

AWARDS SCHEME FOR EXEMPLARY IMPLEMENTATION OF e-GOVERNANCE INITIATIVES

III. NAME OF CATEGORY- 'INNOVATIVE USE OF TECHNOLOGY IN e-GOVERNANCE'

1. Coverage – Geographical and Demographic :-

(i) Comprehensiveness of reach of delivery centres,

PINAC – Program for Identification of Arrested Criminals was developed for digitization of profiles of criminals and search of suspect. It is a comprehensive program for identification of suspect on basis of photographs, modus operandi, and/or other relevant details. This software is installed at 40 police stations across Ahmedabad City and other police units of Gujarat Police. Periodical updates of new entries are being done at all the units. As of now, the module contains details of more than 40,000 criminals arrested in various property offences in Ahmedabad City in last fourteen years. It is being extensively used in detection and prevention of all types of property offences, such as theft, house-breaking, robbery, etc.

PINAC software is a combination of two modules PINAC Data Entry module and PINAC Data search facility. In PINAC Data entry module the detail record of various identified and arrested criminals is inserted by DCB officials at Ahmedabad City Crime Branch office. The same data can be searched by various police officials from different Police Stations of Ahmedabad City with whom the PINAC data search facility is shared.

(ii) Number of delivery centres

The PINAC data search software module is being shared with 40 Police Stations of Ahmedabad City along with other zone wise Police offices and to various authorized Police officials of Gujarat Police.

(iii) Geographical

(a) National level – Number of State covered

(b) State/UT level- Number of District covered

(c) District level- Number of Blocks covered

40 Police Stations and other
police offices of Ahmedabad City

Please give specific details:-

PINAC data search facility is being shared with 40 Police Stations of Ahmedabad city, authorized officials from zone wise Police Offices and other authorized Police officials of Gujarat Police. The same has also

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been shared with various Investigating Officers (IO's) of other districts of Gujarat State.

(iv) Demographic spread (percentage of population covered)

The PINAC data search module covers the database of all the identified and arrested criminals in property offences in Ahmedabad City, running into more than 40,000 MCR cards (Master Crime Records of accused arrested in property offences). The same criminal database is shared with multiple police stations of Ahmedabad City and other cities of Gujarat. So whenever any citizen of the Ahmedabad city approaches any Police station to complaint about any property offence, such as theft, robbery, dacoity, etc. occurred with him then using this database the police can search for the suspect using the system and the description given by the citizen of the accused. The victim can also identify the suspect on the basis of photographs shortlisted by the software. This software had extensively helped in detection of various property offences.

2. Situation Before the Initiative (Bottlenecks, Challenges, constraints etc with specific details as to what triggered the Organization to conceptualize this project #):

Crime data suggest that most of property offences (such as theft, house-breaking, robbery, dacoity, etc.) are committed by repeat offenders, which is known as recidivism. Police Manual prescribes for creation, updating and maintenance of Master Crime Record (MCR) cards at police stations of accused arrested in property offences. Master Crime Records contain all the relevant details of the arrested person, along-with the photographs of the accused. In Ahmedabad City in last fourteen years approximately 40,000 accused persons are arrested in property offences, and their MCR cards are created and updated. Whenever un-detected property offences are reported at Police Stations, these MCR cards are searched on the basis of Modus Operandi of the offence. On the basis of short listed MCR cards, photographs are shown to the victim and details are collected by concerned police personals. Search in MCR cards was very tedious and time consuming process. Further, despite the fact that the MCR cards contain a number of details, the search was only made on the basis of Modus Operandi. It also caused harassment to the victim, as he had to come to Police Station and go through the photographs of the suspect persons while police personnel shows them photographs attached in bulky MCR records. Also, maintenance, deciphering and

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longevity of these handwritten records was an uphill task for MOB (Modus Operandi Branch). Transition of MCR cards from Modus Operandi Branch (responsible for maintenance and storage of MCR cards in Ahmedabad City) took a lot of time, causing further difficulty in detection of property crimes. Initially, MOB department of Gujarat Police were using papers and files for preparing MCR.

