CHAPTER-III
INFORMATION SYSTEMS AUDIT

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DEPARTMENT OF HOME

3.1 Police IT-2000

3.1.1 Introduction

The Department of Police (Department) had envisaged a project for comprehensive computerisation of the Karnataka State Police 'Police IT 2000' (Police IT) during 1999 with the objective of achieving higher levels of performance in dealing with crime, law and order, security and traffic management, reducing delays in attending to the complaints and providing high quality service to the general public. The work relating to 'Police IT 2000 Software' which included system design, development, installation, user training, implementation and maintenance was awarded (February 2004) by the nodal agency *viz*., State Crime Records Bureau (SCRB) to M/s Wipro Limited (agency) for ₹ 1.90 crore to be completed within 65 weeks. The project consisted of the following 12 modules.

1. Crime
2. Traffic
3. Stores
4. Motor Transport
5. Training
6. Armed Reserve
7. Administration
8. Finance
9. Law and Order
10. Forensic Science Laboratory (FSL)
11. Wireless/Control Room
12. Executive Information System

The modules went live over a period from 2006 to 2011[22] with most of the modules having been rolled out in 2011. Though, the agency had completed all the 12 modules at a cost of ₹ 2.95 crore, one module (Administration module) was yet to be implemented in full.

The maintenance as well as enhancement of Police IT was entrusted (December 2011) to M/s. Hewlett Packard India Sales Pvt. Ltd as the System Integrator (SI) under the Government of India project 'Crime and Criminal Tracking Network and Systems' (CCTNS). The enhancement was to bridge the gap between existing Police IT and requirements of CCTNS. Work was in progress (October 2014).

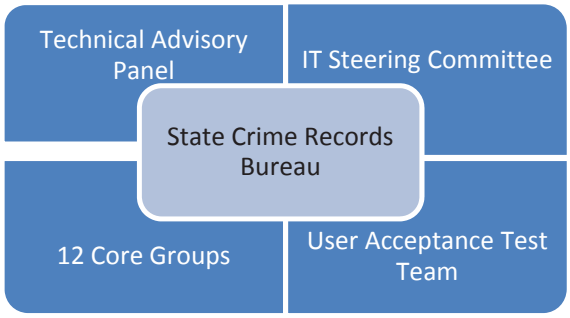
Police IT was a role-based web application with different roles assigned to each cadre in the Department. Further, a Wide Area Network (WAN) of leased lines and Broadband connections had been created to provide

[22] 2006 (1 module), 2010 (3 modules) and 2011 (7 modules)

connectivity to all the units of the Department. The application software had been hosted at the Karnataka Police Data Centre located at Bengaluru over the WAN for all the user offices across the State to access the software. In respect of disaster recovery management and business continuity plan, the Department had set up a Disaster Recovery (DR) centre in a different location and the data replication to the DR centre was in progress (May 2014) under CCTNS project.

3.1.2 Organisational set-up

The Department functions under the overall control of the Additional Chief Secretary, Home who is assisted by the Director General and Inspector General of Police. The Department consists of five Commissionerates and seven Ranges, each headed by a Commissioner and Inspector General of Police, respectively. The nodal agency SCRB was guided by technical and domain expertise formations as indicated below in governance of Police IT.



3.1.3 Audit Objectives

The audit of Police IT was undertaken to ascertain whether:

- Adequate IT management controls existed to ensure that implementation of project was planned systematically and requirements adequately assessed.
- Data available in the system and the information generated through the IT system was complete, correct and reliable.
- Adequate access controls to the system were in place.
- IT Governance at the entity was effective to ensure that the envisaged objective of introduction of Police IT 2000 in the functional areas of Department was achieved.

3.1.4 Audit Criteria

The criteria for the audit were the Karnataka Police Manual, Karnataka Financial Code and generally accepted practices in implementation of information systems.

3.1.5 Audit scope and methodology

The audit, which was conducted between January and May 2014, covered the planning and acquisition process, system development activities such as requirement gathering, testing, implementation and maintenance, data quality and data centre management of the Project. The methodology adopted included examination of files in relation to acquisition and development of the Project, analysis of data for integrity and reliability and study and testing of application interface. IDEA (data analysis software), MS Excel and SQL queries had been used to analyse the data. Data pertaining to the period 2010 to 2013 was analysed.

