Chapter 2 Achievement of objectives of ICMS

Audit Objective I - To evaluate the extent to which the objectives of implementing ICMS were being met

ICMS Objective - Monitoring punctuality of trains, to avoid manual manipulation, to provide foolproof service to enhance the image of railways and to provide MIS for coaching operations.

2.1 Monitoring punctuality of trains through ICMS

ICMS facilitates capturing of data pertaining to various functionalities of train movement like train running timings, reasons for delayed running/detention of trains, various exceptional activities of trains. It provides various MIS Reports to enable Railway Administration at different level to monitor train movements in real time environment for ensuring their punctuality. Functionalities provided for capturing train movement related data and related reports generated by ICMS were reviewed in Audit and observations in this regard are discussed below:

2.1.1 Non-monitoring of movement of some of the trains in ICMS

A test check of trains scheduled for reporting in ICMS and trains actually reported in ICMS revealed that during February 2016 over seven [1] Zonal Railways, 27112 trains out of 154724 trains were not reported in ICMS. It was further observed that:

a. Over NR, monitoring movement of trains running in Kashmir was not done through ICMS.

b. Complete details (profile and movement) of all the Heritage (e.g. Maharaja, Buddhist, Deccan Odyssey etc.)/FTR Trains (run in collaboration with IRCTC) were not available in ICMS.

c. Movement of ten passenger trains operating between Vrindavan-Mathura Cantt. with daily/six days' frequency was not covered under ICMS.

d. Over SR arrival/departure of MEMU trains was not covered in ICMS.

e. Over ER, punctuality performance of suburban trains was not being monitored through the system in Asansol and Howrah Divisions. It was being done manually.

f. As per ICMS[2] of different dates, there were 23 trains of six Zonal Railways [3] under operations in PRS, but their details were not available in ICMS.

As such, on-line monitoring of punctuality and other operational and management activities of the above mentioned trains were not done through ICMS.

(Annexure 2 and 3)

[1] NR, WCR, ER, SWR, CR, NER, NFR
[2] Report No. 982
[3] NR-6, WCR-1, SCR-3, NER-1, NFR-7, SWR-5

2.1.2 Inadequate provision for monitoring diverted trains

One of the options under Exception Train marking is 'Diversion'. In case, a train is diverted from its scheduled path, then the user can define its diverted path/route in ICMS and the system provides information about the scheduled path/route and diverted path/route of the diverted train. In 11[4] Zonal Railways, it was seen that ICMS did not provide movement details of train over the diverted route.

Further, analysis of ICMS database pertaining to August/September 2015 showed instances over ECoR and NR wherein, the reason for diversion of trains was captured as only 'C' in the relevant 'Remarks' column. Thus, live running position/movement of diverted trains could not be monitored through ICMS.

2.1.3 Discrepancies between COA and ICMS in respect of Exceptional Trains

Provision is available in the ICMS to mark train services as cancelled, rescheduled, short-termination, change of origination, etc. under exceptional activities. Marking of trains under exceptional activities impact other applications integrated with ICMS like COA, NTES, etc. In ten[5] Zonal Railways during October 2015 to June 2016, it was noticed that exceptional trains displayed by Punctuality Performance Report of ICMS were 305, whereas those displayed by COA Exceptional Trains Report were 288. As such, two different reports of ICMS provided inconsistent information about the same activity and impacted the quality of monitoring movement of trains.

Further review of Punctuality Performance Reports of February/March 2016 revealed that in three[6] Zonal Railways out of 1516 Mail/Express trains, 1468 trains were reported and 38 trains were marked as exceptional and details of remaining 10 trains could not be found from the report. Thus, the Punctuality Report did not reflect complete status of punctuality of the trains.

(Annexure 4a and 4b)

2.1.4 Delayed Reporting of train movement in ICMS

A Report titled 'COA to ICMS Updation Performance Report'[7] was reviewed in audit on 14 June 2016. This report gives the data regarding reporting of train movement within five minutes to 30 minutes in ICMS, in respect of all trains which have passed during the past 10 minutes to one hour. It was observed that in the five divisions of NR the reporting on time (within five minutes) was done only in respect of 42.34 *per cent* to 71.46 *per cent* of the trains. In Howrah division of ER, on time reporting was done only in respect of 73.11 *per cent* cases. Delay in capturing train movement details results in non-availability of train movement information on time to the passengers and can impact timely decision making.

Further, a review of the data related to movement of exceptional trains for July to

[4] NR, NCR, ER, NFR, WCR, SCR, ECoR, CR, NER, NFR, WR
[5] NR, NCR, ER, WCR, SCR, CR, NER, SER, SECR, NFR
[6] NR, ER, NFR
[7] Report No. 408D

October 2015 revealed that in 8032 cases over eight Zonal Railways[8], there was a delay of one day to 234 days from the train start date, in reporting movement of exceptional trains in ICMS (i.e. from COA to ICMS) by the divisions of different Zonal Railways.

(Annexure 5)

2.1.5 Non-availability of movement of various types of trains

Extended/Special Trains - A random check of new/existing trains operated/extended over Indian Railway during 2015-16 revealed that movement details of 11 trains running over four[9] Zonal Railways were not available in ICMS for the complete period for which they were extended/operated.

