Performance Audit relating to Statutory Corporations

Rajasthan State Road Transport Corporation

3   Performance Audit (IT) on Computerisation of ticketing system

Rajasthan State Road Transport Corporation (Corporation) outsourced (May 2011) the work of 'Online Reservation System' (ORS); integration of Electronic Ticket issuing Machines (ETIMs) with ORS; and preparation of Radio Frequency Identification (RFID) smart cards to Trimax IT Infrastructure and Services Limited, Mumbai (Service Provider). The Service Provider implemented the ORS in May 2011 but the integration of ETIMs with ORS was pending (August 2016).

The Performance Audit involved analysis of the electronic data of ORS; ETIMs and RFID smart cards pertaining to the period 2014-15 and 2015-16 (November 2015) and contractual performance of the Service Provider. The audit findings pertaining to ETIMs are based on eight selected depots out of 57 depots.

The audit findings mainly highlight deficiencies in project management and system design. The project management highlights deficiencies in planning and implementation; and project monitoring and evaluation. The system design deficiencies include non-integration of ETIMs with ETIM server; insufficient validation controls; and non-mapping of business rules. The project management and system design deficiencies had financial implication on the revenue of the Corporation. The financial issues relate to under recovery of fare; unauthorised concessions allowed to the passengers; and payments to the service provider in violation of the clauses of the work order/service level agreement.

Project Management

Planning and implementation

The Corporation did not prepare IT policy, IT security policy, password policy and policy for change control management. The IT cell of the Corporation had also not constituted a planning/steering committee with clear roles and responsibilities to monitor each functional area of the Integrated Transport Management System. Besides, the Corporation did not have a framework for IT policies and procedures during the development of ORS and preparation of RFID smart cards. The modifications made by the Service Provider in the database as regards change in routes; fare in the software; security of IT assets; etc. were not subject to any supervisory control. In absence of a password policy, the systems installed at booking windows accepted passwords of any length without combination of alpha numeric and special characters. There was no system in vogue to ensure change of password by the users after different time intervals in order to minimise the risk of unauthorised access.

Further, the Corporation did not have proper business continuity and disaster recovery plan because the primary data centre as well as the disaster recovery site for ETIM application was set up in the same seismic zone (depot level). The data of ETIMs would not be retrieved in case of any disaster at the depot level. The Corporation also issued 'Pilot Acceptance Test' and 'User Acceptance Test' certificates to the Service Provider without evaluation of the application software.

Project Monitoring and Evaluation

The project monitoring and evaluation was deficient which led to release of payments to the Service Provider in violation of the clauses of agreement/service-level agreement and non-reconciliation of operating revenue.

System Design deficiencies and insufficient validation control

The system design deficiencies and insufficient validation control resulted in discrepancies in allowing concession to female and senior citizen passengers viz. allowing concession outside State; concession to ineligible senior citizens; Mahila concession to male passengers and free journey to female passengers instead of only on Mahila divas and Raksha Bandhan. It also led to discrepancies in allowing concession to student and monthly pass passengers viz. allowing journey more than once in a day; allowing free travel on Sunday and allowing journey on zero balance monthly passes without receipt of fare. Inadequate mapping of rules led to non-charging of fare at prevailing tariff; under recovery of fare in inter-state buses and non-recovery of IT fees/accidental compensation surcharge/toll tax/human resource surcharge on free journey tickets. The system design deficiency also resulted in non-recovery of reservation charges and non/under recovery of cancellation charges.

The software in violation of the business rules allowed allotment of same seat numbers to two passengers; journey to RFID card holders in higher class than the eligible class; 'Passenger Name Record' number with less than 18 digits; issue of more than one cancellation order against one ticket; journey on expired RFID cards and concession without valid RFID card; etc.

Audit Recommendations

Audit recommends the Corporation to formulate and implement a clear and comprehensive IT policy covering various aspects such as IT security policy; password management; etc.; set-up primary data centre and disaster recovery site for the data of ETIMs at different locations; build adequate input controls and validation checks to ensure correctness of input data and output results as per the business rules and needs of the Corporation; ensure mapping of business rules in accordance with the organization rules/policies, manuals, Government directions, etc; ensure functioning of General Packet Radio Service module for real time integration of the ticketing and financial data of ORS and ETIMs; make operating procedures of ETIMs simpler to increase operational efficiency and reduce input errors; and reconcile the IT data and accounting data to avoid any leakage of revenue.

Introduction

3.1 Rajasthan State Road Transport Corporation (Corporation) was established (1 October 1964) under Road Transport Corporation Act, 1950 with the mandate to provide an efficient, adequate, economical and properly coordinated road transport services to the people of the State (Rajasthan). The Corporation works under the administrative control of the Transport Department of Government of Rajasthan (State Government). The management of the Corporation is vested with Board of Directors (BoD) comprising Chairman, Managing Director and Directors appointed by the State Government. As on March 2016, there were seven Directors on the Board of the Corporation. The day to day operations are carried out by the Managing Director with the assistance of Executive Directors, Financial Advisor, General Managers, Chief Production Managers and Chief Managers.

As on March 2016, the Corporation had 57 accounting units including three workshops and head office. The Corporation operated Volvo, AC, deluxe, express and ordinary buses on various routes within and outside the State through 57 depots including two Central Bus Stands (CBS) at Jaipur and Ajmer and one depot located at New Delhi.

Financial and operational performance

3.2 The operational revenue, non-operational revenue and profit and loss of the Corporation during 2014-15 and 2015-16 were as below:

(₹ in crore)

Particulars	2015-16 (unaudited)	2014-15
Operational revenue	1715.55	1702.66
Non-operational revenue	51.46	131.13
Gross revenue	**1767.01**	**1833.79**
Expenditure	**2036.43**	**2462.27**
Profit/loss for the year	**(269.42)**	**(628.48)**

There was a meagre increase in the operational revenue during 2015-16 as compared to 2014-15 due to increase in fares. However, the non-operational revenue decreased (60.76 *per cent*) from ₹ 131.13 crore to ₹ 51.46 crore during this period. The loss incurred by the Corporation during 2015-16 decreased (57.13 *per cent*) from ₹ 628.48 crore to ₹ 269.42 crore in 2014-15.

The operational results of the Corporation during 2014-15 and 2015-16 as regards buses operated, distance covered and passengers travelled were as below:

Particulars	2015-16	2014-15
Number of buses owned by the Corporation	4343	4493
Number of buses hired from private parties	186	211
Total fleet	**4529**	**4704**
Average operating Kilometers per day (in lakh)	**16.13**	**17.16**
Average number of passengers travelled per day (in lakh)	**9.26**	**9.81**

The number of buses operated, average operating kilometers of the buses per day and average number of passengers travelled per day decreased during 2015-16 as compared to the year 2014-15.

IT activities in the Corporation

3.3 The Corporation started ticket booking/reservation at Central Bus Stand Jaipur on trial basis from January 2004 through a software developed by Polytech Computer Education. The Corporation decided (2011) to implement an 'Integrated Transport Management System' (ITMS) which included:

- Online Reservation System (ORS); and integration of Electronic Ticket issuing Machines (ETIMs) with ORS;

- preparation of Radio Frequency Identification (RFID) smart cards;

- preparation of mobile application for the Corporation;

- Vehicle Tracking and Passenger Information System (VT & PIS); and

- Passenger Audio Announcement System (PAAS).

The Corporation outsourced all the above activities on 'Build, Own, Operate and Transfer' (BOOT) basis. The Corporation created (June 2013) an IT cell to monitor the progress of ITMS.