3.1.6 Audit findings

3.1.6.1 Managerial Controls: Project Governance

Project Governance in respect of an IT project is concerned with planning, monitoring and controlling the IT processes of requirements, definition, design, development, testing, training and implementation as applicable to the context so that the information system achieves the desired results within the planned timelines and budget.

We observed that:

- There was no User Requirements Document for Police IT describing the functional requirements of the Department. Also, though the preliminary and detailed Software Requirements Specifications (SRS) were prepared by the vendors (CMC Ltd and Wipro respectively), the core groups headed by senior level officers of the Department which were formed to study and certify the coverage of requirements in the SRS had not furnished the certificate in respect of both the SRS documents. This indicated lack of confidence or business process owner involvement on the SRS documents prepared which were the blueprint for the product to be delivered. The Government in its reply stated (November 2014) that as the SRS was based on the user requirements only, it was felt not necessary to obtain the certificate from core groups. The reply is not acceptable as the circulars constituting the core groups mandated the coverage certificate by the core groups.
- Further, there was insufficient co-ordination and control over the requirement gathering process by the agency, which resulted in four significant change requests, at a cost of ₹ 1.05 crore and delay by about six years in implementing the project. No specific reply was received from the Government.
- The User Acceptance Test (UAT) was not systematic as the criteria for the UAT had not been planned in advance but were decided during the course of the UAT exercise. Hence, various defects that existed in the software were not noticed during the UAT. The Government in its reply

stated (November 2014) that the UAT done earlier to 2010 was not comprehensive and UATs done later for the change requests were systematic. However, despite the two UATs, various defects existed in the software.

3.1.6.2 IT Operations: Access Controls and Continuity Planning

We observed inadequate controls regarding access controls and continuity planning as mentioned below:

- There were no controls to ensure password strength as the system did not enforce password complexity as well as periodical password change. Hence, the system accepted weak passwords exposing the users to risk of password cracking. Further, there existed no policy on password security to implement such requirements. The Government stated (November 2014) that the issue had been addressed.
- Analysis of tables of various modules and also home page for the users showed that there was no consistency in assignment of roles to various cadres in the Department as can be seen in **Table-3.1**.

  Superintendents of Police for each district were the Foreigner Registration and Arms Licence Approval Officers within the department and as such had to hold the concerned approval roles.

Table-3.1: Illustrative cases of SPs not holding approval roles

Name of the officer & designation	District	Role
Mr. H. Ravikumar , SP	Chikkamagaluru	FRO Approval
Mr. Anuchet, SP	Kodagu	FRO Approval
Mr. Borase Bhushan, SP	Mandya	FRO Approval
Mr. Dayalu, SP	Shivamogga	Arms Licence Approval
Mr. R.B. Mohan Reddy, SP	Mysuru	Arms Licence Approval

(Source: Police IT database)

However, it was seen that these approval roles were allotted to Police Constables and other lower level staff of District Police Officers (DPOs) (25 cases – Police Constables, 21 cases –Head Constables). Few cases are listed in **Table-3.2.** This arose due to the lack of control over the process of assignment of roles to users in the application.

Table-3.2 : Illustrative cases of constables holding approval roles

Name of the official and designation	District	Role
Basavaraj, Police Constable	Kalaburagi	FRO approval
Sathyamurthy B N, Head Constable	Kodagu	FRO Approval
Chandru V.M., Head Constable	Kodagu	FRO Approval
Manjunatha K H, Head Constable	Shivamogga	Accounts Approval
Manjunatha K H, Head Constable	Shivamogga	Stores Approval

(Source: Police IT database)

There was no audit trail to log the grant of roles to users as well as revocation of roles. Conceding the issues, the Government stated (November 2014) that assignment of roles has been set right and audit trail for granting roles has been implemented.

- Though the backup policy mandated restoration of the monthly backups to a test server, the monthly backups moved to permanent storage in tapes were not tested periodically for restorability. In reply, Government confirmed (November 2014) that backup policy has been implemented.
- The Database Administrator's (DBA) activity was not being logged and as such, there was no audit trail for DBA actions. This impacted accountability. The absence of a log of DBA activity was pointed out and the Department replied that the issue would be addressed as part of CCTNS requirements.

