

Chapter 7 – Conclusion and Recommendations

7.1 Conclusion

The Crew Management System (CMS) is a critical IT application of the Indian Railways (IR) which manages crew assignment to various trains and directly impacts the safety of train operations. The application aims at managing over one lakh drivers and guards to ensure round the clock safe operations of IR. The objectives of this application were to improve the efficiency of train operations, effectively monitor crew and to comply with the safety requirements relating to crew management and to improve the financial management and monitoring. The extent of achievement of the objectives of CMS was evaluated in Audit and the aspects relating to IT application controls, IT security, continuity of the organization's business, contracting issues, project management/monitoring and change management were also reviewed.

Though introduction of CMS has helped in improving certain aspects of crew operations, the CMS has failed to fully achieve its objectives and may impact the efficient and safe running of trains as complete, accurate and updated inventory of crew, routes, locos, stations etc. was not maintained; Crew scheduling and assignment was not found effective; Booking of competent crew, fulfilling all the prescribed criteria, was not ensured; System was not fully capable of assisting the management in monitoring crew for training and for compliance with safety requirement. Biometric and Breath Analyser (BA) devices which were to be integrated with CMS for authentication of crew and ensuring that consumption of alcohol by crew is eliminated, have not been integrated with kiosk at all lobbies thereby compromising safe operations of trains. Grading and counselling of crew was not taking place at the prescribed periodicity and data was not updated accurately.

System lacked adequate controls to ensure completeness, accuracy and validity of data pertaining to various aspects of CMS operations. Lack of adequate controls allowed booking of superannuated crew. CMS was not configured as per extant orders/proper authority, delayed signing off the crew and lack of adequate controls led to inaccurate generation as well as payment of mileage allowances.

Multiple TAs using dummy loco number and dummy routes generated for booking crew did not ensure validation of crew competency for safe train operations.

Manual records were also maintained along with CMS database/records. Non-integration of CMS with pay roll system also resulted in failure to achieve the concept of paperless lobby.

Incomplete integration of CMS with FOIS, COA/ICMS resulted in engagement of manpower for maintenance of manual records and deprived the management to effectively monitor the CMS operations.

A number of reports generated did not provide correct information and failed to assist Railway Administration in deployment and optimum utilization of crew. SMS facility was not fully utilized to enhance the efficiency of CMS operations.

The CMS lacked adequate security measures to prevent unauthorised access to the system and uninterrupted operations. There was no Business Continuity Plan to continue operations 24x7 at lobby level. There was no arrangement for remote backup of data and BCP/DRP at remote site was yet to be implemented. No procedure was devised for effecting changes in the software.

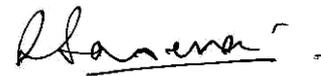
There was no policy for outsourcing of CMS activities. There was lack of dedicated staff for CMS operations. Lack of trained manpower over different zones to operate CMS and availability of updated and complete documentation was also adversely affecting the operations.

Lobbies did not have any annual maintenance contract. Defective and overage equipment were neither replaced nor repaired. Standard IT environment could not be established in most of the lobbies.

7.2 Recommendations

- I. The Master tables in the CMS database need to be standardized. Necessary validation controls on important fields may be introduced for ensuring completeness and accuracy of data input. It will enhance the user's reliability and dependency on CMS and enable the users to dispense with the system of parallel maintenance of manual records.*
- II. Effective integration of CMS with Pay Roll Application, Control office Application, FOIS and ICMS should be expedited so that needs of the users may be served.*
- III. Grading and counseling of crew should be ensured at prescribed periodicity by completely and accurately updating the relevant database.*
- IV. Implementation of biometrics and integrated BA devices should be expedited at all lobbies to ensure crew validation at the time of sign on/off and that crew remains sober while operating the train respectively.*
- V. Adequate checks/validation controls should be introduced for data validation. Controls such as dropdown menu/list box etc. may be considered for validating data.*

- VI. *Adequate controls may be introduced and CMS may be configured as per extant orders/authority to prevent excess payment of allowances.*
- VII. *IT Security Policy including backup and password policy should be strictly implemented. Implementation of BCP/DRP at remote site/lobbies should be expedited to ensure uninterrupted operations. Physical security at lobbies may be strengthened. Software patches/updates may be timely and regularly installed.*
- VIII. *The Change Management Procedure should be devised. Formal training mechanism to educate CMS operators about new features of CMS may be ensured and complete/updated CMS documentation should be made available to all concerned.*
- IX. *Dedicated staff for CMS operations should be provided. In case outsourced staff is deployed for CMS activities then there should be approved policy for outsourcing, specifying the individual responsibilities of railway users vis-à-vis outsourced users.*



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