Case Study

Trafficop
m-Technology for Safer Roads

December 2010

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Promoted by Department of Administrative Reforms and Public Grievances
Ministry of Personnel, Public Grievances and Pensions
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Executive Summary

In India, there are several examples of citizens and even law enforcers taking the issue of traffic violations lightly - using bribes to cover up any and all inconsistencies. Trafficop - an initiative of the Pune Traffic Police – is a promising start for changing the existing mindset.

Trafficop enables the police to record on-the-spot violations. The programme consists of a software application that currently runs on Blackberry mobile devices linked to a server that stores all customised vehicle and license holder data. When the traffic officer logs in to his/her device, he/she can enter the vehicle and license details of the offender and will automatically obtain a record of the offenders' past history.

In this way, every offence becomes like a red mark on a report card and the officer can fine the commuter according to the number of offences committed. A commuter's license can be suspended after a certain number of offences committed and he/she is required to present himself at the Regional Transport Office (RTO) for further hearing. Maintaining an up-to-date transparent record of offences helps to create a sense of respect for the law amongst citizens as they do not want to be caught on the wrong side of it. The readily available data helps police to carry out their duties efficiently and also holds them accountable to do so fairly. A web interface is used to monitor the system by higher authorities who leverage the data gathered on the number, kind and area of offences to determine traffic pattern and plan for the future.

To date, the initiative has succeeded in identifying approximately 950 regular offenders, tracing 200 stolen vehicles, suspending 2400 licenses and registering 8.36 lakh offences in total. It has drastically reduced the effort required to complete administrative work. With plans to introduce smart card technology into the software, whereby driving licenses can be swiped for identity authentication and fine payments can be made electronically, the system has the potential to boast even greater results in the future.

This document presents the objective and background of the Trafficop initiative, and presents its impact thus far. The aim of this report is to contribute to a clearer understanding of how the initiative functions and to assist in its replication and creation of a sound and secure 'traffic environment' across the country.

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Background

Violating traffic rules in India for most citizens hardly means breaking the law. It is more often than not something that one can get away with. One may obey these rules solely out of safety concerns, but not typically due to fear of the law. Such attitudes indicate a need for a stringent punishment system by which people will view traffic violations seriously. This calls for a revamping of the current traffic violations management system - Trafficop is an initiative of the Pune Traffic Police that does just that.

Trafficop in Pune

Resulting from the boom in the IT industry, the city of Pune has grown a great deal in the past decade; unsurprisingly, traffic and traffic violations have grown along with it. With the number of both public and private vehicles on the rise, it has become crucial to develop a new system by which serious action can be taken in response to road violations to inculcate a positive 'traffic culture' in Pune and to input sustainable safety measures.

Prior to Trafficop, there was no record of offences committed by commuters. The only data was available to the Regional Transport Office (RTO) and included vehicle and license details. Under such a system, commuters could repeatedly commit offences without any record of their past. To tackle such a situation, the Pune Traffic Police Department along with Omni Bridge Systems Pvt. Ltd, a company of the Science and Technology Park, Pune, designed a programme called 'Trafficop'.

Under this m-governance project, the traffic police in Pune are given a Blackberry mobile handset through which they are able to record traffic violations on the spot. This handset is connected to a server that stores vehicle, driver and violation information. When an offender is caught, the in charge traffic officer can enter the vehicle and license details into the blackberry to see the number and kind of offences committed by the commuter, allowing him to penalize the offender appropriately.

The pilot was launched in Pune on 20 November 2009. Existing data was gathered from the RTO and converted into the required format to be uploaded to the Trafficop server. The data was uploaded into a central database managed in the Software Technology Park, Pune. The Trafficop application was then installed on 50 Blackberry devices and handed over to traffic police officers. In just one year, 65 officers have begun to use the device, from which there is evidence showing that traffic culture in Pune is undergoing dramatic changes.

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Objective

Trafficop aims to:

• Ensure respect for traffic rules by commuters
• Hold traffic police accountable to law enforcement
• Help traffic police access vehicle and commuter information
•Ensure traffic discipline - enforce traffic laws and guarantee a safe and secure road environment

Working Design

The Trafficop software is installed on a Blackberry device and connected to a backend server which stores a customised database of vehicle and driver license details.

Process Flow

Trafficop works as follows:

• When the traffic police catch an offender, he/she logs onto the device by entering his/her username, password and area code.

•   He/she then enters the vehicle information and license details

• The device displays a record of offence history committed by the commuter and

basic details of the vehicle as well as the name and address of the license holder

• The officer registers the new offence. On the basis of

Figure 1: Trafficop handsets

the history, the traffic officer will penalize the offender. The penalty for a first offence differs from the penalty incurred in case of repeat offences. When a fourth offence is registeredunder a commuter's name, his/her license is suspended.

• The Blackberry is paired with a portable bluetooth printer to issue an on-the-spot receipt to offenders. This transaction is uploaded in real time to the server.

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A web based interface allows senior officers and administrators to monitor offence information collected by the traffic police in the field.