3.1.6.3 IT Operations: Third Party Support

As per the terms of contract with the SI under CCTNS, the SI was required to provide personnel having requisite experience and educational qualification for handholding support. Though handholding support, which encompassed handling hardware and software issues, was engaged (December 2012) for uninterrupted operations at end-users locations, we observed that against a handholding requirement of 205 personnel, only 77 personnel were working as of May 2014. This affected the timeliness and availability of handholding support for the units that were to be served. The Department stated (June 2014) that due to high attrition rate, there was no proper response by the SI in this regard.

3.1.6.4 Project Implementation: Module-level deficiencies

Deficiencies noticed in various application controls in nine modules are brought out in the succeeding paragraphs.

(a) Crime Module

Crime Module stores detailed information about the history of the crimes to assist in the investigation process and also generates account of the crime. Test-check of the module and analysis of data showed the following deficiencies.

- ***Lack of provision for viewing/generating aggregate information***

The hierarchy of units in the Department from the bottom to top is Police Stations --> Circle Offices--> Sub Divisional Offices --> District Police Offices --> Ranges --> Police Head Quarters.

Various reports in the crime module consisted of First Information Report (FIR), Petty Case Summary, Number of suicidal deaths, *etc*.

It was observed that reports were available either only for individual Police Stations (PS) or for all the PS put together. The system responded incorrectly with a message “There are no FIR entries for the above search criteria” on any intermediary levels of aggregation being chosen. This defect was also found in other report generation screens of Crime Register, FIR Summary, *etc*. Unavailability of crime reports at the circle, district or range level limited

the usability of existing reports for better planning, deployment & monitoring at these levels. This deficiency in MIS design indicated inadequacies in project planning and lack of user involvement at different functional levels of hierarchy.

The Government in its reply (November 2014) stated that the issue has been rectified.

- ***Inconsistencies in Investigation Officer (IO)-wise case status Report***

The work of an IO begins when a case is assigned to him and ends with submission of final report on the case. The system had a provision to generate IO-wise case status report indicating the count of cases taken up, count of final report submitted and count of cases pending with the IO.

Deficiency in report design would indicate nil or low pendencies *vis-a-vis* cases under investigation and provide wrong reports to stakeholders. An officer against whom nil pendency is shown wrongly would be assigned new cases. This scenario may impact overall delivery of policing services. It was observed that the system generated a nil report when the report was generated for any particular officer of a PS while there were actually cases entrusted, final reports submitted as well as pendencies in respect of the officer. The latter was ascertained when report was generated for all the officers of a station where the concerned officer was also listed with details.

- ***Duplication of work***

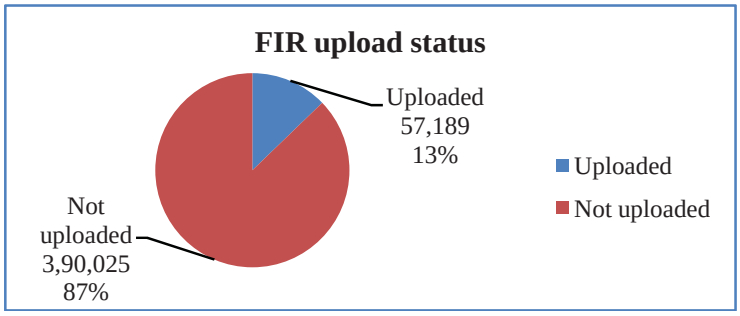
The investigation of an FIR ends with filing a chargesheet or final report. The final report/chargesheet screen provided for preparation of chargesheet and also for enclosures such as Wound Certificate, Post Mortem Report, Motor Vehicle Inspectors Report, *etc.*, through uploading. These documents, which were gathered during the progress of investigation were available in the form of case diary enclosures. However, it was seen that the system did not have a provision to utilise the documents relating to the case already uploaded and available in the system from the FIR stage or thereafter. This resulted in duplication of work for the user apart from redundant uploads.

The Government in its reply stated (November 2014) that appropriate instructions were issued to the SI to make the changes in the application so that the documents uploaded in the previous screens could be available in the final report screen to avoid duplication of work.

- ***Non-utilisation of document upload facility***

The system enabled information flows and access to records generated/ maintained at Police Stations by way of data entry supported by scans of relevant base documents. In relation to an FIR, the system provided for upload of four different types of documents *viz*., Complaint Copy, Property Copy, Photos and Reasons for delay.

