OVERVIEW

Chapter 1 Computerised Passenger Reservation System of the Indian Railways: The Computerised Passenger Reservation System, launched in November 1985 as a pilot project on Northern Railway, is now a full fledged application linking the entire Indian Railway network and facilitates the booking and cancellation of tickets for journeys in trains commencing in any part of India and terminating in any other part of the country and makes available accommodation to passengers according to the extant rules of the Railways.

The Information Technology audit of the Computerised Passenger Reservation System (PRS) over ten zonal railways, however, disclosed several deficiencies. Railways continued to largely rely on hired BSNL channels, which experienced frequent and extensive failures disrupting the PRS services. Clear milestones or targets were not set out for switch over from the BSNL network to the Railways' Optical Fibre Cable network **(Para 1.6.2).** Sound IT security practices were not followed and there were deficiencies both in physical access and logical access controls. The logout procedure was deficient and user privileges especially the Supervisory *ids* were allotted without considering the reasonableness of extending the privileges, thus, creating a risk of possible misuse of the powers associated with the privileges **(Para 1.7.2)**. Changes in the system necessitated due to change in/introduction of rules were not carried out in a timely fashion, resulting in inconvenience to the travelling public as well as increasing the risk of loss of revenue to the Railways **(Para 1.7.3).** There was no structured and documented disaster recovery policy for PRS over Indian Railways and the preparedness of the Railways to deal with major disruptions of PRS activities was found wanting **(Para 1.7.4).** Application controls were weak and a number of tickets were booked on fictitious details, indicating a risk of bogus/proxy booking in advance and thereby decreasing the availability of seats to genuine passengers **(Para 1.8.2).** Validation checks for generation of pre-bought tickets, for journeys involving more than one lap, were weak and accommodation was blocked for dummy passengers using the pre-bought facility **(Para 1.8.3).** Fares and distances were incorrectly adopted leading to incorrect levy of fares **(Paras 1.8.6 and 1.8.7).** Even though allotment of berths was meant to be a zero error process, various instances were noticed where the system allotted the same berths to different passengers **(Para 1.8.9).** The status of late running of trains was not set promptly leading to incorrect refunds to passengers **(Para 1.8.11).** The internal control mechanism over monitoring of ticket rolls was weak increasing the risk of misuse of ticket rolls. Fraudulent use of ticket rolls for unauthorised refunds over two zonal railways highlighted the same **(Para 1.9.2).**

Chapter 2 Computerised Applications over Indian Railways: With the intention of developing homogenous applications across all the zones, System Development Teams were set up in select zonal railways for developing

specific applications. In addition, a number of local applications were developed by various zonal railways to cater to local needs.

The Information Technology audit of a sample of applications developed comprising both applications developed by Systems Development Teams and developed locally by zonal railways disclosed that the Information Technology strategy for development of standardised and uniform applications on the Indian Railways was ineffective, leading to haphazard development of applications in zonal railways with overlapping functions **(Para 2.6).** Users were not involved at the development stage and the applications developed were not comprehensive. Some of the applications remained only partially implemented **(Para 2.7).** Physical access and logical access controls were inadequate. Proper segregation of duties was not ensured. As a result, in some zonal railways, a single user was empowered to carry out multifarious functions including changes to the live data, which was fraught with risk. There was no documented change management policy, disaster recovery plan or an environment policy to dispose of e-waste **(Para 2.8).** Deficiencies in the Payroll and Provident Fund Accounting System implemented by North Eastern Railway on Lucknow and Varanasi divisions led to drawal of salary and allowances beyond entitlements. Further, recoveries were improperly effected and advances were incorrectly regulated **(Para 2.9.1).** Application controls in the Material Management Information System adopted by Southern Railway and the one developed by Diesel Locomotive Works, Varanasi were weak. Priced ledger numbers were improperly allotted, check digits were incorrectly assigned, the master tables contained several inconsistencies and the applications allowed incorrect data entry. As a result, the utility of the information derived from these applications was limited **(Para 2.9.2).** The transactions processed by the Financial Accounting System developed by Rail Coach Factory, Kapurthala were not consistent with extant rules. Deficiencies existed in 'Provident Fund', 'Loans and Advances', 'Stores' and 'Bill passing/Budget modules' casting doubts on data integrity **(Para 2.9.3).** The Freight and Passenger Accounting system developed by Western Railway was deficient, as relevant rules governing the apportionment of earnings were not incorporated leading to incorrect apportionment of earnings to zonal railways **(Para 2.9.4).** The data captured in the Hospital Information Management System was incorrect and incomplete, rendering the system unreliable **(Para 2.9.5).**