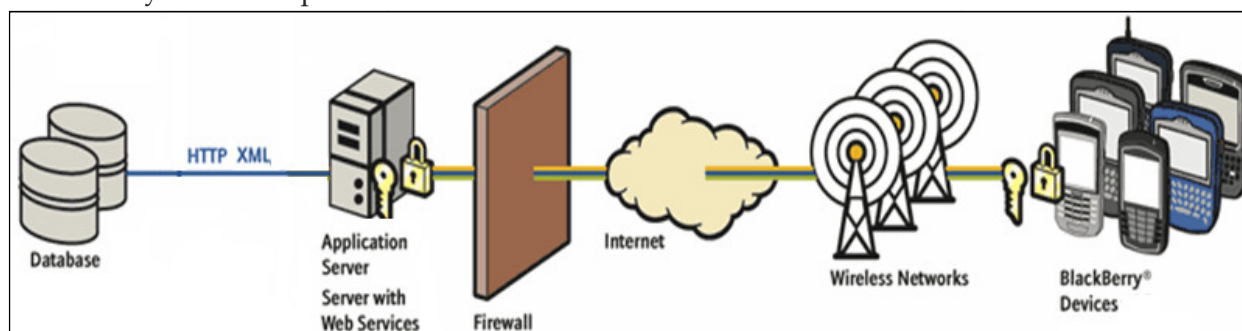**Figure 2: Trafficop process flow diagram**

Methodology

The OneWorld research team identified Trafficop as a best practice on the basis of secondary research through which the programme was found to be unique and socially and economically sustainable. Efforts were then made to contact the various stakeholders and schedule interviews for a field visit.

During the field visit to Pune, officers at the Pune Traffic branch were interviewed, helping the team to better understand the motivation behind the roll out of Trafficop and how it operates. An interview was also conducted with the Director of Omni-bridge Systems Pvt. Ltd, who assisted the team in understanding the operations and impact of the programme.

A traffic inspector demonstrated how the Trafficop software works to register offences and issue related penalties. With this document, the OneWorld team endeavours to assist in the replication of such an initiative elsewhere. With the number of vehicles on the rise across the country, it is vital to inculcate the importance and sheer necessity of abiding by traffic laws.

Key Stakeholders

- Pune Traffic Police: The Traffic Branch is responsible for maintaining traffic discipline and punishing offenders.
- Omni-Bridge Systems Pvt. Ltd: Omni-bridge is a company from the Science and Technology Park in India which is promoted by the Department of Science and Technology, Government of India. It has designed the Trafficop software and is a leading force in mobile software development.

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Lessons Learned

It's been a year since the launch of Trafficop and the initiative has begun to leave a mark.

Maintaining Traffic Discipline

a) **Registering Offences:** Using the Trafficop application, the traffic police have registered 8.36 lakh offences in the past year, with an average of 1950 offences registered per day.

b) **License suspension:** The traffic policemen have caught hold of over 950 habitual traffic offenders and suspended their licenses as they have been caught violating traffic norms for the fourth time. Their licenses have been confiscated and handed over to the Pune RTO for further inquiry. The offenders are required to visit the RTO's office within 15 days and attend a hearing on the basis of which their licenses will either be returned or cancelled.

c) **Tracing stolen vehicles:** With vehicle registration and license details at the tip of their fingers, the traffic police have been able to identify stolen vehicles and owners of unclaimed vehicles. Over the past year, 200 stolen vehicles have been traced.

The above data points to the ease with which Trafficop has enabled policemen in Pune to identify regular offenders and enforce the law in a systematic and graded manner, where offenders can be classified and fined accordingly.

Easy to Use and Efficient Technology

Trafficop leverages simple technology. Anyone familiar with a mobile can operate the system. After evaluating various mobile devices, it was found that the Blackberry best complemented the software in terms of usability, connectivity and security. Blackberry hardware is user friendly, so minimal training was required. With the new hardware and software in place, traffic police showed a deep commitment to using Trafficop in order to improve the traffic conditions across the city.

Reduction in Administrative Work

Overcoming the challenges of digitising vehicle and license data, a process has now been put in place to feed all information onto the web. This saves time and manpower resources, cutting down the scope for any malpractice, duplication and other mistakes in data entry.

A Secure and Sound System

To ensure data security, only authorised and authentic users can operate the given application. The system has an inbuilt facility to change the password at regular intervals. In case of

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connectivity problems or weak signals, the mobile application has a large offline storage capacity.

Building Citizen Accountability

With Trafficop, the image of a traffic officer as someone who can be easily bribed is changing. Today, citizens are aware that the traffic police hold the digital tool that links a single offence to a sophisticated system in order to maintain law and order. Offenders are no longer let off easily; in this way, out of fear and respect for the law, citizens are increasingly obeying traffic rules.

Constant Monitoring

Not only are citizens held accountable, but higher authorities are made to maintain a check on the traffic police. GPS provides higher authorities with the necessary facilities to track the movement of policemen and check whether he/she is at his appointed position. As soon as an inquiry is sent by the traffic policeman, an entry is made into the web interface about the inquiry, therefore it becomes compulsory for the traffic police to follow up on their inquiry and take action.