Analysis of list of FIRs and list of corresponding uploads revealed that out of 4,47,214 FIRs which were based on written complaints, the complaint copy was not uploaded in 3,90,025 FIRs (87 *per cent*). This had the risk of records being misplaced and also non-achievement of the basic objective of the project *viz*., to reduce manual work and better access to information.



Government stated (November 2014) that SCRB had instructed all end users to mandatorily upload all documents relating to FIRs. Though, instructions have been issued, concerned field in the application has not been made mandatory.

- ***Duplicates in Crime Number allotted***

The FIR table consisted of details of FIRs registered in PS all over Karnataka. Each FIR was identified by a 17 digit field crime number (crime_no) which was a combination of the year, the serial number of the crime, the unit_id of the PS *etc.*, and was the key to locate related records in 51 different tables such as for serving summons, final report, finger print results, trace goonda details, previous conviction details *etc*.

It was, however, noticed that there was duplication of crime number in respect of 20 different records *i.e*., same crime number was given for two different cases. This had the risk of creating confusion while issuing summons, identifying finger print details and also generating reports. The Government stated (November 2014) that the issue had been fixed and validations were in place and no duplicates had been reported in 2014. The reply is not acceptable as the existing database still contains records with duplicate crime numbers, for which unique numbers have to be generated.

- ***Defective input controls***

The functionality for entering an FIR provided for capturing the details of the offence including the beginning and ending period of the crime during which an offence was committed.

We observed that the application did not carry appropriate date validations for the critical start and end dates pertaining to the crime. During data analysis of FIR table, it was seen that in respect of 912 cases, the FIR date pre-dated the end of the crime date by one day to as much as 30 days and more. This resulted in defective FIRs.

On this being pointed out, the Department stated that it has put all the required validations in place. Though the reply is acceptable, the reply is silent on the corrections to the data already existing in the database.

- ***Faulty Monthly Crime Reports***

Monthly Crime Reports menu consisted of various individual reports. Title of one such report was on cases of robbery/dacoity/professional poisoning in running trains. However, on generating the report, it showed cases which included cases other than those indicated in the title. For instance, it was observed that Case No. 0076/2013 IPC 1860 U/s 302 dated 20/06/2013 Thirumalashettahalli PS, Bengaluru District was pertaining to murder case in a residence as per 'Brief facts' indicated in the report, which should not appear in the report pertaining to crimes committed in running trains. Department in reply stated that this was due to erroneous data entry and/or inadequate input and validation controls in the Graphical User Interface (GUI). Such defective reports defeat the very objective of effective monitoring and pursuing crime cases and also reduce stakeholder confidence in the reliability of the information.

The Government in its reply stated (November 2014) that necessary inputs and validation controls have been put in place.

- ***Editing of case diaries – lack of audit trail***

Case diary is a chronological log of activities done by the IO in respect of a case. It was observed that the system permitted editing of previous case diaries. Further, no trail existed in the system to indicate that a particular case diary had been edited. This allowed the IO an opportunity of expunging certain entries previously made without any trace. This impacted reliability of the case diaries.

The Government stated (November 2014) that Audit Trail function was implemented. However, the fact remains that the system still permitted to edit case diaries until a new case diary was opened. Hence, distortion of facts could not be ruled out.

(b) Traffic Module

The Traffic Module captures information about grievous accidents, detailed study and analysis of the roads, determining the accident-prone areas to take relevant action to avoid such accidents in future and provide inputs to traffic engineering.

- ***Incomplete data***

The application treated important data needed for traffic analysis as optional information. It was observed that by not making the vital information fields mandatory such as injury details, accident cause, vehicle manoeuvre, road

classification, spot conditions at the time of accident, road markings, details of passengers *etc*., were not entered in the tables pertaining to traffic investigation and analysis. Hence, the traffic analysis and traffic engineering was hampered.

The Government in reply (November 2014) stated that the officers concerned were instructed to update these data with immediate effect.