Pilot and Unscheduled Trains - During review of ICMS[10], movement/running position of Pilot and unscheduled trains could not be ascertained in eight[11] and nine [12] Zonal Railways respectively as train numbers of these trains were alphanumeric, which were not accepted in train number input field of ICMS.

2.1.6 Differences in arrival/departure time of trains

2.1.6.1 Differences in timings recorded in ICMS and the manual records maintained at Stations

Train arrival/departure timings details at different stations are either manually fed in Control Office Application (COA) and then updated in ICMS or the arrival/departure timings from originating/terminating stations are directly entered in ICMS manually. 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.

Test check for the period January-February 2015 and October-November 2015 showed that railways received numerous public complaints due to wrong reporting of train arrival/departure timings. Highlighting the inconvenience caused to the passengers, these complaints pointed out instances like the train was yet to reach a particular station, but Railway Train Enquiry System reported that the train had reached the station or while a particular train had not departed from a particular station, but it was reported that the train had already departed from a particular station.

(Annexure 6)

Train arrival/departure data pertaining different periods between July 2015 and April 2016, maintained in ICMS was compared with manual records/data maintained over selected railway stations and differences between the two sets of records were noticed over nine[13] Zonal Railways. Over SER, a review of COA-ICMS Schedule Mismatch Report revealed a 63 minutes time gap between ICMS and COA in respect of time of arrival of train number 38319 (local train between

[8] NR, WCR, SCR, SWR, ER, NER, CR & SECR
[9] SR - 6, NCR - 2, WCR - 2, SECR - 1
[10] ICMS Report No.508D for period April 2013 to March 2016
[11] NR, SR, WCR, ER, SCR, CR, NER, NFR
[12] NR, SER, ER, WCR, NCR, SECR, SWR, SCR, NER
[13] NR, ER, NFR, SER, SR, NWR CR, WCR, SWR

Howrah and Mecheda having a total running time of 1 hr and 12 minutes) having start date 1 October 2015, raising a doubt on the correctness of the data being captured in ICMS.

Lack of accurate data of train movement leads to inconvenience to public, projects a bad public image of Indian Railways, generates wrong MIS reports for Railway Administration and affects monitoring of train punctuality by the Railway Administration.

Railway Board during Exit Conference (October 2016) stated that the matter is given utmost importance and is regularly monitored at Railway Board level. They further stated that action is also taken against officials who are responsible for wrong reporting and entering incorrect data in the system.

2.1.6.2 Abnormalities/differences in arrival/departure time in ICMS

Analysis of trains arrival and departure timings data recorded in ICMS was done in ten Zonal Railways[14] for the period July to October 2015. In eight Zonal Railways[15], the recorded actual departure time of trains, in respect of 322819 stoppages (transactions), was prior to trains' scheduled departure time and the difference in respect of 266 stoppages (transactions) pertaining to six Zonal Railways was in the range of one hour to one day. In eight Zonal Railways[16], the recorded actual train arrival time of trains, in respect of 284009 stoppages (transactions), was prior to trains' scheduled arrival time and the difference in respect of 9666 stoppages (transactions) was in the range of 30 minutes to 96 hours.

The abnormal/inordinate differences indicated that correct data was not captured in ICMS and the system lacked adequate controls to validate arrival/departure time of trains. Incorrect information affects monitoring of punctuality of train movement by the Railway Administration.

2.1.6.3 Discrepancies in Working Time Table and Public Time Table/Train Arrival-Departure Time

Review of working time table (WTT) and public time table (PTT) data for October 2015 over eight Zonal Railways revealed inconsistent arrival/departure timings. It was noticed that

- In respect of 29481 stoppages of eight[17] Zonal Railways, the arrival time as per Public Time Table was earlier than Working Time Table and difference was in the range of 1 minute to 1440 minutes.
- In respect of 12885 stoppages of five[18] Zonal Railways, the arrival time as per Public Time Table was later than that of Working Time Table and difference was in the range of 1 minute to 675 minutes.
- In respect of 11775 stoppages of seven[19] Zonal Railways, the Working Time

[14] NR, NCR, NWR, WCR, SCR, SWR, CR, ER, SECR, NER
[15] NR, NCR,SCR, SWR, CR, ER, SECR, NER
[16] NR, NCR, NWR, WCR, SCR, SWR, CR, NER
[17] NR, WCR, SWR, SECR, CR, SCR, NER, NFR
[18] NR, SWR, SECR, SCR, NFR
[19] NR, WCR, SWR, SECR, CR, SCR, NFR

Table departure time was prior to Public Time Table departure time and difference was of 1 minute to 501 minutes.

- In respect of 28893 stoppages of six[20] Zonal Railways, the Working Time Table departure time was after the Public Time Table departure time and the difference was in the range of 1 minute to 1440 minutes. All these were intermediate stations.

The large differences in WTT and PTT timings did not appear to be plausible and were practically not possible.

