries of the same data and limited ability to analyze information because of different locations and analytical skills. Police in India is over burdened with a host of responsibilities and in the eyes of law they play a major role when it comes to investigation. To reduce the work load and fast effective measures investment has to be made in the technological and IT security sectors. Investors should be encouraged to fight, control and prevent crime. The four major facets that needs consideration are **firstly** legal aspect, **secondly**, crime detection is expensive we should emphasize on using cost effective technology **thirdly**, technology to suit the means and purpose for crime prevention and **lastly**, transparency as this will ensure accountability in the policing system of our country. Understanding and maintaining public confidence in the system is largely dependent on two factors: a full understanding of the public's views of potential criminal events and the public's priorities for investigation and response by way of diversion, enforcement or other measures. With the increasing crime trend, it can be seen from the annual report of the NCRB that the highest figures of crime are mostly on crimes committed against property, economic crimes, crimes committed against women and crimes against body. With the changing and

increasing crime trend police is overstrained considering the number of police personnel (manpower) employed to fight crime and the responsibility of safety and security entirely on police. The idea is not to replace manpower by gadgets but simply encouraging the police to work in collaboration with technology to achieve required result (http://www.ijarcsse.com/docs/papers/Volume_3/11_November2013/V3I11-0122.pdf).

Policing has been constantly seen in bitter light and criticized for not delivering the expected result. The primary duties of police in India are to maintain public order, play pivotal roles in investigating criminal matters, identify issues that might lead to a criminal act, crime prevention and crime control, to work with other agencies, patrolling, reducing opportunities for commission of crime, preventing citizens from personal harm, maintaining law and order, management of traffic. However, the role of police in India is not limited only to the above named features, they are over laden with other miscellaneous features namely police station management VIP band bust and crowd handling, crime handling, crime analysis, look after grievances and complaints lodged and technology management further they are expected to play a crucial role during disasters, accidents and natural calamities. Thus, it can be noticed that police system in India has been given different roles and duties. They have to perform many duties in the developing society. The biggest challenge seen in India is revamping the traditional policing mode and equipping them with effective, sophisticated technology thus, the structural model of policing in India has to be understood and accordingly adopt methods and techniques of crime prevention. Thus, it is a matter of concern for the government and various efforts to deliver improved results. To meet the required demands, India is in dire need of investment in technology. The Police in India is facing a host of issues namely inadequate techniques and poor service delivered, police do not pay attention due to meagre amount of salary and slow career progress, lack of information systems for better functioning of the policing system, providing quick remedy and immediately transmitting information to various agencies, repeat entry of the identical data limited analytical and capacity to analyze information. These problems are overshadowing their performance and limiting them from reaching the desired result. It is true that criminals are advanced than police when it comes to applying and using technology. Thus, effective policing can be welcomed if modern technology and strategies are implemented as it will save time and money (<http://ap.loksatta.org/documents/advocacy/policing.pdf>).

Prospects of Crime Prevention:

Analysis of crime data can reveal patterns that are helpful not only in preventing and operationally responding to crime but also in increasing accountability to police leadership and the public. Most departments do some type of crime analysis, most commonly preparation of crime statistics. The technology for crime mapping and analysis is continually improving, and law enforcement agencies are learning better

ways to use it. Whether computerized or not, data geo-coding and mapping is being done by many departments, especially those serving larger urban populations. Among local police, calls for service and incidents are the most common types of data geo-coded and mapped (http://www.rand.org/content/dam/rand/pubs/monograph_reports/MR1349/MR1349.ch2.pdf). We are in the era of law enforcement where ICT and other advanced technologies is becoming a powerful tool for responding to criminals, engaging in hotspots policing, solving violent crimes, monitoring employees' performance and many other functions. Technologies, such as video cameras, data mining systems, heat sensors, biometrics, GPS tracking, Internet, and telecommunication systems are being used for the detection, investigation, prosecution and prevention of crime in the law enforcement community. As it did in the middle of the 20th century, technology is beginning to alter the nature of policing and to impact on the management and delivery of police services. Emerging models of policing in the 21st century demand accurate real-time information for strategic planning, problem analysis, deployment decisions, community interface, inter-organizational communication, accountability, threat detection and many other functions (<http://www.gjimt.ac.in/wp-content/uploads/2012/12/N6.pdf>).