The work relating to ORS; integration of ORS with existing ETIMs; and preparation of RFID smart cards was awarded to Trimax IT Infrastructure and Services Limited, Mumbai (service provider). The service provider was required to procure and install hardware equipment along with design and development of web based application software and their successful operation. Further, the Service provider was also responsible for maintaining the integrity, security and backup of the data and applications. The service provider implemented the ORS in May 2011 but the integration of ETIMs with ORS was pending (August 2016) even after replacement of existing ETIMs of the Corporation by the ETIMs of service provider. The Corporation in its reply stated that the functionality of General Packet Radio Service (GPRS) was subsequently discontinued due to non-availability of network on the routes. The Corporation, however, did not submit any evidence in support of its decision to discontinue GPRS.

As regards remaining activities of the ITMS, the service providers had completed and launched (October 2015) the mobile application while the works of VT & PIS and PAAS were under progress (August 2016).

Software implemented in the Corporation

Online reservation system

3.4 The online reservation system (ORS) implemented by the service provider included Public Online Reservation System (PORS) and reservation of tickets by the Corporation at the booking windows. The PORS was hosted on the web portal of the Corporation and the general public was allowed to reserve tickets 30 days in advance to the scheduled departure of a bus. The

facility of ticket reservation was available upto 30 minutes prior to the scheduled departure of bus.

RFID smart cards

3.5   The State Government allowed (27 June 2012) free/concessional travelling to 18 categories of persons under the Rajasthan Guaranteed Delivery of Public Services Act, 2011. Persons seeking concession under these categories were required to submit an application to the Corporation for issue/renewal of RFID card in the prescribed format along with the supporting documents which mainly include proof of identity, address, date of birth and a photo. The details of the applicant were entered into the online RFID module at the depot level and forwarded to the IT cell. The IT cell verified the details and sent them to the service provider for preparation of RFID cards. The details entered by the service provider in the master data were again re-checked by the IT cell on receipt of the RFID card.

Ticketing through ETIMs

3.6   The tickets are issued by the conductors and booking agents/clerks through ETIMs issued to them by concerned depots of the Corporation. The ETIMs have preloaded software containing fare list, route chart with bus stop numbers, concession codes and other levies. The tickets issued through ETIMs contain category of ticket, to and fro destination, total fare with break up, date of journey, ticket number, bus service and name of depot. The conductors were required to connect the ETIMs with the main server of the depot at the time of arrival on duty to upload the route details and fare list of the route. Similarly, on completion of the trip, the conductors had to plug the ETIMs with the server located at the depot to take print out of the summary report of total tickets issued and amount collected for depositing to the cash branch.

Scope of Audit

3.7   The audit of computerisation of ticket booking/reservation system was last incorporated (paragraph 4.11) in the Report (Commercial) of the Comptroller and Auditor General of India for the year ended 31 March 2005, Government of Rajasthan, hereinafter called as Audit Report 2004-05. The paragraph was discussed by the Committee on Public Undertakings (COPU) on 22 May 2008 and recommendations were placed in the State Legislature on 11 March 2011.

The COPU recommended that the Corporation should prepare a documented IT policy; password policy; and policy for change control management in the software. The Corporation assured COPU to implement the recommendations.

The present Performance Audit (IT) involved review/analysis of the electronic data of ORS; ETIMs and RFID smart cards. Besides, the compliance of the terms and conditions of the work order by the service provider for implementation of ORS, ETIMs and preparation of RFID smart cards was also reviewed.

The results of the Performance Audit (IT) are based on the analysis of data of ORS; ETIMs in selected depots; and RFID smart cards prepared by the service

provider, pertaining to the period 2014-15 and 2015-16 (November 2015). The compliance of recommendations made by COPU was also reviewed.

Audit objectives

3.8   The Performance Audit (IT) was carried out to assess whether:

- the online reservation system and issue of tickets through ETIMs were adequate to fulfill the business needs of the Corporation and needs of the passengers;

- the IT system was effective and had adequate validation checks to minimize the business risks;

- internal control and internal checks existed to ensure proper functioning, monitoring and safety of IT assets ; and

- recommendations made by COPU were complied.

Audit criteria

3.9   The audit criteria adopted for achieving the audit objectives were derived from:

- Rules/guidelines/notifications issued by the State Government;

- The Motor Vehicles Act, 1988 and Rules there under;

- The terms and conditions of the agreements, work orders and other directions issued to the contractors/software developers/implementing agencies;

- Accounting Policies, Business Rules and procedures adopted by the Corporation; and

- Management Information System (MIS), Manuals and other orders/circulars issued by the Corporation.

Audit Methodology and sample selection

3.10   The methodology adopted for attaining audit objectives with reference to audit criteria consists of:

- explaining audit objectives and audit criteria to the Government/Corporation during entry conference (5 February 2016);

- collection of electronic data from the Corporation for the period 2014-15 and 2015-16 (November 2015) and its analysis through Interactive Data Extraction and Analysis (IDEA) software,

- review of records at the Head Office of the Corporation and selected depots during November 2015 to June 2016;

- raising audit queries and interaction with the management of the Corporation/service provider;

- issuing questionnaires to elicit information for evaluating controls in application software and to ascertain completeness, regularity and consistency of data;

- issue (June 2016) of draft Performance Audit (IT) report to the Government/Corporation for comments and replies thereon; and

- discussion with the Government/Corporation on the audit findings during exit conference (2 September 2016).

The Performance Audit Report has been finalised after considering the replies of the Corporation on audit queries and draft Performance Audit Report (August 2016).

3.11 Out of 57 operational depots, we initially selected seven[1] depots on the basis of highest operational revenue earned by them during 2014-15 and 2015-16 (November 2015). During entry conference, the Managing Director requested to select a loss making depot in place of CBS (Jaipur). Subsequently, Kota depot was selected on the request of management in place of CBS (Jaipur). One additional depot (Bharatpur) was also selected on the basis of its remote geographical location. The performance Audit (IT), therefore, involved selection of eight depots out of 57 depots.

Audit findings

3.12 Audit findings based on the scrutiny of records and analysis of electronic data mainly highlight deficiencies in general controls, system design, mapping of business rules, application controls, *etc.* having financial implication on the revenue of the Corporation. The financial implication mainly involves issues relating to short/non-recovery of fare; unauthorised concessions allowed to the passengers; and payments to the service provider in violation to the clauses of the work order/service level agreement.

Project Management

Planning and implementation

IT Policy and IT security policy

3.13 A well formulated and documented IT policy is essential to assess the time frame, set key performance indicators and for cost benefit analysis for development and integration of various activities of application software.

The Corporation in response to COPU's recommendation on paragraph 4.11 of the Audit Report 2004-05 assured COPU that a documented IT policy; password policy; and policy for change control management in the software would be prepared. The Corporation had, however, not prepared an IT policy, IT security policy, password policy and policy for change control management. Further, the IT cell of the Corporation had also not constituted a

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1   Bikaner, Hanumangarh, Jaipur, Jodhpur, Kota, Sikar and Udaipur.

planning/steering committee with clear roles and responsibilities to monitor each functional area of the ITMS in a systematic manner. Besides, the Corporation did not have a framework for IT policies and procedures during the development of ORS and preparation of RFID smart cards.

The modifications made by the service provider in the database as regards change in routes, fare in the software, security of IT assets, *etc.* were not subject to any supervisory control. The possibilities of unauthorized changes in master database, therefore, cannot be ruled out.

