3.3   Information Technology Review of computerised booking in Himachal Road Transport Corporation

Highlights

The Corporation introduced (1995-96) in-house developed software for booking of tickets and loaded it on computers installed at 15 locations under eight Regional Offices at a cost of Rs. 15 lakh.

Important deficiencies noticed during audit scrutiny are given below:

During the last 11 years, the corporation had not formulated any strategic plan for computerisation.

(Paragraph 3.3.8)

There was neither any password policy nor the system of taking back ups regularly.

(Paragraph 3.3.9)

The System did not contain refund module for computerised cancellation of tickets, the depot codes were not fed correctly and the System accepted advance booking even after issuance of way bills.

(Paragraphs 3.3.12 to 3.3.14)

There was lack of consistency in executable programs working in different booking counters. Resultantly, leakage of revenue could not be ruled out.

(Paragraph 3.3.17)

Introduction

3.3.1 The Himachal Road Transport Corporation (Corporation) was established in September 1974, under Section 3 of the Road Transport Corporation Act, 1950. The Corporation introduced in-house developed software for booking of tickets in 1995-96 written in MS COBOL 85 running on SCO Unix 5.0.0.4 operating system. The software is individually loaded on each stand alone computer installed at 15 locations under eight Regional Offices and Workshops at a total cost of Rs.15 lakh (approximately).

Advance booking clerk sends the way bills[3] of advance booking to the Current Booking counter 15 minutes before the departure of the bus for current

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[3]   *Way bill shows the number of seats booked alongwith details of ticket numbers issued*

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booking of vacant seats. Both the advance and current way bills are handed over to the conductor after current booking. The daily statement of booking (depot-wise) is sent to the accounts section for inter depot adjustment.

On line[4] booking was assigned (April 2006) to a private firm, Shogi Communication Limited (SCL), Shimla in respect of 10 seats of Volvo/Deluxe buses plying on Delhi-Shimla and Delhi-Manali routes. The SCL stops booking four days prior to date of journey and way bill of the concerned bus is faxed on the same day for advance booking to Head Office, Shimla and concerned Regional Managers.

Organisational set-up

3.3.2 The management of the Corporation vests in the Board of Directors. The Managing Director is the Chief Executive. He is assisted in his day to day activities by the Chief General Manager.

The operational area of the State has been divided into four divisions (Shimla, Mandi, Dharamshala and Hamirpur) which are headed by the Divisional Managers. The divisions were further divided into 23 Regional Offices (RO) which are headed by Regional Managers. There are four workshops (Taradevi, Parwanoo, Mandi and Jassur) for repair and maintenance of vehicles which are headed by the Managers (Technical).

The Divisional Manager (IT) is overall in charge of computerisation in the Corporation.

Objectives of computerised booking

3.3.3 The main objectives of switching over to computerised booking from the manual booking system were to:

∗ exercising effective monitoring control;
∗ increase computerised booking to control leakage of revenue; and
∗ provide facility of advance booking to general public.

Scope of audit

3.3.4 The IT Audit of computerised booking was conducted during January and March 2007. The test check of records for the period 2006-07 was carried out in seven[3] out of 15 computerised booking counters, selected on random basis.

Audit objectives

3.3.5 Objectives of the IT Audit were to evaluate:

∗ reliability, integrity and authenticity of the data;

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[4]   *www.Himachal.nic.in/hrtc and www.himachalhotels.in*
[3]   *Shimla, Manali, Palampur, Baijnath, Dharamsals, Chandigarh & Delhi*

∗ availability of the data;

∗ safety and security of data; and

∗ IT environment in various booking counters and availability of related documentation.

Audit criteria

3.3.6 The audit criteria used for the IT audit were :

∗ the IT best practices; and
∗ the business rules for the charging of fares.

Audit methodology

3.3.7 The methodology adopted for attaining audit objectives with reference to audit criteria was as under:

∗ review of agenda and minutes of meetings of the Board of Directors (BODs) and Committee constituted by the BODs; and

∗ study of the computerised system.