In view of the utility of MCR cards and problems faced in its optimum utilisation, Crime Branch-Ahmedabad City had developed PINAC (Program for Identification of Arrested Criminals). As part of this program, all the MCR cards (i.e. approximately 40,000) were digitised and photographs were scanned, in a prescribed format. Thereafter, a multi-layered search engine was developed to search these MCR cards on basis of various fields. These fields include many other fields over and above Modus Operandi, such as name, place of residence, co-accused, age, vehicle used, any particular habit, etc. Search engine was modelled on internet search engines, to enable search through whole MCR document also. Another important feature of this solution was that it is completely in Gujarati language, making it easy to be used by police personnel of all ranks, and does not require knowledge of computers. Search engine also short lists the photographs of the suspects, along-with other details, which can be shown to the victim and used for identification of suspects.

3. Scope of Services/ Activities Covered (Relevance of choice of application for client/ agency, Extent of e-enablement in terms of number of services, Extent to which step in each service have been ICT- enabled #)

PINAC, Program for Identification of Arrested Criminals had simplified the process of detection of property offences and investigation of these offences. It is a comprehensive Criminal Profile Management System, covering all the aspects related top details of property offenders.

By the use of this application one can now expect recovery of their stolen articles along with identification and arrest of the accused within a very short duration. The detection of crime branch (DCB) has developed an unique low-cost software to track accused persons in the state.

The software has the digital data of Master Crime Records (MCRs) which are made to keep track of history-sheeters. The data can be searched as per the area of crime, modus operandi of criminal, name

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of the history-sheeter, police station and even the photograph.

PINAC has been developed after a year's research and development and is as simple to use as a search engine like Google. It can be operated with an English keyboard. Moreover as the system is Unicode compliant, typing 'Dhiraj' from English keyboard will directly give the name Dhiraj in Gujarati language, which makes it user-friendly for constables. Easy interface allows the constable to enter the keywords of the offence, such as loot + railway station + knife, and the results are displayed of all the accused persons who have these three keywords in their MCR cards. Further, photographs will be shortlisted for identification by the victim/complainant.

MCR data is normally kept in hard copy and is difficult to search. There are more 35 different pieces of information about an accused that is to be recorded in the MCR. For instance, apart from all his personal details, the names of his or her friends, relatives, contact details, details of the person to whom he sold the stolen articles and everything that connects to the crime are mentioned in this record.

Using PINAC software all the MCRs of the city which are digitized can be searched by a police constable and within a few seconds after registration of the complaint, the police can zero-in on the suspect and decide the line of investigation.

A very important aspect is that the database of accused in property offence is updated on regular basis for any further arrest by creating and updating MCR cards in digital format. Whole process of entry of details and search has been digitised.

Manpower engaged for maintenance and search of MCR cards has been reduced by about 75%. The accuracy and relevance of results had also increased tremendously, and the result in detection and prevention of property offence is reflecting in figures of crime in Ahmedabad City.

4. Strategy Adopted

(i) The details of base line study done,

It was observed by that in Ahmedabad City most of the property offences are being done by repeat offenders. The prescribed procedure for search in MCR cards for the suspect of property offences was very cumbersome and time taking. The prevalent procedure was also inaccurate and difficult. There was an urgent need for

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simplification of the procedure and increase in effectiveness of short-listing the suspect. Property offences, such as robbery, chain-snatching, dacoity causes a lot of concern in society, and therefore requires to be detected in shortest time possible. This software had provided an effective solution for identification of suspect on basis of easy search on various fields, including identification of photographs by the victims. Also, maintenance, creation and updation of profile of criminals (MCR cards) was difficult due to huge volume of documents. This has been simplified by this software.