- ***Inconsistencies in reports***

The traffic module provides reports such as month-wise traffic analysis reports, statement of fatal and non-fatal cases *etc*. There were inconsistencies in the statistics generated in various reports which is detailed in the **Table-3.3** below:

Table 3.3: Inconsistency in reports of Whitefield Traffic Police Station for the period 1.1.2013 to 31.12.2013

Statement showing the number of fatal and non-fatal cases reported, persons killed and injured	Killed:458 Injured :3,778 Total cases : 37
Statement showing report vehicle wise	Male fatalities: 931 Female fatalities :72 Total cases 52
Accidents classified according to type and number of vehicles and persons involved for the year 2013	No. of accidents : 37 No. of vehicle involved : 61 No. of persons involved :24 No. of persons killed :4
Accidents classified according to age of vehicle	Total No. of fatal cases : 1,06,265 Total number of accidents :4,29,330 Number of persons killed: 86,22,085

These rendered the reports unreliable. The Government while agreeing (November 2014) that there existed discrepancy in the reports, stated that data output in the reports were being verified and corrected.

(c) Stores Module

The Stores Module handles all the activities related to stores and procurement for the Police Department such as the cycle of indents, quotations, purchase orders, stock details and issue of stores. Test-check of the stores module interface and data analysis of the stores module revealed the following deficiencies.

- ***Nil value purchase orders (POs) and incorrect information in stock report***

We observed that the unit prices of the items purchased were entered as zero in respect of 3,177 out of 8,210 purchased items. For instance, in PO Ref No.05/2013-14 dated 15/04/2013, unit cost and total cost for all 10 stationery items (*i.e* A4 Paper, File Board, Covers *etc*.) was indicated as nil.

This resulted in PO amount being shown as zero in 727 out of 2,900 POs (April 2011 to December 2013).

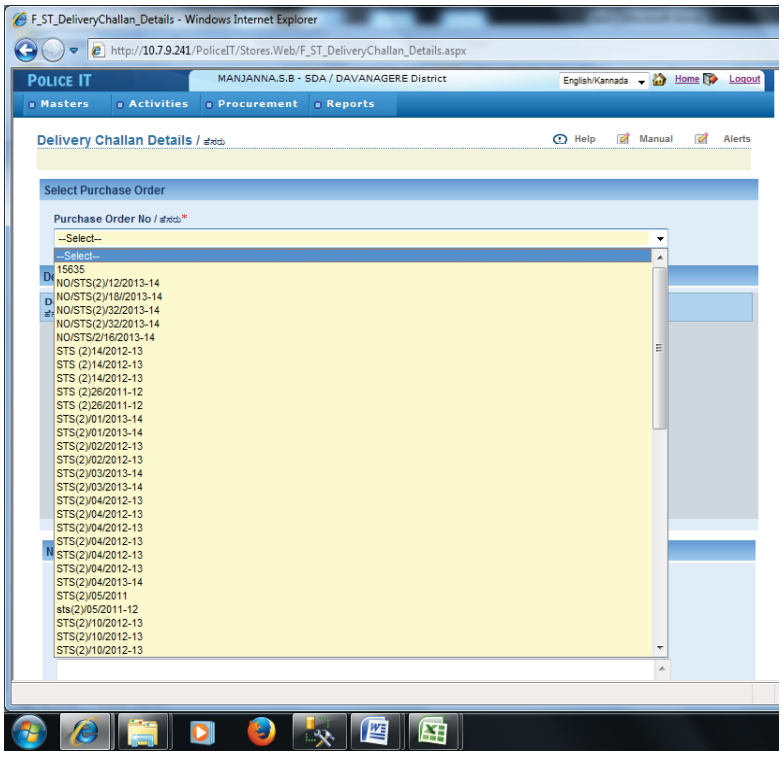
The stock ledger details report which was meant to show batch-wise quantity of an item, the rate per unit in the batch, value and total value item-wise were showing the rates and totals as zero. This indicated that the inputs for purchase order details were not properly validated. Hence, the outputs such as the PO, Stock Ledger Report were unreliable. Further, there was risk of expenditure being understated.

The Department stated (November 2014) that the module was not being used regularly. The reply was not acceptable as the entries were as recent as December 2013.

- ***Drop down list entries not unique – defective user interface***

When items were received against a PO, the receipt of such items was recorded in the Delivery Challan Details Screen by selecting the concerned PO reference. We observed the following deficiencies:

✓ The PO reference used in this screen was not unique to a PO as it was not system generated. This number was often the purchase file number from which several purchase orders originate. Thus, several POs had the same PO reference.