Police and technology now go hand-in-hand. Technological advances in communication, transportation, criminalities, and other areas combined with the police's use of science and scientific methods, gave the public an image of the police as leaders of progress. This increased use of technology may be a clear indication that more specific algorithms will be used in the future, which will allow for better intelligence for upcoming crimes. Also, the use of technology has made crime mapping reports more accessible and easier to produce. The technology have allowed for the definition of more specific areas as hot spots. This focus implies that future crime mapping will be extremely precise, identifying exact areas of distinct crimes. Hot spot policing uses computer technology to disseminate and illustrate statistical trends in criminal data. This technique, also called crime mapping, is built off the premise that crime is distributed unevenly across an area. These problem areas can be targeted by increased police patrols in an attempt to reduce specific crime problems within that area. Although, the early attempts to place cameras in patrol vehicles were plagued with technical and safety problems, miniaturization and advances in technology have made the use of the mobile video recorder practical and affordable. As technology in the field of audio/visual recordings evolves, equipping police vehicles with in-car cameras will be the norm and no longer the exception (<http://eprints.covenantuniversity.edu.ng/2222/1/>). Further, the prospects of crime prevention in India can be detailed into following areas:

Electronic Identification:

Through the ICT identification of a person becomes very easy. Police can use number of methods to trace a person to control the crime and maintain the law and order. Whatever method of electronic communication

is used by a person it becomes important means of electronic identification. Digital signature of a person, Bank account number, Telephone/mobile number, Driving license number, Passport number, Permanent Account Number (PAN) Police can find any person quickly to maintain security in the society with above mentioned sources. These sources provide the detail information about the person.

Electronic Transport (E-Transport):

The major activities related with the transport system can be handled easily with the electronic devices. E-Transport aspect covers number of activities such as registration of all types of motor vehicles, Issue of driving licenses, Issue of Permits for the light and heavy vehicles, Tax and fee collection through cash and bank challans and control of pollution through checking etc. Thus, electronically saved data will be useful for the effective traffic management.

Human Resource Management (HRM):

HRM is very important activity to manage the available human resources for the achievement of goals. The strength of a police force is distributed, according to requirements of the department, divisions, sub-divisions, districts. ICT has the full potential to bring economy in the police recruitment, selection, training, promotions and to make the records of personnel, their salaries and allowances. In the recruitment process of the police, use of ICT starts from the advertisement, forms filling, written test information, date of interview of the eligible candidates and finally selected candidates etc. With this, police department should ensure that personnel are properly trained in working with the latest technology.

Police-Public Interface:

The first step to using ICTs would be in the interface of police with the public. Police is the body to secure the life and property of the public. Through ICT public will be able to view information regarding status of their complaints and the police will be able to provide feedback on the same. The major activities can be performed online such as online foreigner registration, stolen vehicle database, passport verification and live updates and alternative routes to control the traffic etc. This will bring reduction in paper work and reduce the duplication in the working of police. With this, transparency will be increased and services will be provided between the limited time periods.

Real-time Information Access:

In a large geographical area which is very hard to check and administer the Global Positioning System (GPS) and Geographical Information System (GIS) are used to track the information about a particular area and movement of suspected and terrorists etc. with the available data and video. The available information provides the ability to coordinate all the activities for better tracking, reporting, and taking action. Thus the technology enables the police personnel to take action proactively. GPS is very useful to track a suspect

vehicle, enable decision making regarding traffic routing and minimizing overcrowding and it provides information to know that whether the patrol units are near to respond to an emergency.

Intelligent Sensors:

Intelligent sensors provide real time information to for better traffic management. Camera system in cars has become an important instrument to record video of events which is improving and becoming more cost effective to control the crimes.

Centralized Information Storehouse:

Police holds and maintain a large volume of data in a standardized manner for the efficient recovery and analysis of the data. There may be two data basis, one of police personnel and other of criminals. Personnel database hold records of their current and previous postings, service record, family background, posting and promotion etc. which can be accessed within a second. For the criminals, police personnel analyze the data and identify important information by just typing the name of a criminal, it can be very useful for the maintenance of law and order. Such type of analysis may helps in identifying and forecasting crime, decision making for the future and to prevent the society from the further attacks and artificial calamities. Today, policing requires greater analytical skills to use information in an effective way.

Crime Mapping:

It used to be that patterns of criminal activity were identified on pin maps. Colored stick pins would literally be stuck in various places on a map of a city country, district or other area. Different colors corresponded to different types of crimes. This approach while crude, permitted police to identify problem areas the problem was that the maps were dimensional and could easily get overcrowded with pins, especially in the case of minor crimes. However it is so prevalent that the National Institute of Justice in U.S. has created the Crime Mapping Research Centre (CMRC) for the promotion of research, training and technical assistance for police agencies.

Geographic Profiling:

It is used for a range of criminal acts including murder, rape, robbery and auto theft. Geographic profiling can be made particularly effective when it is combined with databases used to track serial offenders. For example The Washington State Attorney General's Office uses the Homicide Investigation and Tracking (HITS) System, which ties various system together including gang files, sex offender registries, parole records and department of motor vehicle records so that they can be searched simultaneously.