There is no scope for monetary irregularity and misappropriation of funds as the information of amount received as penalty fees from the offender is submitted and stored in the centralised database. A receipt can only be generated once this amount is logged.

Furthermore, citizens can check on a request if a particular offence applies to them. In this way, there is little scope for inappropriate fines.

Studying Traffic Trends

Periodically generated reports help to identify the pattern of offences - areas where maximum offences are committed and types of vehicles used. This helps in understanding traffic trends and in turn, assists in future planning. This data also helps to respond to queries made under the Right to Information Act.

Overcoming challenges and moving ahead

The biggest challenge has been to implement the project at multiple levels where buy-in of stakeholders at each step was required. Challenges were overcome through a sincere effort to build a robust system.

Owing to its current success as a pilot project, Trafficop has great future potential.

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Below is a list of enhancements that have been envisioned as next steps:

• Smart card driver's licences

• Biometric thumb impressions to be made compatible with the national Unique Identification (UID) scheme

• 3G technology to improve connectivity

• On-the-spot photographs/video and real time upload

• Partnerships with insurance companies to make insurance rates subject to the number of offences committed. The higher the number of offences, the lesser the insurance provided. If this succeeds, there will be added pressure on citizens to obey the rules.

• A small service charge, in addition to the fine amount, so as to make Trafficop financially feasible. This amount can be used in the upgrading of the system.

Sustainability and scalability

This has been a year of achievements for Trafficop; it is efficiently serving the purpose for which it was designed with additional facilities planned for the future. The system will gradually be implemented throughout Maharashtra and there are plans to replicate it in Gujarat, Goa and Rajasthan within the next five years.

Technologically, Trafficop has proven to be appropriate and useful, but like any other initiative, its sustainability will depend on a deep commitment by both citizens and the traffic police.

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Appendix A

Interview questions

DCP, Traffic branch

1. What was the need for an initiative like Traff-i-cop? What does it aim to do?
2. The program has a phase wise implementation across states (Maharashtra, Gujarat, Goa, and Rajasthan). Why was Pune chosen for the Pilot phase? What was the condition of traffic discipline in Pune prior to Traff-i-cop?
3. Who are the key stakeholders in the project? What are their roles?
4. How does the initiative function? Can you describe for us it's working and operational design? What are the services that it facilitates?
5. Was the traffic police given training on the use of the application? Do all the traffic police across the city have access to the system? Do the traffic police also use the blackberry for their personal use?
6. What sort of disciplinary action is taken against offenders? What about a repeat offender? What sort of violation complaints have you mostly received?
7. Who is responsible for managing the data at the back office? Are their specific officers hired for the maintenance of the system?
8. Since the application involves a large amount of vital data storage? What measures are in place to ensure the security of this data? In times of a system failure, is there any measure in place for back-up?
9. Blackberry is an expensive technology platform. Doesn't that affect the financial sustainability of the initiative? There are recommendations to impose a small service charge. How will that function?
10. Have there been any measurement /evaluation done on your behalf on the functioning and impact of the initiative so far?
11. What are some of the major achievements of the initiative? Apart from ensuring traffic discipline among citizens, does the application also help in ensuring that the traffic police perform its duties well?
12. What were some of the challenges faced in the implementation of the initiative? How were they addressed?
13. Are there plans for any enhancements/ modifications over how the system functions currently?

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Omni-Bridge- Mr. Amit Shitole

1. What was the need for an initiative like Traff-i-cop? What does it aim to do?
2. The program has a phase wise implementation across states (Maharashtra, Gujarat, Goa, and Rajasthan). Please describe for us Omni Bridge's role in these phases?
3. Who are the other key stakeholders in the project? What are their roles?
4. How does the initiative function? Can you describe for us it's working and operational design? What are the services that it facilitates?
5. Can you explain to us the functioning of the software in layman's terms? Who is responsible for managing the data at the back office? Are their specific officers hired for the maintenance of the system?
6. Was the traffic police given training on the use of the application? Do all the traffic police across the city have access to the system?
7. Since the application involves a large amount of vital data storage? What measures are in place to ensure the security of this data? In times of a system failure, is there any measure in place for back-up?
8. Blackberry is an expensive technology platform. Why was it specifically chosen? Doesn't that affect the financial sustainability of the initiative?
9. Have there been any measurement /evaluation done on your behalf on the functioning and impact of the initiative so far?
10. What are some of the major achievements of the initiative? Apart from ensuring traffic discipline among citizens, does the application also help in ensuring that the traffic police perform its duties well?
11. What were some of the challenges faced in the implementation of the initiative? How were they addressed?
12. Are there plans for any enhancements/ modifications over how the system functions currently?

Traffic Police

1. Do you find it easy to use the blackberry? Were you given training to operate the system? Describe for us how you operate the system, when you catch a traffic violation.
2. How have the citizens / public responded to this initiative? What disciplinary action do you take in the case of an offender (repeat offenders).
3. What difference has the introduction of 'Traff-i-cops' made in the maintenance of traffic discipline in Pune?
4. Do you have any suggestions for further improvement?

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