- ✓ Defective design of user interface to relate delivery challans to POs resulted in the dropdown list being contained with repeated values of PO references as shown in the picture. This was confusing to the user as the user had to use trial and error to locate the correct PO.

Government confirmed in reply (November 2014) that they were using PO number as both purchase order number as well as file number. Hence, the deficiency was yet to be addressed.

(d) Motor Transport Module

The Motor Transport module enables management of motor vehicles belonging to the Department. This module provides for logging day-to-day activities of vehicles, drivers, fuel for all the units of Department. Test-check of the module and analysis of data showed the following deficiencies.

- ***Vehicle Log***

The Vehicle Log functionality enables user to record and view and search the log of their vehicle usage and fuel filling.

- o ***Editable vehicle log without audit trail***

The vehicle log was a chronological record pertaining to the vehicle containing the timing and locations which were visited and distances travelled which also constituted a record of the movements of the person involved. However, it was observed that the system provided an edit option to edit previous entries. Further, there was no audit trail in the system to track such changes. This impaired the reliability and integrity of the vehicle log.

The Government stated in reply (November 2014) that the SI was instructed to make necessary improvement in the software and the issue was identified as a software bug.

- o ***Inconsistency between starting and ending meter readings of vehicles***

In respect of 4,886 vehicle log entries out of 64,81,606 entries, it was noticed that end reading of the meter was lesser than starting reading. This indicated that there was no validation between two fields. This impacted accuracy of mileage figures, total kilometers run apart from unreliable data about fuel consumption and other vehicle efficiency parameters.

Government in reply (November 2014) stated that necessary validation controls have been put in place during September 2014.

- ***Non validation of quantity of fuel purchased due to omission in table design***

The Department is equipped with different types of motor vehicles such as two wheelers, jeeps, cars, and vans *etc*., which are allotted to various units. Important information about the vehicles such as registration number, chassis number, vehicle make, seating capacity *etc*., were being captured in a vehicle master table. However, it was observed that the capacity of the fuel tank was not included in the table.

The filling of fuel for vehicles was against fuel indents and the use of these indents was also recorded in two other tables in Police IT.

Out of 6,05,800 fuel indent records, we observed:

a) In 18,843 records, the quantity of fuel filled was 0 litres.

b) In 2,567 cases two wheelers had been fuelled in excess of 20 litres (average fuel tank capacity of two wheelers is taken as 15 litres). The total volume of fuel so filled (1,26,726 litres) in excess of 20 litres was (1,26,726 – 2,567*20 litres) = 75,386 litres.

The fuel tank capacity of the vehicle, an important attribute of the vehicle had been left out from the design of the table. Due to this omission, the system had no way to validate the quantity of fuel purchased in each instance against the fuel tank capacity. The Government stated (November 2014) that appropriate validation had been put in place during August 2014.

- ***Departmental Petrol Bunks - Closing Balances of fuel open to adjustment by editing previous indents***

The Department operated 15 departmental petrol bunks to issue fuel to police vehicles. These petrol bunks procured fuel from petroleum corporations such as Indian Oil Corporation and in turn issued to police vehicles belonging to different units on the basis of their fuel indents.

We, however, observed that the application allowed the user to edit the quantity of fuel issued on previous dates which resulted in showing a correspondingly increased or decreased balance quantity of fuel on hand in the bunk in Police IT. This, coupled with lack of validation controls on the quantity of fuel issued brought out in the previous paragraph gives scope for manipulation of stock on hand.

The Government replied (November 2014) that the usability and robustness of software would be improved by building appropriate validation controls. The reply is not acceptable since building appropriate validation control does not address the issue of editing previous entries.

- ***Employee vehicle licence details not updated***

Analysis of Employee Licence details of 4,818 drivers available in Police IT database revealed that the licences of 1,276 drivers had lapsed. However, no alert report was generated for timely renewal of licence.

The Government replied (November 2014) that it had issued instructions to the users to update the licence renewal information mandatorily. It also stated that as an additional measure, necessary improvement would be made in Police IT application to generate advance alerts for timely renewal of driving licences.

(e) Training Module

The Training Module deals with training institutes, training programmes, faculty, training subjects, timetables, nominations and assessments.

The Police Training Wing has 15 training units across the State which conduct various training courses for its employees. We observed that only five units had updated the master table. Key functionalities like faculty and subject information, trainee performance assessments, course schedules, training attendance, feedback *etc.*, were not being used by the Department. The Government in reply (June 2014) stated that training had been imparted for utilising the module.