The Corporation accepted the facts of non-existence of policies as mentioned above.

Business continuity and disaster recovery plan

3.14 Business continuity and disaster recovery plans are critical to the operations of the Corporation because of its reliance on computerised ticketing system. It was, therefore, essential for the Corporation to prepare and implement a disaster recovery and business continuity plan, outlining the action to be undertaken immediately after a disaster and to effectively ensure that information processing capability can be resumed at the earliest.

We noticed that the primary data center for the online application data was established at the State Data Center (SDC), Jaipur and a disaster recovery site at Bangalore in the premises of the service provider. However, the backup data of the ETIM application was neither kept in another seismic zone nor sent to the SDC. The backup data of depots were maintained in the same depot. The risk of non-recovery of ETIM data in the event of a disaster was very high. The Corporation accepted the facts relating to non-existence of business continuity and disaster recovery plan.

Logical access controls

3.15 Logical access controls are designed to protect the software from unauthorized access. We observed that in absence of a password policy, the systems installed at booking windows accepted passwords of any length without combination of alpha numeric and special characters. There was no system in vogue to ensure change of password by the users after different time intervals to minimise the risk of unauthorised access.

The Corporation accepted the facts regarding lack of logical access controls.

Internal Control

3.16 The Corporation planned (2010) to implement the ITMS project with a view to provide door step facility to the passengers through online reservation of tickets and real time reconciliation of the revenues generated through ORS and ETIMs. Effective implementation of ITMS would have enabled the Corporation to trace the sources of leakage of revenue through route wise/bus wise/conductor wise analysis of the data. Besides, the GPRS module would have also provided safety and security to the passengers and Corporation's assets through real time location of buses.

We noticed that there was no assessment as regards need and sector based Service Requirement Standards (SRS); Functional Requirement Standards (FRS); user acceptances; application software requirements; and change

control management in the application software and master data. Lack of adequate IT policies and non-assessment of the project at the development stage as per the needs of the Corporation led to inadequate/non-mapping of business rules and policies; lack of controls; non-validation of proper fields by the software; and generation of incorrect reports.

The Corporation failed to evaluate the application software as per the terms and conditions of work order/service level agreement entered with the service provider and issued 'Pilot Acceptance Test' and 'User Acceptance Test' certificates.

Project Monitoring and Evaluation

Undue benefit to the Service Provider

3.17 The Corporation placed a work order and executed (11 May 2011) a service level agreement (SLA) with Trimax IT Infrastructure and Services limited (Service provider) for a period of five years to study, develop, supply, install, test, train, and maintain online reservation system application software; and to integrate existing[2] ETIMs as part of ITMS.

Schedule 3 of SLA provided the terms and conditions of payments to the Service Provider which stipulated that the Corporation would make monthly payments on the basis of number of tickets/transaction. However, the payment for tickets sold through ETIMs was to be made after successful operation of the GPRS module in all the ETIMs of the Corporation. Further, Clause 32 of the SLA provided that the Service Provider was not allowed to utilise the blank space on the pre-printed tickets or tickets issued through ETIMs for any type of advertisement.

The GPRS module was essential for real time integration of the ticketing and financial data of ORS and ETIMs; downloading the desired data of advance booking details to ETIMs at depots; up-gradation of ETIMs and their online operations; revenue reconciliation; online MIS and decision support system as per the requirement of the Corporation.

We noticed that the GPRS module was not functional in the ETIMs since the beginning of the project. The Corporation, however, released payments of ₹ 15.90 crore to the Service Provider since 2011 for tickets issued through ETIMs. These payments were in violation of schedule 3 of the SLA. We further noticed that the ORS allowed ticket booking for a maximum number of six passengers in one ticket/transaction but the ETIMs issued separate tickets for every passenger. The ETIMs, therefore, issued multiple tickets to a family or a group of persons performing journey to the same destination and this led to excess payments to the Service provider.

It was also noticed that the service provider printed the tag line 'Powered by Trimax' on the tickets issued through ETIMs in violation of Clause 32 of the SLA.

The Corporation replied that the GPRS functionality was provided by the service provider in the ETIMs but due to non-availability of proper network,

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2   Corporation had provided 5000 ETIMs to the service provider.

the ETIMs were un-responsive, taking more time in issue of tickets and therefore, the functionality was discontinued.

The fact remains that as per the objectives of the ITMS project and agreement executed with the service provider, the GPRS module was the key requirement. Non-functionality of the GPRS module defeated the basic objective of ITMS and the payment to the service provider was in violation of the agreement.

Non-reconciliation of operating revenue

3.18   The revenue collected through sale of tickets by the ORS and ETIMs should reconcile with the revenue accounted in books of accounts to ensure that all the revenue had been collected from the conductors and accounted and that there was no leakage of revenue.

We noticed that there was no system to reconcile the revenue collected as per e-ticketing system with the accounts. During 2014-15, the net operating revenue collection through sale of tickets by ETIMs and ORS as per IT data was ₹ 1547.52 crore whereas the same as per audited accounts was ₹ 1511.48 crore (after excluding all revenue not accounted in ETIMs and ORS). The difference of ₹ 36.04 crore was not reconciled by the Corporation. The ETIMs and ORS, therefore, showed more revenue than that accounted in the books indicating non-deposit of revenue by the conductors at depot level.

Our analysis further disclosed that head wise figures of operating revenue as per IT data also did not match with the corresponding figures depicted in the books of accounts. For example, the revenue from renewal of RFID cards as per IT data was ₹ 19.82 crore in 2014-15 but the books of accounts stated the same at ₹ 12.94 crore.

The depot wise collection of the operating revenue as per the IT data also did not match with the books of accounts. We test checked the operating revenue of Jaipur depot for the month of January 2016 and found that revenue as per IT data was ₹ 3.68 crore while as per the books of accounts, it was ₹ 3.45 crore.

Non-reconciliation of the revenue as per IT data and books of accounts defeated the purpose of implementing the ITMS project.

The Corporation stated that action would be taken shortly for reconciliation of the data.

System Design deficiencies and insufficient validation control

3.19   In view of large fleet of buses operated by the Corporation within and outside the State, issue of tickets through ORS and ETIMs as per the prevailing rules is critical as wrong incorporation/application of rules could severely hamper the revenues of the Corporation. Therefore, the software should be designed to ensure mapping of business rules/policies, validation of input data and output results as per the business rules and needs of the Corporation. Any deficiency in the designing of application software, insufficient validation control and non/inadequate mapping of business rules may cause to financial loss to the Corporation. The instances of system design

deficiencies, non/inadequate mapping of business rules/policies and insufficient validation controls, as discussed in succeeding paragraphs, have resulted in to:

- discrepancies in allowing concession to female passengers;
- discrepancies in allowing concession to senior citizen passengers;
- discrepancies in allowing concession to student and monthly pass passengers;
- unauthorised concession/journey against RFID cards;
- under recovery of fare;
- non/under recovery of reservation/cancellation charges, and
- other deficiencies.

Discrepancies in allowing concession to female passengers

Free journey to female passengers

3.20 The Corporation issued (27 February 2015 and 20 August 2015) directions to allow free journey to female passengers within the geographical limits of the State only on 'Mahila Divas (8 March) and 'Raksha Bandhan'. The tickets were to be issued at 'Zero' value with concession code 'LAD' for free journey.

The directions were, however, not adequately mapped in the software. Data analysis disclosed that the sampled depots issued 5479 tickets to the female passengers with "zero" value during 2014-16 for journey on days other than the 'Mahila Divas' and 'Raksha Bandhan' which caused loss of ₹ 2.09 lakh.