2.1.7 Incomplete data on train stoppages, train name in comparison to PRS

2.1.7.1 Train stoppages

As per ICMS Report No. 983 of different dates and ICMS database, there were 187 stations/stoppages pertaining to 12[21] Zonal Railways which were available in various train schedules of Passenger Reservation System (PRS), but were not available in ICMS trains schedules.

These discrepancies in the stations/stoppages are required to be addressed by the Zonal Railways for facilitating effective monitoring of train movement and to provide complete information to users about movement of trains.

(Annexure 7)

2.1.7.2 Train name mismatch

Review of ICMS[22] revealed that there was mismatch in respect of train names[23] between ICMS and PRS and the mismatch was due to a number of reasons including use of station code instead of station name, non-usage of station code of originating and/or terminating station, incomplete name of the train etc. Mismatch in train name creates confusion among passengers.

2.1.8 Non-usage of ICMS Reports related to Punctuality/Monitoring of Trains

While reviewing the working of Punctuality Section it was noticed that in four[24] Zonal Headquarters offices ICMS reports were not directly used for monitoring, but the data from ICMS was used for manually preparing reports and these reports were used by the Railway Administrations during discussions/meetings. This was due to the fact that data/information available through ICMS reports was not as per the user requirements. **(Annexure 8)**

Further, it was observed that data relating to punctuality performance of trains was available in ICMS for one-month period only. In the manual environment data was available for previous three to five years, which facilitated Divisions to compare performance over the years.

2.1.9 Option for Generation of Consolidated Reports not functional

[20] NR, SWR, SECR, SCR, NER, NFR
[21] NR, NCR, SR, NWR, CR, WCR, SCR, ECR, NER, SECR, SWR, NFR
[22] Report No. 986
[23] NR - 254 trains, ER - 143 trains
[24] NR, SR, WCR, ER

In the following two reports, the option to generate collective report for all types of trains was not functional (NR and ER):

(a) Month-wise Trains Performance Report-Not Losing Time (NLT) basis and Month wise Trains Performance Report-RT terminating basis[25].

(b) Punctuality Performance Report (Report No. 29 – Good/Bad Runner)

2.1.10 Wrong/Inconsistent Output - Train Movement and Loco Position

During the review of ICMS[26], it was noticed over NR, ER, SECR and SCR that these reports provided inconsistent details about train movement, when Report No. 1002 was viewed under Full Running type option and under Textual Running type option.

(Annexure 9)

The above findings indicates that complete data of all the trains was not available in ICMS and movement of some of trains including exceptional train was not reported/available in ICMS for monitoring and ensuring punctuality. Delay in reporting of arrival/ departure timings of trains and lack of accurate data of train movement led to inconvenience to passengers and generation of wrong MIS reports for Railway Administration which affected monitoring of train punctuality by the Railway Administration. The punctuality percentage during 2015-16 (up to February) reviewed in seven Zonal Railways[27] was between 70.33 per cent and 94.72 per cent against the target of 90 per cent to 96.42 per cent[28]. As such, the objective of monitoring running of the trains and ensuring punctuality of trains was not fully achieved.

Railway Board during the discussion in the Exit Conference (October 2016) agreed with the audit observations. As regard coverage all types of trains in ICMS, it was stated that some routes which have been added to the network recently or route with insignificant traffic may not be part of the ICMS and would be added now. They further stated that post audit a lot of changes/rectification have been incorporated in the ICMS. They were requested to furnish a list of such changes made. As regard manual intervention, it was stated that though these cannot be done away completely, these are being reduced gradually.

ICMS Objective - Monitoring status of coaching stock in real time and online, facilitate augmentation of train composition on the basis of traffic demand to maximize revenue, facilitate planning and running of special trains.

2.2 Monitoring status of coaching stock through ICMS

ICMS enables Railway Administration to capture details like coach holding (including transferred/new coaches), train/rake consists and links, attachment/detachment of coaches, coach/rake movement/utilization in different services, loco holding, loco status, loco movement, station details, distances etc. The system is intended to provide the data of each coach on Indian Railways

[25] Report No.201 and 202
[26] Report No. 504 and 1002
[27] NR,WCR, ER, SWR, CR, NER, NFR
[28] Target For NR - 90, SWR - 96.42, CR - 96, NER - 90 (Annexure 1)

readily available through various online MIS reports so that the Railway Administration can ensure better coach management, their optimum usage and traffic management at all levels.

The review of the ICMS coach data and information provided by ICMS through various MIS reports was conducted in the light of the ICMS objectives. The audit findings in this regard are discussed below:

2.2.1 Incomplete information of coaches in ICMS

2.2.1.1 Non-updation of attached/detached Coaches - Non-depiction of actual coach position

In nine[29] Zonal Railways, scrutiny of records for the period March 2015 to June 2016 revealed that rake composition position available in the ICMS was not accurate and reliable as data pertaining to attached/detached coaches was not found updated. Instances were also noticed where actual physical position of coaches was not depicted correctly in ICMS. As such, the data was not reliable for monitoring status of coach real time and online.