(ii) Problems identified,

Police personnel at various police stations need to search various MCR files as per the description of crime and criminal given by the citizen in their complaint. This process took a long time as the police personnel has to search each and every MCR file from a pile of files for crime and description of criminals. Investigation for the crime also took a longer duration which resulted in long time for solving the case and arresting of the criminal.

(iii) Roll out/implementation model,

The PINAC software was developed at Crime Branch office of Ahmedabad City where data entry of the crime and criminals were carried out in PINAC data entry module. Data was digitized by using the computer operators of Ahmedabad City Police, and photographs were scanned by using negatives of the same. Entries of approximately 40,000 criminals involved in property offences were done in prescribed format in Crime Branch office. Thereafter, software for search on various fields were developed and installed at various police stations and units of Ahmedabad City Police. The database is regularly updated for any arrest made of accused involved in property offences.

(iv) Communication and dissemination strategy and approach used.):

Data entry of new MCR files is been carried out by officials at DCB office of Ahmedabad City. Further the updated data is shared by police officials from DCB to authorized police personnel of various police stations through encrypted data drive and FTP file. The office of Commissioner of Police and other supervisory officers ensures that the victim of undetect property offence is shown the suspects photographs on the basis of search performed in PINAC software. The newspapers and vernacular news channels have also extensively reported about this software, and therefore the victims also insist for showing

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photographs at the time of registration of complaint. Police personnel of various police units are extensively using this software, as it is result oriented and easy to use.

5. **Technology Platform used-**

(i) Description,

Detection of Crime Branch, Ahmedabad City has developed the software application by Leveraging existing IT Infrastructure available with the department for minimizing Project Roll Out Cost & Time.

The software application has been developed for web/desktop platform and is also being developed for mobile platform.

For web based platform the technology used is Microsoft Access and Visual Basic for Applications as front end of the software application and My SQL as the database for storing MCR details as backend of the software application.

The data entry module of PINAC application has 65,000 images and MCR data which is stored in the database using latest data compression technology which helps in storing loads of data into the database and consuming only a petite storage space of the database.

In the software application development part also the department has used open source and freely available software and database for development of the application and thereby leveraging the available softwares for minimizing the project cost.

(ii) Interoperability

As the software application has been developed using open source and freely available softwares the same application can be easily operated using any other platform with some minor modifications in the source code and database.

(iii) Security concerns

For using software application PINAC the user needs to insert the username and password assigned by the Crime Branch of Ahmedabad City for Data Search or even Data entry application.

Also as per the latest password protection norms the password needs to be updated/changed by the user on a monthly basis else he/she

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won't be able to access the application.

(iv) Any issue with the technology used

As the department has used the latest technology and also taken care of various security concerns for the use of the software application and MCR data search, there is no issue with the technology used in the software application.

(v) Service level Agreements(SLAs) (Give details about presence of SLA, whether documented, whether referred etc. #)

PINAC being a self-developed software application and which uses open source as a software platform no SLA's are defined or documented for the system. A Police Constable, Shri Dilip Thakor, has developed the software for search, and therefore there are no issues on front of Service Level Agreements.

6. **Demonstrate innovative use of ICT for development** (Give details about use of new and emerging technology, innovative usage of ICT for process change to improve quality of the life/ organizational effectiveness, relevance of technology to provide the service #)

The main aim for developing PINAC application was to digitalize the MCR cards to overcome all limitations of existing crime detection and prevention system and maintain a digitalized **Criminal Profile Management System (CPMS)**.

The PINAC uses the data entry form as per the original MCR card. After the data fields of the MCR card are inserted into the application there are various search options available for examining crime and criminal data from the system. The system is also having a facility to generate various Police Station wise & MO wise reports.

The developed application uses a latest compression technology to store the data into the database in a compressed form without hampering the quality of data (images, etc.)