Besides, the Corporation also issued 18346 "zero" value tickets to the female passengers for journey outside the State on 'Mahila Divas' and 'Raksha Bandhan' in violation of the directions. This caused loss of ₹ 9.14 lakh to the Corporation.

The Corporation accepted the facts and stated that recovery was being made from the conductors and the service provider had been directed to make necessary modifications in the software to prevent such instances.

Rebate to female passengers on journey performed outside the State

3.21 The State Government notified (June 2012) certain services under 'The Rajasthan Guaranteed delivery of Public services Act, 2011' which provided concessional travel to the female passengers of the State. Accordingly, the Corporation allowed (21 June 2013) 30 *per cent* rebate to the female passengers in fare of all types of buses without any restriction of journey within and outside the State. Subsequently, the Corporation restricted (28 April 2014) concession for the journey to be performed within the territory of the State only.

The Corporation did not evolve any mechanism to ensure that rebate was allowed only to the female passengers of Rajasthan origin. Further, the directions of allowing rebate for journeys only within the territory of the State

were also not mapped in the software and as a result the ETIMs issued tickets to female passengers considering 30 *per cent* rebate in all conditions. Data analysis disclosed that the Corporation issued 5.51 lakh tickets to female passengers during the period from 1 May 2014 to 30 November 2015 for journeys outside the territory of the State after providing 30 *per cent* rebate which caused under recovery of fare of ₹ 73.34 lakh. Short recovery of fare in cases where the female passengers performed the journey in combination with the journey inside the State could not be worked out due to non-availability of segregated data of the combined journey.

The Corporation stated that rebate was not allowed to the female passengers for journeys performed outside the territory of the State. The reply was not correct as the cases pointed out relates to issue of concessional tickets through ETIMs to the female passengers for journeys performed exclusively outside the territory of the State.
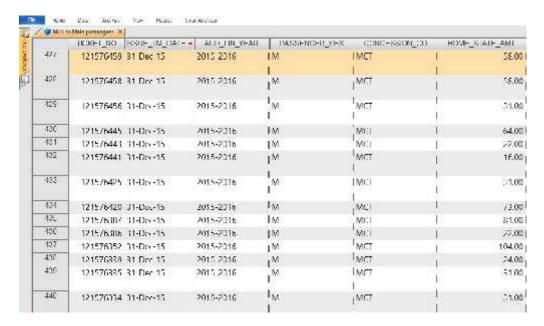
Concession for female passengers not mapped to gender

3.22 The Corporation provided 30 *per cent* concession to the female passengers in base fare of all type of buses.

The data of online reservation system through booking windows disclosed that 55.50 lakh tickets with concession meant for females were issued to male passengers during 2014-16. Besides, the online reservation system data (web portal and booking windows) indicated that 40.85 lakh tickets were issued to female passengers but the system did not allow the due concession of 30 *per cent*.

This showed that the application software failed to validate the field indicating gender of the passenger and allowed concession only on the basis of code (MCT) prescribed for female concession. This resulted in allowing concession of ₹ 11.49 crore to male passengers against female concession code.

A snapshot of the database indicating female concession allowed to male passengers is shown below.

The Corporation stated that the reports generated by the service provider wrongly depicted MCT concession in case of male passengers and there was no loss to the Corporation. It added that the service provider had been directed to rectify the problem.

The reply is not convincing as the data had been extracted from the server and not from the reports of service provider. Further, the software was incapable to validate the gender with the concession code.

Discrepancies in allowing concession to senior citizen passengers

Senior citizen concession to ineligible persons

3.23   The Corporation issued (20 April 2011) a circular stipulating the age of senior citizens as 60 years. The senior citizens of the State were allowed 30 *per cent* concession in the base fare against the RFID card issued by the Corporation.

Persons seeking concession under senior citizen category were required to submit proof of age along with other requisite documents for preparation of RFID cards. The details of the applicant were entered into the online RFID module at the depot level and forwarded to the IT cell. The IT cell verified the details and sent them to the service provider for preparation of RFID cards. The details entered by the service provider in the master data were again re-checked by the IT cell on receipt of the RFID card.

Data analysis disclosed that the Corporation issued RFID cards under senior citizen category even to the persons whose age ranged between 20 to 59 years. The deficiency occurred due to inadequate mapping of rules which led to non-validation of age by the software while processing the RFID card for senior citizen category. This also indicated improper verification of details by the depots and IT cell.

During 2014-16, the online reservation system and the ETIMs in selected depots issued 7.27 lakh and 0.13 lakh tickets respectively to RFID card holders under senior citizen category though they had not attained the age of 60 years. Lack of proper controls in the software and failure of internal control mechanism as regards verification of the age of persons claiming concession under senior citizen category led to unauthorised concession of ₹ 1.64 crore against these tickets.

The Corporation stated that the RFID cards were issued after proper verification of the documents submitted by the applicants and discrepancies might have occurred due to incorrect input by the employees. The fact remains that the software was not programmed to validate the requisite age for issue of RFID card under senior citizen category. Further, the internal control mechanism failed at multiple levels to verify the age of the applicants.

Concession to Senior Citizens on journey performed outside Rajasthan

3.24 The Corporation allowed concession to Senior Citizens on the same lines as given to female passengers discussed in para 3.21 above.

The service provider, however, did not incorporate the directions (28 April 2014) in the software. Hence, the ETIMs issued concessional tickets to the Senior Citizens for journeys even outside the territory of the State. Data analysis disclosed that the selected depots issued 36841 concessional tickets to the Senior Citizens for journeys exclusively outside the State between 1 May 2014 and 30 November 2015. This resulted in under recovery of fare of ₹ 5.48 lakh. Short recovery of fare in cases where the Senior Citizens performed the journey in combination with the journey inside the State could not be worked out due to non-availability of segregated data of the combined journey.

The Corporation stated that no concession was allowed to the Senior Citizens for journeys performed by them outside the State and that the cases pointed out in the paragraph were of combined journey wherein concession was allowed upto the journey performed in State only.

The reply was not correct as the data of ETIMs showed that concessional tickets were issued to the Senior Citizens for journeys performed exclusively outside the territory of the State.

Discrepancies in allowing concession to student and monthly pass passengers

Allowing free travel on Sundays

3.25 The Corporation issued monthly passes to the passengers with facility to travel on all week days including or excluding Sunday. The ETIMs were required to issue 'Zero' value tickets against such passes depending upon their category. Passengers with monthly passes under 'except Sunday' category were required to pay full value of the ticket for travelling on Sundays.

We noticed that the software was not competent to correlate the date with the day of the week on which a ticket was issued to the passenger. As a result, the ETIMs issued 'zero' value tickets on Sundays to 8758 monthly passes during 2014-16 despite the fact that the passes were not eligible for free travel on Sundays. This deficiency in the software caused loss of ₹ 9.03 lakh to the Corporation in sampled depots.
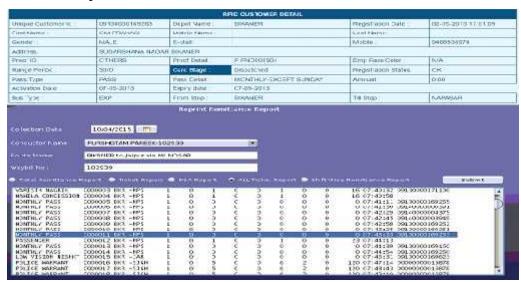
The Corporation accepted the facts and stated that recovery from the concerned officials was under process. It further stated that the facility of monthly pass (except Sunday) had been discontinued since July 2016.