(Annexure 10)

2.2.1.2 Incomplete Depiction of Current Status of Coaches

One of the main objectives of ICMS was to monitor status of coaching stock in real time and online. A review of the ICMS data pertaining to current details of coaches over 12[30] Zonal Railways for October 2015 revealed that the database was providing incomplete/ inconsistent/incorrect current status of coaches. Out of 40094 coaches, current details of 30044 coaches were available in ICMS. Current status of 1570 coaches was disputed[31]. In respect of 472 coaches the disputed status was more than 8 to 80 months old which indicated that these coaches were not in use for such a long time. As per database, current location of 3325 coaches was on platform, but database did not indicate their line number. Line number of 174 coaches was zero and position of 742 coaches was also not available. Thus, incomplete information was not helpful for effective management of coaches. Further, disputed status of so many coaches for such a long period of time vis-à-vis manual records indicate that either the ICMS data was not in use or Railway Administration was not relying on ICMS data due to its factual inaccuracy. **(Annexure 11)**

2.2.1.3 Non-capturing of loading/unloading details Parcel Coaches/Vans

ICMS has provision to capture loading/unloading details of VPH/VPU[32] coaches. A test check of the coach loading/unloading data revealed that loading details of VPH coaches over five[33] Zonal Railways were not captured in ICMS. Only 182[34] records of loading of VPH/VPU coaches were available during 2006 to 2015 (October) in ICMS whereas as per manual records, 339 VP coaches were loaded

[29] NR, SER, NFR, SR, NWR, CR, WCR, ECoR, SWR
[30] NR, NCR, ER, NFR, NWR, WCR, SCR, SWR, SECR, ECR, NER, CR
[31] A coach is called disputed when a user marks the coach as 'Physically not arrived' while recording the arrival of a train.
[32] High Capacity Parcel Vans and Parcel Vans
[33] NR, ER, SWR, WCR, CR
[34] NR-98, CR-84

at old Delhi station (NR) and Wadi Bunder (CR) during July 2015 to September 2015. Thus, loading/unloading details of VPH coaches available in ICMS were incomplete.

(Annexure 12)

2.2.1.4 Incorrect population of train placement data

A comparison of the trains/coaches placed at platform/station lines was performed with the actual position of trains/coaches at a platform/station over five Zonal Railways [35] and it was found that actual placement of the trains/coaches at different lines of a station was not reflected in ICMS. Thus, information about coach/train position provided by ICMS was not reliable.

(Annexure 13)

2.2.1.5 Train profile without having Train Consist details

Analysis of ICMS data revealed that 2063 trains of NR, ER, SWR and CR (most of them special trains) did not have their train consist in the database. Further, six trains of NR had validity from 22 September 2015 to 31 December 2099 and six trains of SWR had validity from 2 February 2012 to 31 December 2099.

It was further observed that in NR, NCR, SECR and WR, ICMS allowed movement of narrow gauge trains without having train consist and the information provided by ICMS about train movement, train consist and coach utilization of NG trains was not correct. As such, complete coach details were not captured in ICMS leading to generation of incomplete information.

2.2.1.6 Data on condemned coaches

Analysis of ICMS data regarding condemned coaches for October 2015 over eight Zonal Railways[36] showed that the details captured were neither complete nor accurate and the data did not match the manual records maintained by the Zonal Railways.

(Annexure 14)

Scrutiny of the ICMS database/Reports over ten Zonal Railways[37] revealed that majority of the coaches having null/online status were in operations/use even after the expiry of their condemnation date. Further, POH of coaches, having expired condemnation dates and majority of them recommended for condemnation, was performed after the expiry of their condemnation date which indicated that ICMS did not have adequate controls to validate data input pertaining to POH and the information available in the ICMS was not correct and reliable.

(Annexure 15)

2.2.2 Verification of Rake Consist without actual arrival of train

As per the provision available in ICMS, when a train arrives at a station, the ICMS operator enters arrival time (in case auto arrival has not been done) and verify train/rake consist for its linked trains. During the scrutiny of ICMS

[35] NR, NWR, CR, SWR, SR
[36] NR, ER, NFR, WCR, SCR, SWR, SECR, NER
[37] NR, SR, NFR, SWR, SECR, ECR, ER, NER, CR, WR

operations, it was noted in NR that dummy train arrival time was captured in ICMS (COIS) and train consist was confirmed without actual arrival of the train. In SER, the reporting window of COIS was available for one hour from the schedule arrival of train and users were compelled to make entry within one hour even if the train had not actually arrived. As such, verification of rake consist after actual arrival of train was not being performed through ICMS.

2.2.3 COIS and PAM - Differences in Train Arrival/Departure Timings

A comparison of train arrival/departure time recorded in COIS module and PAM module revealed differences/inconsistencies in arrival and departure timings of trains over NR, SECR, ER and CR. As such, the actual data of train movement was not captured and the position of coaches/rakes was not depicted correctly in ICMS.

(Annexure 16)

2.2.4 Integration between PRS/UTS and ICMS – Non-capturing of Traffic Demand

It was observed that there was no provision to capture traffic demand in ICMS. The system is not integrated with Unreserved Ticketing System. Traffic demand for coaches can be ascertained after assessing the position of passenger traffic and number of reserved/unreserved tickets sold through PRS/UTS. Though ICMS has been integrated with Passenger Reservation System (PRS) of Indian Railways, it does not get details of traffic demand (such as position of waitlist passengers etc.) from PRS which could assist the Railway Administration in augmenting train composition as per the requirement of traffic demand. (NR, ER, SCR, WR).