(f) Armed Reserve Module

This module deals with armed reserve units, requisition and approval for deployment, deployment of armed reserve platoons, return of platoons *etc*.

Data analysis of the duty assignments under armed reserve revealed that there was no validation of duty assignment data. Out of 2,98,472 records,

a) 15,559 records had “to-date” prior to “from-date”.

b) 2,533 records had “to-date” as null values.

c) 15,204 records had “to-date” value with 1900-01-01.

Inconsistencies in data impacted the correctness of reports generated from them. The Government replied (November 2014) that the point raised was taken into account and appropriate validation and input controls were incorporated. The reply is not acceptable as the existing database continued to have the inconsistent data.

(g) Administration Module

The Administration Module in Police IT deals with recording and managing the Employee information & related activities of the Department. It tries to automate the process involved in the day to day activities related to the human resource management of the Department.

- ***Duplication of records in employees table - defective user account management***

The Police IT Database contains an employee master list with details such as name, employee ID, KGID (which serves as the login ID), the rank as well as the unit where the official is working (workplace_unit ID).

Data analysis revealed that there were 570 cases of duplication of KGID (same KGID with different employee names, employee-IDs, same KGID with same employee names with variations, pre-fixing / appending of initials, position of fullstops in initials *etc*). An illustrative list is given **Table-3.4** below:

Table-3.4: Duplication in Employee Master Table

Employee_ID	KGID	First_Name	RANK_ID	Rank_name	Unit ID	Unit Name
131500069	709046	T.L.Kalaburagi	50	Follower	1315	KSPTS Khanapur
191800099	709046	Kalaburagi. T.L.	50	Follower	1918	KSRP Training Munirabad
191800048	707273	Munikrishna Raju. S	36	AHC	1162	Munirabad PS
6501359	707273	S.Munikrishana Raju	36	AHC	1162	Munirabad PS
113000066	703615	K.B.Jayaramu	8	PI	1130	Ramapura PS
205600001	703615	Jayaram K B	7	Dy.SP	2056	Mysuru Region

(Source: Police IT database)

Absence of input controls at the application level and absence of checks in the process for populating the table resulted in duplication of KGID which impacted the reliability of the employee master information.

The Government replied (November 2014) that the Department was in the process of finalising the requirements of Admin Module as per the current needs. It further stated that all issues would be addressed at the time of implementation of Admin Module.

(h) Finance Module

The Finance Module deals with functionalities like budgeting, accounting, expenses approval, payment of transport allowance, festival advance *etc*., to the employees, payment of electricity bills, telephone bills of all the unit offices *etc*. Analysis of the tables showed the following deficiencies.

- ***Incomplete bills master***

The database contained a bills master which listed details of bills raised by different Drawing and Disbursing Officers (DDO). It contained, for each bill, the nature of the bill (such as non-Plan Expenditure or Plan Expenditure, whether it was an abstract contingent bill or a detailed contingent bill, the bill amount, the treasury token number used, *etc*) . It was seen that there were no details of any bills raised by 37 DDOs out of 111 DDOs in the Department. Further, it was observed that the contents of this table were being used in generating reports such as Cash Book Report, Expense Register, DC Bill

Register *etc*. As there were no records of bills of 37 units, the reports from the Finance Module generated nil results in respect of these units. Hence, the reports were unusable.

In reply, the Department stated (November 2014) that it had instructed the DDOs to use the Finance Module.

- ***Internal Inconsistency in Expense Bills Data - lack of referential integrity***

The database contains a table of expense bills with details of vendor bills, their dates, the period to which the bill relates to (from and to), DDO_ID, descriptive details of the bill and total amount *etc*. The list of DDOs in the Department was available in another table. The two tables are designed to share a common DDO Code to relate the bills to the DDO concerned. It was, however, observed that consistency had not been maintained in relating the two tables as listed below:

- In a few cases, the DDO-ID was drawn from the Unit Master Table.
- In 247 cases, the DDO-ID did not match with the DDO-ID of the Master Table but contained Employee ID.
- In 19 cases, it contained null value.

This violated the principles of database design, affected data integrity and resulted in incorrect reports. The Government stated that all necessary instructions have been issued to SI for improvement in the software.