The system allows a keyword to be searched in the entire MCR data where image can also be selected as a search keyword. In addition to this a keyword can be anything ranging from the name of criminal to the offence to the place of occurrence to the co-accused.

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After the implementation of this system a quick search can be made from thousands of MCR data, reducing the time and manpower required in searching MCR data from various files.

7. **Citizen Centricity** (Give specific details on the following#)

(i) Impact on effort, time and cost incurred by user,

The software application has been developed as an in-house application by the department user by using the latest technology and the available resources (infrastructure & required software) which has reduced the cost incurred in development and implementation. On the other hand after optimum utilization of available resources the software application fulfills all the requirements of the department and also helps the users in detection and prevention of criminal activities to a large extent.

By using PINAC software and on the basis of the description of crime and criminal provided by the citizen while registering his/her complaint regarding the crime, he/she can also recognize the criminal from the available photographs of criminals involved in such crime and help police official in nabbing the criminal. This has resulted in high satisfaction level in victims of property offences. Also, the reduction in crime rate in Ahmedabad City in heads of property offences is being attributed upto some extent to utilization of this software in detection and prevention.

(ii) Feedback/grievance redressal mechanism,

The suggestions or the feedback received from various department users and citizens for various crimes and criminals are being incorporated into the system in the data entry module and in the investigation phase by police officials of DCB, Ahmedabad City.

(iii) Audit Trails,

Utilization of this software is ensured by supervisory officers in detection and prevention of crime at the time of inspections and visits of Police Stations. Also, Crime Branch ensures regular updates and maintenance of the data.

(iv) Interactive platform for service delivery,

PINAC data search module facilitates the police officials of various police stations of Ahmedabad city and other cities of the state with whom the digitized MCR data has been shared by authorized officials.

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Using the same police officials from different police stations can narrow down the suspects of crime and initiate their investigation for the complaint registered by citizens. This system helps the police officials in effective detection, prevention and solving criminal cases and nabbing the criminals within very short time duration. The user interface is in Gujarati language and very easy to use.

(v) Stakeholder consultation

The authorized users of the department have been consulted during the development and implementation phase of the software application. Also any further suggestions are discussed and implemented after getting approval from the authorized officials.

Inputs from the citizens are also fetched as feedback/suggestions by means of media, etc.

8. **Adaptability and Scalability** (Give details about Local language support, ability to leverage shared Government infrastructure, Standardization of technology used (hardware, software, application etc. #)

PINAC application is having local language (Gujarati) support as well as support for English language as the MCR data entry is done in Gujarati language. The data search module of PINAC accepts keyword input using Google input application where a user inserts search keywords in English language which are converted to Gujarati, and the matching data for crime/criminal is searched in the database and displayed on screen.

PINAC software application has been developed by Leveraging existing IT Infrastructure (hardware and software) available with the Government department for minimizing Project Roll Out Cost & Time. State Crime Record Bureau has taken a initiative to implement the solution for all the police units of Gujarat State.

9. **Adaptability Analysis**

(i) Measures to ensure adaptability and scalability

Parameters being captured for MCR in PINAC application and eGujCop Project are kept the same at Database level and the same data is been provided to eGujCop Project for further processing.

(ii) Measures to ensure replicability

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PINAC application developed for desktop use can be replicated for other States of India by using the same hardware/software infrastructure but the crime and criminal data needs to be updated as per the requirement of that specific State. This will help to detect and prevent various crimes and catch hold of criminals from all over the country involved in the crime in a very short time duration. This will also help police department in reducing the crime rate in all the states of India and improving the image of Police in the mind of citizens. Further, State Crime Record Bureau has already taken an initiative to implement the solution for all the police units of Gujarat State.

(iii) Restrictions, if any, in replication and or scalability

As the software application PINAC is developed using the existing infrastructure available with Police department so there are no restrictions related to scalability or replication of the application to various other States of India.