2.2.5 Deficiencies in preparation of Vehicle Guidance Summary

Vehicle Guidance (VG) summary is the record of composition of train and is carried by the Guard during the journey.

2.2.5.1 Discrepancies in generation of Vehicle Guidance Summary

Review of ICMS data pertaining to VG revealed the following discrepancies across different Zonal Railways:

a. In respect of 730 cases, multiple VGs (ranging from 2 to 6) were generated by the ICMS at the same generation time in respect of same train having same train start date and instances were noticed where status of the rake was recorded as XXXXXX, but description of this code was not available in table containing rake status codes.

b. Data analysis also revealed that in respect of 11196 coaches, 23745 VGs were generated in which generation of more than one VG was involved and generation/updation time was same (SER).

c. VG generated after change in the composition of train did not reflect the changes made.

d. Coaches physically attached with the rakes could not be included in the composition of the trains in the ICMS as either the coaches were already attached in ICMS with other train which necessitated entering coach details in the ‘Remarks’ column or coach were not available in ICMS database, and

their details had to be entered in the VG manually.

e. Instances were noticed where details of coaches and loco available in system generated VGs were not matching with physical records.

f. Manual VGs were being prepared due to different reasons. Operations pertaining to attachment/detachment of slip coaches were not performed, as VGs generated through the system were not reliable to that extent.

(Annexure 17)

2.2.5.2 Incomplete VG Report - Lack of Integration between ICMS and CMS

Review of Vehicle Guidance Summary (VGs) generated through ICMS over 12 Zonal Railways[38] for the period 1 July 2015 to 15 October 2015 showed that

a. 41176 VGs of 11 Zonal Railways did not have loco details.

b. 197573 VGs of 12 Zonal Railways did not have Guard details and

c. 204509 VGS of 12 Zonal Railways did not have Driver details.

d. During test check of field visits over SER, NER, SR and NR, VGs were found without Driver and Guard details.

This shows that ICMS did not have interface with Crew Management System (CMS) which captures data of Loco Driver/Guard. It is pertinent to state that though a decision was taken in Chief Freight Transport Managers' Conference at Goa during 16/17 July 2015 to integrate ICMS and CMS, it was yet to be done.

(Annexure 18)

2.2.5.3 Manual Preparation of VG Summary

During the review of ICMS over nine[39] Zonal Railways, it was noticed that at 13[40] ICMS locations VG summary was being prepared manually mainly due to non-availability of functional printers. Thus, inadequate infrastructure compelled users to prepare VGs manually.

(Annexure 19)

2.2.6 Incorrect data on passenger locos

2.2.6.1 Incorrect Loco Master Data

Comparison of the Loco Master details available in ICMS over 12 Zonal Railways[41] with manual records/loco availability targets fixed by Railway Board showed differences between the two sets of records over all the Zonal Railways. 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. Differences were also noticed in respect of type of locos which indicated wrong data entry and

[38] NR, NCR, ER, ECoR, NWR, WCR, SCR, SWR, SECR, ECR, CR, NFR
[39] NR, ECR, NER, SCR, CR, SWR, SR, NFR, WR
[40] NR – Amtritsar, Jammu, ECR- Rajendra Nagar Patna terminal, Darbhanga, NER- Gorakhpur, SCR- Nanded, CR- Mumbai CST, Dadar, and LokmanyaTilak Terminus, NFR – Katihar, New Jalpaiguri, WR – New Bhuj and Bharuch
[41] NR, NCR, WR, ER, NFR, WCR, SCR, SWR, SECR, ECR, NER, CR

raises doubt about the reliability of the data. **(Annexure 20)**

2.2.6.2 Incomplete/wrong details of movement/position of locos

a) Wrong loco position - During test check of the loco position at various stations of five Zonal Railways[42], it was observed that ICMS did not depict actual physical position of the locos and even dummy loco numbers were in use to operate trains. Thus, actual loco attached to the rakes were not reflected in the system and loco position reflected by ICMS was not reliable.

b) Incomplete capturing of loco movement - In order to facilitate reporting of actual light engine movement, a new light engine movement facility was provided in ICMS and it was expected that all necessary coaching loco events would be covered from movement perspective and Railways would be able to run the trains with correct loco number. A review of the light engine movement over 11[43] Zonal Railways showed 1614 instances of loco cut-in[44] in these railways over different dates which indicated that despite having loco engine movement facility, loco cut-in facility was still in use which leads to wrong generation of MIS reports pertaining to loco movements.

As per ICMS Passenger Loco Running Info Report, during 1 March 2016 to 23 March 2016, no Narrow Gauge (NG) loco was running over NR, though NG trains were running over NR during the above period. Similarly, in SECR, the report depicted information of NG trains but composition of train report depicted Nil record. Thus, the information about loco operations depicted by ICMS was incomplete.

c) Electric Loco Running over Diesel Traction- Review of ICMS Report number 1509 over nine Zonal Railways[45] revealed that electric locos were running over diesel track which is practically not possible. The report was reviewed over a different period of time in four Zonal Railways[46] and it was noticed that despite having information about operations of locos over wrong track, no remedial action was taken to rectify the data.