- ***Discrepancies in employee savings data***

The police IT database contains a table 'Employee Savings Master' containing details of saving related deductions from the employee's salary such as GPF, LIC, KGID and CPF.

Analysis of the table revealed that in respect of three different GPF account numbers (Pol_Acc_No), the table had duplicate records ranging from 10,936 to 73,49,056 times. This indicated that there was a systemic error in the process that is populating the table. Illustrative list of duplications is shown in **Table-3.5** below:

Table-3.5: Duplication of GPF account details

Pol_Acc_No	No. of Records repeated		Pol_Acc_No	No. of Records repeated
648666	73,49,056		80175	10,936
POL-118931	36,74,528		65761	10,936
POL-132090	18,37,264		61062	10,936
POL-118864	9,18,632		25154	10,936
POL-132059	4,59,316		35266	10,936
POL-67026	2,29,658		35424	10,936
POL 119044	1,14,829		129437	10,936

(Source: Police IT database)

Design errors in the method of data updation to master tables lead to data redundancy and may lead to overall performance issues while making transactions with the use of the module and related data.

Government stated in its reply (November 2014) that these issues would be attended to at the time of implementation of Admin Module.

(i) Law and order Module

The main function of Law and Order Wing is maintenance of Law and Order in the State by dealing with areas relating to top secret issues, communal disturbances, riots, strikes, agitations, security during VVIP visits *etc*.

Para 970 of the Karnataka Police Manual requires every PS to maintain a Station House Diary (SHD) which is a log of work done and the information received at the Station. The project provided for maintenance of SHD for 25 pre-determined events. The table recorded the PS-wise type of event reported, time of occurrence and the time of data entry into the system.

Analysis of the table showed that there was no consistency in the recording of the SHD events across PS. This rendered the review of activities of PS ineffective and also reflected incomplete picture of the station activities. The Government stated (November 2014) that instructions had been given for complete usage of the SHD.

3.1.6.5 Overall MIS and functionalities

We observed that on review of the 1,222 tables in the database across modules, while 379 tables contained zero records, 147 tables had less than 100 records. The Government attributed (November 2014) this to new functionalities and functionalities that were used in a limited manner which indicated that the various functionalities provided in the application were not being fully used. Hence, there was the risk of the summaries and statistical reports generated by the system presenting a partial picture.

3.1.6.6 Sakala-Citizen services pendency

Karnataka Guarantee of Services to Citizens Act, 2011 was passed by the Karnataka State Legislature to provide guarantee of services to citizens in the State of Karnataka within the stipulated time limit and for matters connected therewith and incidental thereto. This service is called Sakala.

Twenty one services rendered by the Department have been covered under Sakala Services (April 2012). As and when a request for a service is received from the public, a state-wide unique Guaranteed Services to Citizens (GSC) number is generated in the application. Further, the progress of the service is also required to be updated. The database with respect to Sakala services are being transmitted to Sakala server on hourly basis.

However, on verifying the error logs, it was seen that there were errors in transmission since inception and, hence, the database in the Sakala server was updated partially. This resulted in the non-existence of GSC number or non-updation of the status of the service. This also resulted in mismatch between the status of the services of the Department and Sakala.

The Government in its reply (November 2014) stated that the issue has been sorted out.

3.1.7 Conclusion

The project which was to go live by May 2005 was implemented in January 2011, after a delay of about six years. The Administration Module, which required modifications, was yet to be implemented in full due to insufficient co-ordination and control over requirement gathering. Conducting user acceptance test without correlating the input screens with various reports generated resulted in unreliable data and report. The system was not effective in ensuring data integrity as it lacked validation controls in many modules, permitted un-authorised edits without audit trails and defective user interface. Further, the Department has not been able to enforce adoption of features in Training module, Finance module, Stores module *etc*., and hence were used in limited manner by the end users.

3.1.8 Recommendations

- Validation routines in the data entry system need to be strengthened to address the data integrity issues.
- Development and implementation of the Administration Module is to be expedited to optimise the utilisation of all other modules of the project.
- Edits should not be allowed and where necessary, audit trails should be provided and should be allowed after approval by higher authority.
- Action needs to be taken to have unique numbers for purchase orders as well as for vendors in the Stores Module.
- Government should consider replacing manual system with the computerised system to compel officials to get and to use all modules.