

Executive Summary

Integrated Coaching Management System

The Integrated Coaching Management System (ICMS) application was developed by Indian Railways with the objective of monitoring punctuality of Mail Express/Passenger trains, monitoring status of coaching stock in real time and online, facilitating augmentation of train composition and planning and running of special trains on the basis of traffic demand to maximise revenue, managing asset maintenance, minimize manual intervention and to provide fool proof service to enhance the image of Railways.

ICMS was sanctioned in 2003. The project cost of ₹18.76 crore was approved in 2006. As on 31 March 2016, an amount of ₹ 16.28 crore has been incurred on project implementation and ₹ 34.6 crore on maintenance of the project. Initially ICMS was implemented at 257 locations (445 terminals) over various Zonal Railways (up to 2008). During 2015-16, due to increase in volume of passenger traffic and coaching trains, ICMS was proposed for expansion at 249 more locations (510 terminals) with a project cost of ₹ 21.34 crore.

The extent of achievement of objectives of ICMS was evaluated in Audit and the aspects related to Application controls, IT security and Business Continuity Plan were reviewed. The study was conducted over 128 locations of all Zonal Railways.

The major audit findings are as follows:

- I. Complete data of all the trains was not available in ICMS as movement of some of the trains including Exceptional trains, Extended/Special Trains, Pilot and Unscheduled Trains was not reported/available in ICMS for monitoring punctuality. There were delays in capturing train movement details which resulted in non-availability of train movement information in real time to the users of the information.

[Paras 2.1.1, 2.1.2, 2.1.4 and 2.1.5]

- II. Data related to train/coach movement, their arrival/departure, etc. was captured in ICMS manually. Where data was captured/updated from other applications, the same was captured in other applications (like Control Office Application etc.) through manual processes/means. This data is finally reflected in National Train Enquiry System (NTES) where passengers can see arrival and departure timings of the trains in real time. Audit noticed differences between train arrival/departure data maintained in ICMS and manual records/data maintained over nine Zonal Railways. Delay in reporting and lack of accurate data of arrival and departure timings of trains led to inconvenience to passengers. This also led to generation of wrong Management Information System (MIS) reports for Railways which affects monitoring of train punctuality.

[Paras 2.1.6 and 2.1.9]

- III. Comparison of the trains/coaches placed at platform/station lines with the actual position of trains/coaches over five Zonal Railways showed that actual placement of the trains/coaches at different lines of a station was not

reflected in ICMS. Test check showed that rake composition position available in the ICMS was not accurate and reliable as data pertaining to attached/detached coaches was not found updated in ICMS. ICMS details captured in respect of condemned coaches were neither complete nor accurate and the data did not match the manual records maintained by the Zonal Railways.

[Para 2.2.1]

- IV. There was no provision to capture traffic demand in ICMS. The system is not integrated with Unreserved Ticketing System (UTS). Though ICMS has been integrated with Passenger Reservation System (PRS), it does not get details of traffic demand (in the form of wait list passengers etc.) from PRS. The integration of system with PRS/UTS could assist Railways in augmenting train composition as per the requirement of traffic demand.

[Para 2.2.4]

- V. Vehicle Guidance (VG) summary is the record of composition of train and is carried by the Guard during the journey. Deficiencies in preparation of VG Summary were noticed over various Zonal Railways. In some cases the details in the VG summary reports did not match the details in the manual records. During test check it was noticed that at 13 ICMS locations, VG summary was being prepared manually mainly due to non-availability of functional printers.

[Para 2.2.5]

- VI. Test check of the loco position at various stations of five Zonal Railways showed that ICMS did not depict actual physical position of the locos. As per ICMS, there were 3165 Electric Locos and 5088 Diesel Locos in these Railways, but manual records indicated that there were 3408 Electric and 3743 Diesel Locos in these Zonal Railways during the same period.

[Para 2.2.6]

- VII. Wide variations were observed between ICMS data and manual records maintained by Zonal Railways in respect of coach master and other types of coach data. These included coach master data, coaches transferred from one Zonal Railway to another, induction of new coaches, coach yard stock data and gauge wise coach position.

[Para 2.2.7]

- VIII. Audit check at selected locations showed that railways themselves did not rely on ICMS data and various Departments viz. Operating (Coaching) Department, Mechanical Control Section and Mechanical Loco Control Section at Zonal Headquarters, Train Branch/Control Offices/Yards and Statistical Department continued to use manual data for the purpose of their operations.

[Para 2.2.8]

- IX. There was no provision to capture Intermediate Overhaul (IOH) details of coaches in the system as seen in NR, SCR, SWR, ER and WR. As regards Periodic Overhaul (POH), discrepancies in ICMS data were noticed due to lack of validation controls. Data analysis over ten Zonal Railways revealed that difference between POH done and POH due dates was neither as per extant orders nor uniform in respect of same type of coaches. The data of coaches due for POH as seen during a test check at various stations of six

Zonal Railways did not match with the ICMS data. Despite having facility to identify the POH overdue coaches, it was noticed over 11 Zonal Railways that 7706 coaches which were overdue for POH were part of the train composition/consists. Data on sick/fit status of coaches was not maintained in ICMS over ECR, SWR and NR.