(Annexure 21, 22 and 23)

2.2.7 Mismatch between ICMS and manual data

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 as given below:

- A comparison of the coach master data and manual records maintained over 15 Zonal Railways[47] revealed wide variations[48] in the number of coaches being held by these Zonal Railways.
- A comparison of data regarding coaches transferred from one Zonal Railway

[42] NR, NFR, SER, CR, WCR
[43] NR, NCR, WCR, SCR, ER, SECR, SWR, CR, NER, NFR, ER
[44] A facility available in ICMS to make a loco available at a particular location from other location without reporting/capturing actual movement details of a loco in ICMS
[45] NR, NCR, SCR, ECR, WCR, SWR, CR,NER, ER
[46] NR, SCR, ECR, WCR
[47] NR, NCR,WR, SR, ER, NFR, CR, SCR, SWR, ECoR, WCR, SECR, ECR, NER, NWR
[48] Manual data showed 2474 coaches less than ICMS (ER) and manual data showed 159 coaches more than ICMS (NWR)

to another with manual records/information made available by 11[49] Zonal Railways revealed discrepancies[50] between the two sets of records.

- ICMS data regarding induction of new coaches did not match with the manual records in seven[51] Zonal Railways. While the ICMS depicted 3790 coaches added to the Zonal Railways during 2013-16, the manual records of Operating/Mechanical department of the same railways, indicated only 2637 coaches.
- Coach yard stock data in ICMS was found in variation to the manual records over six[52] Zonal Railways. The main cause of variation was non updation of data related to coach position/movement in ICMS. There were also differences in the number of passenger coaches and other coaches ranging between -1(SECR) and 35 (NR) in nine[53] Zonal Railways.
- As per ICMS, gauge wise coach position showed 41013 BG (Broad gauge), 973 MG (Metre gauge) and 350 NG (Narrow gauge) coaches on 11[54] Zonal Railways, however, as per manual records of Operating Department of these Zonal Railways, they had 33289 BG, 445 MG and 611 NG coaches respectively.

The difference between two records raised doubts about the accuracy and completeness of ICMS data. Inaccurate coach data affected monitoring of coaching stock on real time basis through ICMS.

(Annexure 24a, 24b, 24c, 24d, 24e, 24f)

2.2.8 Use of manual records/processes instead of ICMS data

Audit check at selected locations showed that railways themselves did not rely on ICMS data and various Departments continued to use manual data for use in their operations as discussed below:

2.2.8.1 Operating (Coaching) Department

Coaching section of Operating Department at Zonal Headquarters maintains records of all the coaches pertaining to the respective zone and manages assignment of coaches for various trains on a daily basis. It was observed that

- In NR, in order to manage coaching stock and their assignment for various trains, Coaching Section in Headquarters was using an in-house application software COSMOS[55], in which coach data and their position was being collected over phone from units for manually preparing reports instead of generating through ICMS. Delhi and Ambala divisions were also maintaining and relying on manual records of coaches.
- Similarly, over SWR and WCR, Coaching sections were relying on manual records/register for management of coaches. In CR & WR (Dadar, Lok Manya Tilak Terminus and Mazgaon yard), the information was being collected telephonically.

[49] NR, NCR, WCR, SCR, SWR, SECR, ECR, CR,NER,ER, NFR
[50] -21 coaches in CR to 39 coaches in NFR in 2013-14
[51] NR, NCR, WCR, SWR, SECR, NER, NFR
[52] NR, WCR, SWR, NWR,NFR,WR
[53] CR, ER, NCR, NER, NR, SCR, SECR, SWR, WCR.
[54] CR, NR, NCR, NEFR, WCR, SECR, ER, NWR, SCR, ECR and WR
[55] developed through in-house efforts in MS Access and Visual Basic

2.2.8.2 Mechanical Control Section at Zonal Headquarters offices

Mechanical Control Section keeps control over running/ maintenance/repair of coaches over respective Zonal Railways. Review revealed that at seven[56] Zonal Railway Headquarters the section manually prepared various reports[57], after getting feedback about coaches from various divisions/units over phone, for submission of the same to higher officials. ICMS terminals provided in Mechanical Control section were primarily used only for monitoring movement of trains.

2.2.8.3 Mechanical Loco Control Section at Zonal Headquarters offices

Mechanical (Diesel) Loco Control section controls/monitors the movement and status of all Diesel locos (goods/passengers) and their crews, on round the clock basis. Review over six[58] Zonal Railways, showed that this section was not relying upon the information related to diesel loco provided by the ICMS and instead collected the information manually on a daily basis to update the same in ICMS. The section was also maintaining loco related all their records manually[59].

2.2.8.4 Train Branch/Control Offices/Yards

During the scrutiny of records at various locations of ICMS including Train Branch, Yard, Station Manager/Station Superintendent office, Control office of eight[60] Zonal Railways, it was noticed that all the locations were maintaining almost all the records/registers[61] manually which were being maintained before introduction of ICMS.