Crime Intelligence Systems:

In the present time, nearly every patrol officer has a laptop computer in his or her car that is linked to various databases such as vehicle registration records and criminal history information. One of them known

as *Cal Gang* (in California) or *Gang Net* (in other states) contains detailed information on known gang members that officers in the field can quickly access.

Computer-Aided Drafting (CAD) and Computer-Assisted Training (CAT):

CAD or CAT is not a low enforcement technology per se, but it has been adapted to meet the needs of police officers and criminal investigators. CAD programs offer several advantages. They create images that are professional in their appearance. The software makes crime scene investigation much cheaper, too. Computers also enhance the training of low enforcement officers. Veteran officers may have had the opportunity to participate in one of the old shoot/don't shoot exercise in front of a television screen with a non-interactive video. Computers have helped make such exercises much more realistic and dramatic.

Comp-stat:

It is an acronym for *computer statistics*. Generally Comp-stat emphasizes four important elements: 1. *Accurate and timely intelligence*. 2. *Effective tactics*. 3. *Rapid deployment*. 4. *Relentless follow-up and assessment*. Precincts began to measure criminal activity more carefully, and then the results were computerized and assembled into a document known as the *Comp-stat book*. The crime figures reported in this book were eventually used to hold precinct commanders responsible for the crime rates in their areas. Crime statistics are the most popular measure of success for precinct commanders (Worrall & Schmallegger, 2013).

Suggestions:

Some suggestions can be listed for the improvement in the functioning of the police force. Therefore, society may become a peaceful place where each and every citizen can live without fear.

- For the accountability purpose, police department should regularly pass crime and accident data to the road traffic authorities and insurance companies so that they can act in a proactive manner rather than a reactive manner.
- On-line integration of all the required information for police service also saves the time of the police, so the technical skills and knowledge is required for the police personnel to put the information online.
- Policing in India has to invest in Information and Communication Technologies, technical skills programs have to be initiated and the police have to try and achieve crime prevention goals by playing a proactive role by understanding the crime data and pattern and merge technology for accurate detailing. Along with technology there is an urgent need for strategies to be adopted to reduce crime.

- As criminals are advanced in using technology and they have always taken advantage of new technologies and thus police need to adopt technologies with new features, some basic changes need to be considered in India before trying to prevent crime completely.
- The development in the crime mapping always went hand in hand with the sociological angle of understanding the reasons for crime commission and the social characteristics of the crime. Use of crime maps has been useful for the enforcement bodies and also the public. Thus, similar practice should be encouraged in India to detect and prevent crime.
- Crimes against women has been a serious threat to the women and rape is rampant the crime mapping has helped the police check on areas that are unsafe for women. Increasing policing and women policing are the immediate solutions however, it is time to use physical technology to detect, constantly monitor and promote surveillance in these areas by installing CCTV, Street Lights and cameras on public transport.
- It is evident that the rising crime trend in India cannot be over-looked. Crime prevention has to be assisted with sophisticated technology and there should be a proper balance between the application of technology and the effective results.

As a preventive measure, women in India also resort to pepper spray in absence of effective state agencies to curb crime. It is imperative for India to conduct such research studies where innovation can help crime prevention and improve police performance. Such positive results will have a huge impact on Indian Policing and transform the system, which is otherwise deemed problematic and seen in negative light (http://shodhganga.inflibnet.ac.in/bitstream/10603/23693/10/10_chapter-6.pdf).

These suggestions can be proved helpful in controlling the crime and maintenance of law and order in the society. To meet the problems of the coming years it is important to have a police force which is up-to-date with the knowledge of ICTs in routine work. This makes it necessary that the Indian police should also prepare its personnel to keep pace with the changing times and to deal with the day today problems.

Conclusion:

The main emphasis on accountability and transparency in the police functioning increased the work load on the police force. Indian police force is one of the most important force which tries to build the confidence of the public and it is trying to bring effectiveness and efficiency in the maintenance of law and order in the community. This will help to bring more crime to justice for the fair judgments with the help of a modern and efficient policing process. ICT not only promise to improve effectiveness and efficiency of the police force in controlling and detecting crime, this may also increase their professional qualifications, status and organizational legitimacy. Technology is a good means to prevent and control crime but should be designed and strategized based on the geographical locations, on the hot spots using crime mapping, identifying the

problem oriented places. The idea is not to replace or drop human employment, rather to merge technology (hard and soft) with man power and adopt strategies to prevent and control crime in the crime generators.

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