Allowing journey on Zero balance monthly passes without receipt of fare

3.26 Monthly passes could be obtained from the Corporation on payment of prescribed charges. These passes would, however, have a zero balance and could not be used until they were re-charged with an advance amount. The advance amount was to be recovered on the basis of the source and destination mentioned in the pass and the type of bus the passenger preferred to travel in. On use of such passes by the cardholders, a zero value ticket was issued.

Data analysis disclosed that sampled depots issued and activated 4541 monthly passes without obtaining the requisite amount of advance fare of ₹ 42.63 lakh and 3662 zero value tickets were also issued on these cards during 2014-16. The value of tickets for the journey performed by these card-holders amounted to ₹ 0.92 lakh.

A snapshot of the database indicating allowing journey on monthly passes without receipt of fare is shown below.

The Corporation stated that the date of activation and expiry of the card would be same at the time of preparation of new monthly passes and on recharge of the pass, the date of expiry is changed as per the period of recharge. The fact remained that the ETIMs allowed journey to the passengers without recharge of the pass.

To-and-fro journey more than once in a day allowed to monthly/student cardholders

3.27 The Corporation in view of the failure of inspection parties and conductors to adhere to the directions regarding concessional/free journey against RFID cards, issued an order (28 November 2013) that the conductor would charge full amount of the ticket in case the ETIMs display a message that the days' trip for the card had already been completed or that the card had expired or that the card was not valid for the route on which journey was being performed.

Data analysis disclosed that the ETIMs issued 10.81 lakh tickets to 5.07 lakh monthly/student cardholders for more than one journey (to-and-fro) in a day during 2014-16. Interestingly, 11266 cardholders were issued tickets more than once by the same ETIMs in a day for one side journey and 37962

cardholders were issued tickets by different ETIMs in a day for one side journey. This showed that the service provider did not map the business rules adequately and the ETIMs were not synchronized with the central server on real time basis.

The ETIMs by allowing more than one journey to monthly/student cardholders in a day caused loss of revenue of ₹ 1.20 crore.

The Corporation accepted the fact and stated that the problem occurred due to non insertion of validation checks by the service provider for which recovery from the service provider was under process. It further stated that the service provider had been directed to make necessary changes in the software.

Journey by students beyond the eligible distance as per issued card

3.28   The Corporation issued (September 2013) guidelines for issue/renewal of RFID cards to the student category. The guidelines provided that students would be allowed 50 *per cent* concession in fare and that the RFID cards should mention the academic session; and to and fro place of journey, limited upto 50 Kilometers (KMs).

The cards issued to the student category, however, did not mention these details. Data analysis disclosed that:

- The ETIMs in selected depots issued 54982 concessional tickets to 15701 student RFID card holders during 2014-16 for journeys performed by them beyond the stipulated limit of 50 KMs and therefore allowed ineligible concession of ₹ 9.90 lakh.

- The application software was not designed to validate the academic session of the student RFID card holder. The ETIMs, therefore, issued 73467 concessional tickets on 24120 RFID cards in summer vacations[3] (16 May to 30 June) during 2014-16 causing loss of revenue of ₹ 8.32 lakh to the Corporation.

We observed that the Deputy General Manager (IT) informed (22 November 2013) the service provider that User Acceptance Test (UAT)/Pilot Acceptance Test (PAT) certificate would be issued only after rectification of these shortcomings. However, the Corporation issued (December 2013) UAT/PAT certificate to the service provider without ensuring resolution of the shortcomings.

The Corporation stated that it had already taken corrective action by changing the ETIM software in September 2014. The reply is incorrect as the cases pointed out by audit pertain to the period 2014-16.

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3   Education calendar issued by the State Education Department.

Under recovery of fare

Non-charging of fare at prevailing tariff

3.29   The Corporation revised (27 May 2014 and 26 August 2015) the fares for different categories of buses and made them applicable from 1 June 2014 and 1 September 2015 respectively. The office orders categorically stipulated that every depot should prepare stand wise fare list and ensure that tickets through ETIMs and ORS were issued according to the revised fare.

Data analysis indicated that the revised fare was not incorporated in the ETIMs in a timely manner which led to issue of tickets by the ETIMs with old fares. It was also seen that in the ETIMs even issued tickets at fares not listed either in the old or new fare lists.

During 2014-16, the selected depots issued 98.12 lakh tickets on pre-revised fares or the fares not listed in old and new fare list. The service provider by not updating the ETIMs with the correct/revised fare caused under recovery of ₹ 13.99 crore to the Corporation.

The Corporation stated that the depots recovered correct and revised fare from the passengers. It added that the application software printed incorrect reports due to addition/deletion of some bus stops on the routes in the master data. It added that the service provider had been directed to rectify the technical issue.

The reply is not tenable as the Corporation neither maintained any record for change in the master data of route nor allocated separate route number to identify the changes in case of change in original route. It also did not produce any evidence of change in master data except one 'way bill' of Sikar depot.

Under recovery of fare in interstate buses

3.30   The Corporation operated interstate buses (express, deluxe and AC/Volvo) in accordance with the agreement entered into with the concerned State. The Corporation issued (14 May 1993) directions to all the Chief Managers to recover the increased fare in the concerned State immediately on revision of fare by that State. The directions also stipulated that the revised fare list would be collected from the station in-charge of the concerned State and a revised fare list would be prepared at the depot level without waiting for the orders of the Head Office. Further, the conductors were required to recover the revised fare during return journey after the revision of fare by the concerned State.

Analysis of the data relating to recovery of fare in Haryana and Uttar Pradesh States with respect to the revision of fares by these States during 2014-16 showed that the Corporation recovered the revised fare from a date later than the date on which the revised fare was made effective by that State. Further, the Corporation charged local bus fare for express service between the bus stops of these States. Delay in recovery of revised fare and charging of local bus fare in Haryana and Uttar Pradesh States caused under recovery of fare of ₹ 6.42 crore.

The Corporation stated that same fare policy was followed in case of interstate transport. In Haryana State, express service was not operated and, therefore, ordinary fare was charged.

The reply is not tenable as the Corporation did not even recover the lowest fare notified by Haryana State *viz.* for all metalled roads in plains which was applicable for all kind of services below deluxe buses. The fact remained that the Corporation did not charge the applicable fare from the date of revision of fare. The reply of the Corporation was silent on cases relating to Uttar Pradesh.

Non-recovery of IT fees, Accidental Compensation Surcharge, Toll Tax and Human Resources Surcharge on free journey tickets

3.31 The Corporation provided the facility of concessional/free travelling to certain category of persons as per the orders of the State Government. The financial burden on the Corporation as a result of concessional/free travelling was reimbursed by the State Government. The Corporation defined (July 2006 and November 2006) the process of calculating financial burden arising out of concessional/free travelling wherein the concessional base fare and applicable information technology fees, accidental compensation surcharge, toll tax and human resource surcharge were to be included in the financial burden.

We noticed that the Corporation included the taxes and surcharges in financial burden arising out of free travelling by the MLA's and MPs. However, the taxes and surcharges arising in cases where 'zero value' tickets were issued were not included in the financial burden to be claimed from the State Government. In these cases, only base fare was claimed from the State Government. Data analysis disclosed that the software was deficient to calculate the amount of taxes and surcharges where the base fare was treated as zero. This caused non-recovery of ₹ 2.05 crore towards taxes and surcharges from the State Government during 2014-16.