[Paras 2.3.1 and 2.3.4]

- X. Integration between ICMS and other applications related to passengers and train services was not achieved completely, as a result of which output from the ICMS were not used in the field operations. Train consists which contain details like coach type, coach number, coach count etc., were not reported to PRS timely to help for use in train charting. Manual system of communicating Train consists to PRS was still in operation. Non-implementation of integration with Coach Guidance System (CGS) led to manual feeding of data in CGS, over NR, NER and CR.

[Paras 3.1.1 and 3.1.2]

- XI. In all Zonal Railways, 2445 coaches did not have coach built year in ICMS database. In respect of 315 coaches, coach factory turnout date was prior to coach built date. In 697 coaches, the dates of induction into service were shown 01 to 33 years before the date of built of coaches. Lack of validation checks to identify status of coaches resulted in inaccurate MIS reports. Railway Board prescribed five digit coach numbering system. However, coach number was less than five digits in 3325 cases and the coach number exceeded five digits in 13069 cases.

[Paras 3.4.1 and 3.4.2]

- XII. Discrepancies in data of Stations, Division, Yard, Base depot, Interchange Station and sick coaches indicated inadequate application controls.

[Para 3.6]

- XIII. At the ICMS locations visited by Audit, access of unauthorised persons was not found restricted in SR, SWR, NR, NCR, NER and ECoR. Passwords and user IDs of the users created by Centre for Railway Information System (CRIS) were not communicated to Chief Administrative Officer/Freight Operations Information System (CAO/FOIS) office confidentially, but by writing them on the request letter itself, thereby compromising the password security. The login page of the ICMS did not restrict the number of attempts of login by users. Password standards being followed by CRIS ICMS group at Centralized Data Centre did not conform to the laid down IT Security Policy. Records relating to authorisation for creation of user IDs and passwords were not available at Zonal Railway Headquarters in NR. Privilege assigned to users were not commensurate with job specifications.

[Paras 4.1 and 4.2]

- XIV. As per the test check of CRIS records relating to changes made in the ICMS, no system/procedure for getting appropriate approvals before releasing the changes made in the ICMS application software in the online environment was found in place.

[Para 4.3]

XV. At the CRIS Centralized Data Centre, the process for Disaster Recovery Setup was still going on. Though daily back up was being taken up by ICMS team, no off line/remote site backup of ICMS was being maintained by CRIS ICMS group. No documented Business Continuity Plan was available in SWR, NCR, SCR, ECR, ECoR, ER, WR, NER, SER, NWR and SR. Personal computers/desktops were used in ICMS locations of WR, SR, NR and NER instead of thin clients. ICMS systems were not covered under Annual Maintenance Contract over SCR, SR, NR. Smoke detectors and/or fire extinguishers were not found at ICMS locations in NCR, SR, ER, SCR, NR and NER.

[Paras 4.5.1 and 4.5.2]

Recommendations

- 1. Punctuality reporting of movement of trains which are not covered under ICMS may also be brought in the scope of ICMS.*
- 2. Accuracy and real time updation of arrival/departure timings of trains may be ensured to provide accurate and reliable information to the passengers.*
- 3. Inconsistencies in arrival/departure timings in different modules of ICMS may be rectified to have accurate position of coaches. Accuracy, completeness and timely updation of all coach data and their movement details may be ensured and dependence on manual records may be gradually reduced.*
- 4. Availability of the traffic demand (such as position of waitlisted passengers) may be facilitated in real time environment through ICMS so as to help Railways in augmentation of train composition on the basis of traffic demand, facilitate planning and running of special trains.*
- 5. Provision to capture IOH details of coaches in the system may be created. Timely and accurate updation of coach POH data, sick and fit coach data and effective usage of POH/Sick/Fit operations through ICMS may be ensured.*
- 6. Integration of ICMS and Crew Management System (CMS) may be ensured for generation of complete Vehicle Guidance reports so as to avoid manual intervention in the ICMS output.*
- 7. Integration between ICMS and Passenger Reservation System (PRS), ICMS and Control Office Application (COA) and ICMS and Coach Display System (CDS) may be strengthened to have timely data updation and to avoid manual intervention.*
- 8. Adequate validation and manual supervisory controls over data entry may be introduced in ICMS to ensure accuracy, completeness and validity of various types of data input and output.*
- 9. Physical and logical access controls may be strengthened.*
- 10. Change Management procedures for updation and approval of changes may be laid down and changes documented.*
- 11. Business Continuity Plan/Disaster Recovery Plan may be fully implemented so as to ensure that business critical information and assets are protected from loss, damage and abuse.*