2.2.8.5 Statistical Department

During the examination of records of Statistical Branch of ten[62] Zonal Railways, it was observed that various reports such as Punctuality Performance, Passenger train performance, Mail Link outage statement, Traffic density statement, Rolling Stock (carriage and wagon) performance etc. were being prepared manually for submission to Railway Board. To prepare the reports, the data was compiled/ collected telephonically or through input received from other subordinate offices.

Maintenance of digital as well as manual records not only involve avoidable deployment of manpower in maintaining two sets of records, it also defeats the very purpose of computerisation of the activity.

---

[56] NR, WCR, SCR, SECR, ECoR, SWR, WR

[57] Coaches Ineffective (AC & Non AC) Position, Railway Board Position, Damaged vehicle stock (Mechanical) & (Electrical), Coaching Performance, AC Coach Division Ineffective, NAC Coach Division Ineffective, Overdue Coaches and Balance Due POH Coaches, Over Due and Balance Due IOH Coaches of Mail Exp

[58] NR, ECoR, WCR, SWR, SECR, WR

[59] Engine Failure Record Register, Accident Report Register, Loco Schedule: Outage, Incoming Message Register, Outgoing Message Register, Division wise Loco Schedule Register (showing deviation in loco schedule), Different Loco position

[60] NR, ER, ECoR, SCR, WCR, SWR, NER (Gorakhpur), WR

[61] Coaching Position Register, IOH and Trolley Register, Booking Register, Detention Register, Inward Control Book, Station Master Diary, Coach Register (POH), Outward and Inward Train Register, Coaching Stock Report Register, Attaching Register, Detaching Register, Shortage Register, Composition Charting, Coaching Cabinet Register, Sick and Fit Coach Register, Rake Link Register, etc.

[62] NR, SR, ER, ECoR, WCR, SCR, SECR, CR, SWR, NER

2.2.9 Wrong Generation of Loco Change Summary/Loco Position Report

During the review of Loco Change Summary Report[63], it was noted that the report depicted same information irrespective of the option about BG, MG or NG type of locos selected by the user (NR, NCR, WCR, SCR, SECR, SWR). Over NER, Report No. 1511 did not depict any details about MG loco. Thus, date provided by ICMS was incorrect and not fit for decision making. Review of ICMS operations at Ambala station (NR) revealed that ICMS depicted one loco attached with two different trains which was not possible and information provided by ICMS was not reliable. Review of loco movement/position on SER revealed that ICMS depicted inconsistent and inaccurate position of locos.

(Annexure 9)

2.2.10 Lack of facility to view ICMS reports in different Internet Browser

During examination of Report Module of ICMS, it was noticed that the facility provided in ICMS to copy contents of the reports as well as to export the contents of the reports in Excel format was operational only when the reports were viewed in Internet Explorer browser and not in other browser like Google Chrome etc. The restriction to copy/export ICMS contents to a single browser is not conducive to the usage of ICMS, particularly when a number of browsers are being used now-a-days.

Above findings indicated that due to lack of availability of complete, accurate and real time details of coaches/loco and non-capture of traffic demand details, despite having integration with PRS, ICMS has not been able to effectively assist Railway Administration in monitoring coaches and locos in real time and in online environment. Railway Administration was not effectively using ICMS for managing coach/loco operations and continued to rely on manual procedures and records.

ICMS Objective - Set benchmark for assets maintenance, plan timely maintenance schedule including IOH/POH to minimize idling of coaches outside shop, prompt planning for idle coaches and their timely bookings and usage to generate more revenue to the Railways.

2.3 Managing coach maintenance through ICMS

ICMS has a provision to capture maintenance and other related details of coaches like their maintenance periodicity, their sick/fit status etc. which can assist railway administration for undertaking timely remedial action for better management/ utilization of coaches. Audit findings from the review of the coach maintenance and status related data/ records are discussed below:

2.3.1 Lack of provision to capture IOH schedule of coaches

One of the objectives of ICMS was to plan maintenance schedule including Intermediate Overhauling (IOH) of coaches. However, it was observed that there was no provision to capture IOH details of coaches in the system as seen in NR, SCR, SWR, ER and WR.

[63] Report No. 1511

2.3.2 Lack of adequate details of primary maintenance

As per ICMS Report[64] on 'Rake Link with no PM (Primary Maintenance)' of different dates in six Zonal Railways, 36[65] rake links did not have Primary Maintenance details. There were 63048 records[66] where the movement details in terms of coach kms. after the Primary Maintenance had been captured as null. Incomplete information about primary maintenance of coaches affect timely maintenance of coaches.