Instead, after replication of the same application at various other cities/states of the country, it would help the Police in effective detection and prevention of crimes occurring in various cities/states of the country and would also help to nab the criminals associated with such crimes.

(iv) Risk Analysis

There are no risks involved in using the software application as the validation of the user is being carried out with the authorized user-id and password given to police officials of the city/state.

10. New Models of Service Delivery (Give details about type of partnership model use, Links to/Supported by Public/Private Organization Links provided to relevant websites etc. #)

As the PINAC software application has been developed by in-house team of Crime Branch, Ahmedabad City Police, no partnership model or any other organization has been involved in development of the application. Also this being a department specific application the same has not been kept in the public domain or even not accessible to any other unauthorized officials.

11. Efficiency Enhancement (Give specific details about the following #)

(i) Volume of transactions processed

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PINAC application has a database of more than 40,000 criminals and different crimes carried out by those criminals.

Using PINAC data entry module entry of around 350 criminals is carried out on a monthly basis.

In all the undetect property offences this solution is used at various police stations of Ahmedabad City. This solution is also used for identification of known criminals residing in an area for effective preventive actions.

(ii) Coping with transaction volume growth

The software application has been developed by using latest compression technology in such a manner that it can cope up with unlimited transactional volume growth. Also in case the existing server is not capable of handling transactional volume growth the department can change the hardware infrastructure on requirement basis.

(iii) Time taken to process transactions,

PINAC data search application takes approximate 3-4 seconds for fetching and displaying the requested data on screen.

(iv) Accuracy of output,

The MCR data which is fetched from the system and which is displayed to the user is 100% accurate as the data is inserted by dedicated resources of Crime Branch, Ahmedabad City after initial investigation carried out by them.

(v) Number of delays in service delivery

There is no delay in service delivery as the request of MCR data is directly handled by PINAC software application without integration with any other system or database.

12. **User convenience** (Give specific details about the followings #)

(i) Service delivery channels (Web, email, SMS etc.)

PINAC application can be accessed by registered/authorized user with the help of the desktop system available to police officials of various police stations and dedicated officials at DCB for data entry of MCR.

(ii) Completeness of information provided to the users,

The MCR data which is fetched from the PINAC data search module and displayed to the user is 100% accurate and in updated form which

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helps the police officials in effective detection and prevention of crimes. It also helps the police to nab the criminal associated with crime in a very short duration.

(iii) Accessibility (Time Window),

PINAC data entry and data search application can be accessed by the corresponding registered/authorized user after login into the system using their user-id and password on 24x7 basis.

(iv) Distance required to travel to Access Points

PINAC application can be accessed by registered users from their desktop stations and being at their respective Police Stations or offices only.

(v) Facility for online/offline download and online submission of forms,

There are no other forms which needs to be downloaded or submitted in online/offline mode in PINAC application. The updates at Police Stations are provided in encrypted drive or/and FTP file format.

(vi) Status tracking

Using the PINAC application the registered/authorized users can access the MCR data, search for specific data using advanced keywords within fraction of seconds on their desktop stations, so there is no requirement of status tracking of the same.

13. **Sustainability** (Give details about sustainability w.r.t. technology (technology used, user privacy, security of information shared – Digital Encryption etc. #), Organization (hiring trained staff, training etc. #), financial (Scope for revenue generation etc. #))

PINAC application being an in-house development by Crime Branch of Ahmedabad City police and which has helped them in effectively detection and prevention of crime and also in catching hold of criminals involved in various crimes is used by various police officials of Gujarat State. This application has helped them to reduce the crime rate in the Ahmedabad City by a reduction of substantial value of 29-34%. As the application provides the details of the crimes and criminals of the respective areas as per the police stations it helps the police officials to identify the criminal and arrest them in a very short duration.

The application is being accessible to the registered/authorized users

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with a unique user-id and password assigned to the respective police officials.

Training for acquainting the users with the application has been carried out by the department so the users can easily navigate the application as per their requirement.