We further noticed that the Corporation issued (June 2011) directions for recovery of toll tax at the rate of ₹ one to three per toll booth depending upon the distance of journey. However, the data did not contain any field as regards number of toll booths on a particular route. The amount of toll tax to be recovered from the State Government against concessional travelling (except zero value tickets) was entered manually at depot level. The correctness of the amount of toll tax entered manually could not be verified in view of large number of transactions.

The Corporation accepted the fact and stated that necessary correction in the concession report had been made to get reimbursement of all taxes and surcharges from the State Government in future.

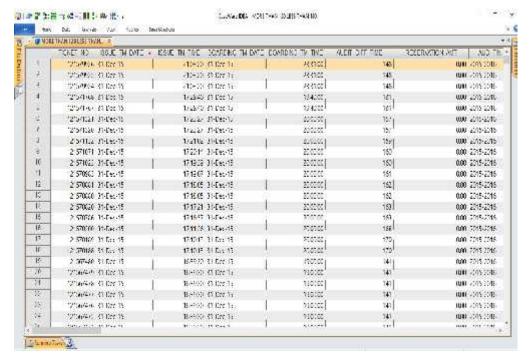## Non/under recovery of cancellation/reservation charges

Non-recovery of reservation charges

3.32 As per reservation rules (2011) of the Corporation, a passenger can seek reservation through online web portal and booking windows at the depots. The reservation facility through online web portal was available upto 30 minutes prior to the scheduled departure of a bus. However, passengers seeking reservation 30 minutes prior to the scheduled departure of a bus through online web portal or the booking window were required to pay reservation charges at the rate of ₹ two per passenger. The reservation charges

were not applicable on reservations made through booking windows within 30 minutes of the scheduled departure of a bus.

We noticed that the reservation rules were not adequately mapped in the software. As a result, in 38.82 lakh[4] passenger tickets issued through booking windows 30 minutes prior to the scheduled departure of a bus during 2014-16, recovery of reservation charges amounting to ₹ 0.78 crore was not made.

A snapshot of the database indicating non-recovery of reservation charges is shown below.

The Corporation stated that reservation charges are not recovered in case of ordinary, rural and express buses and the cases pointed out by audit relate to these categories of buses.

The reply is not correct as the cases pointed out by audit relate to the express and above category of buses for which reservation charges were to be recovered as per business rules of the Corporation.

Cancellation of tickets without recovering prescribed cancellation charges

3.33   The Corporation decided different rates of cancellation charges of reserved tickets depending upon the time remaining in scheduled departure of bus at the time of cancellation of a ticket.

We noticed that the online reservation system was deficient to recover the cancellation charges as per the specified rates. Data analysis disclosed that the online reservation system short recovered cancellation charges of ₹ 0.14 crore against 4362 tickets cancelled during 2014-16 due to improper mapping of rates to be levied.

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4   The current booking counters issued 22.86 lakh and 15.96 lakh passenger tickets during 2014-15 and 2015-16 respectively.

The Corporation stated that in case of partial cancellation, cancellation charges were recovered only for the ticket cancelled and new ticket was generated by the system for remaining passengers and, therefore, there was no loss to the Corporation.

The reply is not convincing as the cases pointed out by audit relate to the tickets where cancellation order for a ticket had been issued by the Corporation and the cancellation charges had not been recovered as per applicable rules.

Unauthorised concession/journey against RFID cards

Journey on RFID card other than the specified category

3.34   24129 RFID cardholders of three categories (SP/CT/RAT) were issued 64835 tickets through ETIMs in selected depots under 22 categories of concession. The categories under which the tickets were issued, were different from the category for which the RFID card holder was eligible. This resulted in excess concession of ₹ 6.38 lakh on 28033 tickets issued against 11955 RFID cards because the concession under these categories was more than the concession for which RFID cardholder was eligible. This showed that the application software was deficient to validate the field indicating category under which a RFID card was issued.

The reply furnished by the Corporation did not address the audit observation.

Allowing journey to RFID card holders in higher class

3.35   The Corporation issued RFID cards to the passengers based on the type of buses (ordinary, express, deluxe, *etc.*) preferred by them. The card holders were issued tickets after these were scanned through ETIMs.

As per an order (28 November 2013) of the Corporation, cardholders with cards for lower type of buses found to be travelling in higher classes were to be treated as travelling without ticket and the passenger and conductor were liable for action as per the rules of the Corporation.

Data analysis disclosed that the ETIMs issued 73974 tickets to 12434 RFID cardholders in express buses during 2014-16 despite the fact that these cardholders were eligible for concessional travelling in ordinary buses only. The software, therefore, failed to validate the class/type of bus in which the cardholder was eligible for concessional travelling which caused a loss of ₹ 18.44 lakh to the Corporation in the sampled depots. As the cards were not printed with the type of buses, the conductors were also not in a position to verify the eligible class of travel.

The Corporation accepted the facts and stated that recoveries were being made from the service provider. Further, the service provider had been directed to amend the software to avoid such instances in future.

Journey on expired RFID cards

3.36   The database of a RFID card contains various details of the beneficiary depending upon its category *viz.* name; category; date of activation; date of expiry; card number; *etc*. The service provider inserted new expiry date in

case the validity of card was extended by the Corporation. At the time of issue of new RFID card, the date of activation and expiry is same till the card is recharged.

Data analysis disclosed that the ETIMs in selected depots issued 4.51 lakh concessional tickets against 76908 RFID cards during 2014-16 despite the fact that the validity of these cards had already expired on the date of issue of ticket. The concession (₹ 1.47 crore) allowed on these ticket was, therefore, not authorized. This indicates that the application software was not programmed to validate the date of expiry of a RFID card at the time of issue of ticket.

The Corporation stated that there was no loss because RFID cards prepared under various categories during 2014-16 were valid for whole life.

The reply did not address the issue as all the RFID cards were valid for a defined period and the beneficiaries were required to extend the validity after expiry of the validity period. The Corporation would incur huge losses in case RFID cards with unlimited validity are issued to the student and monthly cardholders.

Concession without valid RFID card

3.37 The Corporation allowed concessional/free journey to the passengers on the basis of RFID cards issued by it. Every RFID card had a 14 digit unique number which was required to be entered (manually or swiped) in the ETIM for issue of a concessional ticket. In case the tickets were booked through the online reservation system through web portal or the booking window, the passenger/booking clerks were required to enter the valid RFID card number for availing concession.

The application software designed for ETIMs and online reservation system (web portal and booking windows), however, issued concessional tickets without entering the RFID card number/valid RFID card number.

Data analysis disclosed that the ETIMs in selected depots issued 13.25 lakh concessional tickets on 1.04 lakh invalid RFID card numbers and allowed concession of ₹ 3.42 crore during 2014-16. The RFID card numbers in these cases did not match with the master data. In some cases, the conductors entered the 14 digits by repeating single number *i.e.* 0, 1 or 8, *etc*. Further, the online reservation system (web portal and booking window) issued 7.55 lakh concessional tickets under student and senior citizen category and allowed concession of ₹ 1.73 crore without RFID card numbers or against invalid RFID card numbers.

This shows that the application software did not validate the field indicating 'RFID card number' and issued concessional tickets on the codes prescribed for different categories.

The Corporation accepted the facts and stated that the conductors were allowed to enter the RFID card numbers manually till September 2014 which resulted in the discrepancies. It further stated that necessary directions had been issued at depot level for making correct entries.