2.3.3 Missing/Invalid Train Link - Lack of Action

Rake linking[67] is the term used for the decision of assigning physical rakes to train services on a regular basis. As per ICMS[68] pertaining to March to June 2016 of nine[69] Zonal Railways, 85 trains had broken rake links, 44 trains had invalid rake links, 34 trains did not have any rake links and 36 trains had multiple rake links. Lack of proper train links results in disruption in smooth capturing of data pertaining to trains operations/movement in ICMS. It was noted from the ICMS reports that despite having information about defective links, Railway Administration did not take remedial action to correct the data. If proper and valid rake links are not available, the incomplete information cannot be used for effective rake utilization. **(Annexure 25)**

2.3.4 Discrepancies/Inconsistencies in ICMS data due to lack of validation controls

2.3.4.1 Inconsistencies in Coach POH Data

As per extant orders, Periodical Overhaul (POH) of AC/Rajdhani/Shatabdi/Mail Exp/Jan Shatabdi coaches becomes due after a period of 18/24 months. Data analysis over ten[70] 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. It contained cases where POH due dates, which were either before POH done dates or after POH done dates. This indicated that ICMS did not have adequate controls to validate POH data when the same is entered, which rendered the data unreliable and unusable for any decision making process.

(Annexure 26)

2.3.4.2 Large Number of Coaches due for POH- Mismatch in Manual and ICMS Records of POH

As per ICMS Report No. 651 as well as ICMS data, 15782 coaches were due for POH over ten[71] Zonal Railways as checked on different days between January 2016 and July 2016. The data of coaches due for POH as seen during a test check

[64] Report No. 962
[65] NR-5, CR-2, SCR-7,ER-4, SWR-15, NER-03
[66] Out of total 63074 records in Coach Current Table
[67] The rake links are a means to provide effective rake utilization by maximising reliability of services, increasing operational flexibility keeping in view availability of maintenance facilities, safety considerations and norms of operation.
[68] Report No. 962
[69] NR, NCR, CR, WCR, SCR, NER, SWR, ER, NFR
[70] NR, NCR, SER, ER, SCR, SECR, NFR,CR, NER, WR
[71] NR, SCR, ECoR, CR, ER, WCR, SECR, NER, SWR, NFR

at various stations of six[72] Zonal Railways however, did not match with the ICMS data. This indicated incorrect data entry of information regarding coach maintenance. **(Annexure 27 a and 27 b)**

2.3.4.3 POH overdue coaches shown as part of Train Consist

During the examination of train consist data, it was noticed that train consist also included coaches which as per ICMS database were due for POH. Though ICMS allowed attachment of POH due coaches in the train consist but indicated them in red while displaying train consist, to enable a user to identify POH overdue coaches in the composition/consist of a train for remedial action. Despite having facility to identify the POH overdue caches, it was noticed over eleven[73] Zonal Railways that 7706 coaches which were overdue for POH were part of the train composition/consists. As the POH details captured in ICMS were not accurate, the information in ICMS was not fit for decision making.

(Annexure 28)

2.3.4.4 Sick and Fit Coach data

It was observed that data on sick/fit status of coaches was not maintained in ICMS over ECR, SWR and NR[74]. Further,

- A total of 2888 coaches were declared sick long back (between 2008 and 2014), but not declared fit as yet over all Zonal Railways[75], which meant that these coaches were not put to normal use since their sick marking dates. In nine[76] Zonal Railways, fit marking dates of 12157 coaches were not recorded in the database though their fit reporting dates were recorded in ICMS. Thus, it could not be ascertained from the data as to when these coaches were declared fit. The data was thus not correct and reliable.
- Over 12[77] Zonal Railways, 44762 coaches were reported sick in ICMS after a gap of 30 minutes to 53437 minutes during 1 October 2013 to 7 October 2015, which indicated that data was not reported on a real time basis.
- Analysis of 79641 coaches reported fit over seven Zonal Railways[78] during 1 October 2013 till October 2015 revealed that out of these, 55187 coaches were reported as fit after a period of 30 minutes to 719 minutes except one coach which was reported fit after a delay of 525610 minutes. Analysis of ICMS data revealed that placement time and placement reporting time of sick coaches reported fit was generally not captured in ICMS.
- A comparison between manual and ICMS records on test check basis also showed differences in the timings of declaration of a coach sick or fit in Ambala and Jabalpur locations. **(Annexure 29a, 29b, 29c, 29d)**

Thus, incomplete data of sick and fit coaches was not helpful in taking decisions

[72] NR, NWR, NFR, CR, SWR, NER
[73] NR, NCR, ER, NFR, NWR, WCR, SCR, SWR, SECR, ECR, WR
[74] Amritsar, New Delhi, Anand Vihar, Sarai Rohilla in NR and Jabalpur in WCR
[75] Till 7 October 2015
[76] NR, ER, WCR, SCR, SWR, SECR, ECR, CR, NFR
[77] NR, NCR, ER, NWR, WCR, SCR, SWR, ECR, SECR, CR, NER, WR
[78] NR, ER, SWR, NER, SECR, WR, NFR

for effective coach utilization and forced the Railways to rely on manual procedures and records.

Above findings indicated that valid rake links were not maintained for all the trains, thereby making the data unusable for effective utilization of coaches/rakes. ICMS data on coach status and maintenance was not accurate, reliable and complete and, thus, not usable for monitoring timely maintenance of coaches and for prompt planning of idle coaches.

During Exit Conference (October 2016), Railway Board agreed that the facility to monitor coach utilization and maintenance were not being used by the Railways. It was further stated a facility has been provided to capture coach inventory data from the coach manufacturing unit which would ensure accuracy and correctness of data.