Due to implementation of PINAC application the cases related to crimes carried out in specific area and a designed manner get co-related to the characteristics of the crime carried out by criminals of that area and helps in effectively detection and prevention of crimes along with catching hold of the criminals in a very short duration.

14. Result Achieved/ Value Delivered to the beneficiary of the project-(share the results, matrices, key learning's, feedback and stakeholders statements that show a positive difference is being made etc):

(i) To organization

After implementation of the PINAC application the Ahmedabad City Police was successful in prevention and detection of crime and criminals in an easy and swift manner in specific area/location. This has also led to a reduction in crime in the state by 29-34% as the criminals are nabbed by the police. Easy search has made the required data readily available on the desktop of the police personnel. The long and cumbersome process of identifying the suspects has been done away with. It was always felt in police department that MCR cards contain volumes of information, but the inconvenience of search of relevant details always kept it highly underutilized. However, this software has provided a very helpful tool in mining the relevant information from the MCR cards about the suspects. Investigation and detection of property offences is simplified many folds for the police personnel of Ahmedabad City.

(ii) To citizen

The police can zero-in on the suspect as per the description of the crime and criminal characteristics, crime scene detail, etc. provided by the citizen

Also as per the characteristics of the crime as given by citizen, the citizens can now recognize the criminals involved in the crime by viewing the photographs of criminals involved in such

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crime.

Using this application the police officials can solve the crime case with ease and citizens get back their property in a very short time duration. A number of offences are detected by Ahmedabad City Police by using this software, which has helped in prevention of further crime. Also, the recovery of stolen/lost property for the victims of these crimes has increased considerably.

(iii) **Other stakeholders**

After implementation of the PINAC application the crime rate has been reduced to 29-34% in the state. By accessing the application the Police officials who have recently taken charge of a Police Station can get to know about the criminals residing in their area and the crimes done by them in past.

15. Extent to which the Objective of the Project is fulfilled-(benefit to the target audience i.e.G2G, G2C, G2B, G2E or any other, size and category of population/stakeholder benefited etc):

PINAC application has been developed and implemented by the Crime Branch of Ahmedabad City with an aim to digitalize the MCR cards to overcome all limitations of existing system and maintain a digitalized **Criminal Profile Management System (CPMS)**.

After implementation of the application police personnel of the city has succeeded in solving many cases related to crimes with respect to the characteristics described by citizen at the time of occurrence of crime. The application has also helped the department in curbing the crime rate in the city upto a larger extent.

Also after utilization of the same application by various police station officials and other authorized officials of Police department the criminals are nabbed by the police within a very short time duration.

16. Comparative Analysis of earlier Vs new system with respect to the BPR, Change Management, Outcome/benefit, change in legal system, rules and regulations

In earlier system a police officials needs to find the details of criminals

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by looking into manual MCR sheets which were maintained at various police stations. This process was a very time consuming and hectic process as searching of criminal with characteristics similar to the one described by the citizen while registering a complaint and that with various suspects/criminals. Whereas, after implementation of the PINAC application the police officials can zero-in their search for the suspect of the crime described by the citizen by searching the application using specific keywords and also in catching hold of the same within a shorter duration.

Earlier the FIR/complaint lodge by the citizen/complainant related to a crime occurred at a specific location the police official took longer time in detection and prevention of crime.

The crime rate in the city has been drastically reduced from 29-34% after implementation and use of such applications.

17. Other distinctive features/ accomplishments of the project:

1. Developed and maintained in very low cost, as in-house resources were used.
2. Same application is being developed to be available on smart phones, with lat-long of the residence of the criminal. This mobile application will also show the shortest route to the user to the residence of the criminal.
3. Quality of photographs which are inserted is very good, as negatives of the photographs were used for conversion in digital images.

This is just an indicative list of indicators. Applicant can add on more information based on suitability of the project nominated.