The reply is not convincing as the ETIM software was incapable to validate the RFID card numbers and continued to issue tickets against invalid RFID cards even after September 2014.

Other deficiencies

Issue of zero value tickets against free journey coupons of existing/retired employees and their dependents

3.38 The Corporation facilitated free journey to the serving and retired employees and their dependents (spouse in case of retired employee) by way of issue of coupons. These coupons were not printed through the software but printed manually and had a unique eight digit alphanumeric code comprising of first two digits as alphabets and remaining as numeric digits. The serving employees were issued 50 coupons while the retired employees were issued 10 coupons for a period of one year. Each coupon was to be used once only and the conductor was required to issue 'zero value' ticket against the coupons. The software indicated the tickets issued to serving and retired employees through codes "000EM" and "00EXS" respectively. However, the employees and their dependents were also required to show identity card in addition to the coupon for availing concession. The deficiencies noticed in facilitating free journey to the serving and retired employees were as below:

- The depots did not maintain the details of the dependents of the employees as regards age; whether married and earning; *etc.* In absence of these details, the authenticity of the beneficiaries could not be verified.

- Data analysis disclosed that 1.17 lakh free tickets involving revenue of ₹ 1.06 crore were issued through ETIMs to the employees/dependents during 2014-16 with numeric codes less than or more than six digits. Besides, 22649 free tickets were issued to the employees/dependents through ORS with same irregularities but the financial impact could not be worked out due to non-availability of base fare field in the ORS data.

The Corporation described the procedure relating to free journey by employees and accepted that RFID cards were not issued to the employees. It further stated that as the conductor entered the coupon numbers manually in the ETIM, the verification of coupon numbers in ETIM was not possible. The fact remains that free tickets under employee code were issued against coupons with common numeric code causing loss to the Corporation.

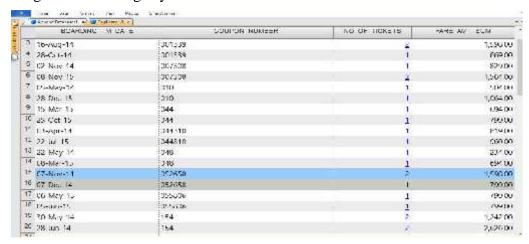### *Unauthorised concession in violation of directions*

3.39 The Corporation issued (17 April 2015) an order discontinuing the facility of group discount (allowable to minimum four and maximum six persons travelling in group) with immediate effect. The order also permitted concessional journey to one person (*sahyogi*) along with different categories of patients/disabled persons.

We noticed that the order discontinuing the facility of group discount was belatedly incorporated in the online reservation software which resulted in

unauthorised discount of ₹ 0.22 lakh on 12876 tickets during 18 April 2015 to June 2015. Further, the sampled depots issued 10671 tickets valuing ₹ 4.13 lakh to the *'sahyogis'* on 3506 RFID cards during 2014-16. However, the original beneficiaries (patient/disabled person) did not travel along with *sahyogis*. This showed that RFID cards made for patient/disabled persons had been misused.

The Corporation stated that recovery from the conductors was under process and the service provider had been directed to rectify the technical issue.

Unauthorised journey against free coupons issued to MLAs and MPs

3.40 The Corporation facilitated free journey to the MPs and MLAs (former and sitting) along with one attendant through pre-issued unique six digit number coupons. The free journey was allowed to the attendant only when accompanying with the MP/MLA. These coupons were printed manually and not generated through system.

We observed that the application software lacked appropriate input and validation controls to identify the unique number of the coupons. This resulted in free journeys of ₹ 19.84 lakh against 6466 invalid coupons. The 'coupon number' field in these cases indicated that the coupon number was less than six digits.

The Corporation stated that free tickets are issued to MLAs/MPs by entering coupon number manually and validation by ETIM is not possible. It accepted the fact that conductors issue free tickets by entering any six digit number. It added that the depots had been directed to enter the correct coupon number in ETIMs.

The reply is not convincing because the coupons were not generated through the software and the ETIMs were not integrated to validate the coupons.

Allotment of same seat number to two passengers

3.41 Data analysis disclosed that the online reservation system at the booking windows allotted the same seat number to two passengers in a bus in 3710 cases during 2014-16. Further, both the passengers travelled in these cases and, therefore, allotment of same seat number to two passengers due to cancellation of tickets was not possible.

The application software was, therefore, deficient in validating the already allotted seat number. The incidence of allotment of same seat number to two passengers was published in newspapers several times but no action was taken by the Corporation to modify the software.

The Corporation accepted the fact and stated that directions had been issued to the service provider to rectify the deficiency.

Issue of 'Passenger Name Record' number with less than 18 digits

3.42 The system generated a unique 'Passenger Name Record' (PNR) number at the time of reservation/booking of tickets. The Functional Requirement Standards (FRS) of Corporation provided that a PNR should contain eighteen digits. The first four digits indicated the destination of the passenger; fifth digit indicated the type of bus; six and seventh digits indicated identity of the depot; eight to thirteen digits indicated date of issue of ticket; and remaining five digits showed sequence record of the transaction. The PNR helped the Corporation in identification and recording of depot wise collection of revenue as well as passenger load factor in various types of buses. Data analysis in selected depots disclosed that the service provider did not adequately map the PNR rules which resulted in generation of 4.89 lakh tickets with PNR number less than 18 digits during 2014-16. The purpose of allotting different digits for identification of depots; recording of depot wise revenue; passenger load factor and transaction details of passenger, therefore got defeated.

The Corporation accepted the fact and stated that directions had been issued to service provider for ensuring18 digit PNR in future.

Ticket issue date and time after the journey/boarding date and time

3.43 The boarding date and time cannot precede the date and time of issue of tickets in any case. Data analysis showed that the boarding date and time preceded the ticket issue date and time by one to four days in 55249 tickets issued during 2014-16. This indicated lack of adequate validation controls in the PORS software.

The Corporation accepted the facts and stated that the discrepancy occurred due to wrong entry of date by the employees at the depot level and the service provider had been directed to address this shortcoming.

The reply as regards wrong input was not correct because the system had been designed to take the date and time of issue of ticket automatically and, therefore, manual input was not possible.

No reservation quota in buses for disabled persons

3.44 The Government of India promulgated 'The Persons with Disabilities (Equal Opportunities, Protection of Right and Full Participation) Act', 1995 to ensure equal opportunities to the persons with disabilities. The implementation of the provisions of the Act required a multi-sectoral collaborative approach of all Ministries of the Central/State Government.

The State Government allowed concessional journey to the persons with disabilities but the Corporation had not earmarked any seats for such persons to ensure safe and comfortable journey by these passengers.

It is pertinent to mention that the buses of the Corporation had earmarked seats for Chairman/Managing Director Quota, female passengers and the MPs/MLAs which are allotted to the general category, 30 minutes prior to the departure of bus in case of non-occupation by these categories.
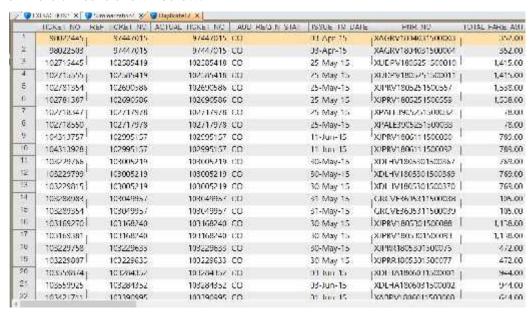
The Corporation stated that action had been initiated for providing reservation to disabled persons in Corporation's buses.

Issuance of more than one cancellation order against one ticket

3.45 The 'Public Online Reservation System' (PORS) prepared by the service provider lacked adequate controls and validation checks as regards refunds against the cancelled tickets. Data analysis disclosed that the PORS had generated 1482 cancellation orders while there were only 679 cancelled tickets during 2014-16.

The system was required to issue only one cancellation order for a cancelled ticket. However, in some cases, more than one cancellation order was generated for the cancelled ticket.

A snapshot of the database indicating refund against cancelled tickets for two or more times is shown below.

The Corporation stated that three fields in the name of actual ticket number, reference ticket number and ticket number are recorded in the data. Actual ticket number is generated only once for each transaction and the tickets are cancelled against actual ticket number.

The reply is not convincing as the actual ticket number and reference ticket number were same in the cases of two or more refund orders generated by the software.

'Zero' base fare in master data

3.46 The ETIM data captures the base fare, concessional fare and actual fare received on issue of a ticket. Tickets with 'zero' base fare could not be issued in any case because the Corporation had decided minimum fare from one destination to other. Data analysis disclosed that the selected depots issued 1878 tickets during 2014-16 with 'zero' base fare though the passengers

travelled from one destination to other. This showed that the business rules regarding charging of fare were not adequately mapped in the software and caused loss of revenue of ₹ 0.56 lakh to the Corporation.

The Corporation stated that in case of full concession tickets, all fields in the data were fed with 'zero'. In case of zero tickets issued against MCT code, the conductors issued new tickets and zero value tickets were deposited in the depot and, therefore, there was no loss to the Corporation.

The reply is not convincing as the cases pointed out by audit related to non concessional tickets and no evidence was produced by the Corporation for deposit of these zero value tickets in depots.

Lack of provision for wait listed/Tatkal tickets

3.47 A passenger can reserve a ticket in different categories of buses through ORS/PORS portal upto 30 days in advance of the date of journey. The scope of works of the agreement executed (May 2011) with the service provider stipulated that the system should provide waiting list facility and automatic confirmation of wait listed tickets in case of cancellation of the reserved tickets. Further, the facility of tatkal reservation with special charges for specified period was also to be provided by the system.

The service provider did not design the facility of wait listed and tatkal tickets in the ORS/PORS which deprived passengers in need of a confirmed seat and resulted in loss of revenue to the Corporation due to vacancy of seat on cancellation of a reserved ticket at the time of commencement of journey. Besides, the Corporation was also deprived of the premium it could have earned on tatkal bookings.

The Corporation accepted the facts and stated that there was no policy as regards wait listed and tatkal tickets.

The reply of the Corporation has to be seen in the light of the fact that the work order issued to the service provider stipulated that the system should provide facilities for wait listed and tatkal tickets.

Non-display of Toll Free Number and email address on the tickets

3.48 Communication with passengers is a key driver for the success of any business. Passengers' help desk in transport industry provided various facilities to the passengers like assistance in reaching to the bus stands; intimation about change in timings and route of the bus; registration of complaints; booking and cancellation of tickets; resolving problems during the course of journey; *etc.* The toll free numbers or e-mail addresses were mechanisms available with the passengers to communicate with the transport service provider.

The Corporation operated a call centre at the head office with toll free number (1800-2000-103) but the same was not printed on the tickets issued through ORS and ETIMs. The Corporation accepted the fact and stated that necessary provisions were being made for printing of toll free numbers on the tickets.

Not providing concessional tickets through PORS

3.49 The State Government directed the Corporation to allow free/concessional journey to 18 categories of persons under the Rajasthan

Guaranteed Delivery of Public Services Act, 2011. The Corporation, however, allowed booking of concessional tickets through PORS for only female and senior citizen categories. The remaining categories were required to obtain concessional tickets through booking windows or the ETIMs.

The application software was, therefore, not designed keeping in view the objective of implementation of the ITMS to provide reservation facility to all the passengers at their door steps.

The Corporation stated that reservation facility through PORS had not been allowed to the categories where 'zero' value tickets are issued because it would attract payment gateway charges.

The contention of the management is incorrect as in case of 'zero' value tickets, the passengers need not pay any amount and hence payment gateway would not be used.

Conclusion

The Performance Audit highlights deficiencies in project management, system design and validation controls. The project management, system design and validation controls deficiencies had financial implication on the revenue of the Corporation.

The Corporation did not prepare IT policy, IT security policy, password policy and policy for change control management. The IT cell of the Corporation had also not constituted a planning/steering committee with clear roles and responsibilities to monitor each functional area of the Integrated Transport Management System. The modifications made by Trimax IT Infrastructure and Services Limited, Mumbai (Service Provider) in the database as regards change in routes; fare in the software; security of IT assets; *etc*. were not subject to any supervisory control. Further, the Corporation did not have proper business continuity and disaster recovery plan because the primary data centre as well as the disaster recovery site for Electronic Ticket Issuing Machines (ETIM) application was set up in the same seismic zone (depot level). The Corporation also issued 'Pilot Acceptance Test' and 'User Acceptance Test' certificates to the Service Provider without evaluation of the application software.

The project monitoring and evaluation was deficient which led to release of payments to the Service Provider in violation of the clauses of agreement/service-level agreement and non-reconciliation of operating revenue.

The system design deficiencies and insufficient validation control resulted in discrepancies in allowing concession to female and senior citizen passengers viz. allowing concession outside State; concession to ineligible senior citizens; Mahila concession to male passengers and free journey to female passengers instead of only on Mahila divas and Raksha Bandhan. It also led to discrepancies in allowing concessions to students and monthly pass passengers viz. allowing journey more than once in a day; allowing free travel on Sunday and allowing journey on zero balance

monthly passes without receipt of fare. Inadequate mapping of rules led to non-charging of fare at prevailing tariff; under recovery of fare in inter-state buses and non-recovery of IT fees/accidental compensation surcharge/toll tax/human resource surcharge on free journey tickets. The system design deficiency also resulted in non-recovery of reservation charges and non/under recovery of cancellation charges.

The software in violation of the business rules allowed allotment of same seat numbers to two passengers; journey to RFID card holders in higher class than the eligible class; 'Passenger Name Record' number with less than 18 digits; issue of more than one cancellation order against one ticket; journey on expired RFID cards and concession without valid RFID card; *etc*.

Recommendations

We recommend that the Corporation should:

- **formulate and implement a clear and comprehensive IT policy covering various aspects such as IT security policy; password management; policy for change control management. The Corporation should also periodically review the IT policy according to the business needs;**

- **set up the primary data center and the disaster recovery site for the data of Electronic Ticket issuing Machine (ETIM) application at different locations. The Corporation should also ensure transmission of ETIM data for back up at the State Data centre;**

- **build adequate input controls and validation checks to ensure correctness and completeness of input data and output results as per the business rules and needs of the Corporation to minimise the instances of acceptance of wrong input data and issue of incorrect tickets;**

- **ensure mapping of business rules in accordance with the organization rules/policies, manuals, Government directions, *etc.* and should periodically review and update them;**

- **ensure functioning of GPRS module for real time integration of the ticketing and financial data of Online Reservation System and ETIMs; downloading data of advance booking details to ETIMs at depots; up-gradation of ETIMs and their online operations; online MIS and decision support system;**

- **make procedures of operating the ETIMs simple to increase operational efficiency and reduce input errors; and**

- **reconcile the IT data and accounting data to avoid any leakage of revenue.**