∗ Before commencing audit, the audit objectives, criteria and scope were discussed (February 2007) with the Divisional Manager (IT) in an entry conference. The audit findings were discussed (March 2007) with the Divisional Manager (IT) in an exit conference.

Audit findings

General controls

Absence of planning

Due to deficient planning, the Corporation could computerise advance booking only in eight out of 27 Regional Offices and Workshops in 11 years.

3.3.8 The Corporation had not formulated a strategic plan for computerisation. The Management stated (March 2007) that it had decided to computerise all the Regional/Divisional Offices in the first phase but no time schedule was fixed by the Management. In the second phase, it had planned to start Network Advance/ Current Booking through telephone lines. In the third phase, all the Divisional/ Regional Offices would be placed on WAN[5] and current reservation would be computerised at all the bus stands. The Corporation had computerised only advance booking at 15[6] locations in eight[7] out of 27 Regional Offices and Workshops in a span of 11 years.

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[5] *Wide Area Network*
[6] *Delhi, Himachal Bhawan - Delhi, Chandigarh, Chamba, Mclodganj, Dharamsala, Kangra, Palampur, Baijnath, Kullu, Manali, Lakkar Bazar- Shimla, The Mall- Shimla, ISBT- Shimla, Haridwar*
[7] *Kullu, Nahan, Parwanoo, Palampur, Baijnath, Dharamsala, Chamba, Shimla (Local)*

I T security policy and Business Continuity Plan

There was neither any password policy nor there was system of taking back up regularly.

3.3.9 No password policy has been framed by the Management. Passwords are not being changed by the users at a regular interval which may lead to risk of mis-use of password.

There is no system to take continuous back up of data which may lead to loss of data on sudden crash of the system.

Though the Management stated that weekly back ups were taken on floppy disks but the same did not support by the fact that the data could not be restored after a sudden crash of system at Dharamshala, Kangra, Mclodganj, and Palampur booking counters. The booking clerks of those locations deposited cash for that period either on the basis of manual records or on approximate basis without any detail of cash statement.

Documentation

3.3.10 Proper documentation helps in trouble free operation and maintenance of the system. The User Manuals, Operation Manuals and System Manuals are not available.

No documentation of the Feasibility Study Report, User Requirement Survey (URS), System Requirement Survey (SRS), System Design and Documentation (SDD) were available on record.

System shortcomings

Inability of the system to calculate fare as per distance

The system had shortcomings such as failure to calculate fare as per distance, absence of refund module, acceptance of advance booking even after issue of waybills, *etc.*

3.3.11 Fare between two places is levied on kilometers basis (except Chandigarh and Delhi). It is fixed by the concerned State Governments from time to time for their territory on the basis of hilly/plain areas and type of bus (Ordinary/Express/Semi Deluxe/Deluxe/AC, *etc.*).

It was noticed during audit that the provision for calculating the fare on the basis of distance had not been incorporated in the system and the fare was manually fed by the booking clerks. This resulted in disparity in fare charged between two stages ranging between Re. 1 and Rs. 70 on the same route[8].

Non-incorporation of refund module

3.3.12 In-charges of Unit Offices (UOs)/ Central Booking Agencies (CBAs) are entitled to refund the advance booking fare subject to the condition that when tickets are submitted prior to four hours, within four hours prior to departure of bus and within four hours after departure of the bus by deducting 10, 25 and 50 *per cent,* respectively of cost of the ticket.

Audit revealed that no module was incorporated in the system for computerised cancellation of tickets. It was noticed that refund amounting to

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[8] *Shimla to Kangra: Advance booking, Bus No. 14 Rs 185 and Current Booking, Bus No. 1 Rs. 172*

Rs.1.19 crore (in five units[9] test checked) was made during the period from 2002-03 to 2006-07 (up to January 2007) on cancellation of advance booking/tickets by the concerned booking clerks manually without following the prescribed procedure. Further, in some cases time of refund was also not recorded on the refund application form to restrict the ceiling of refund admissible.

Wrong accountal of income due to incorrect depot codes

3.3.13 During test check of daily cash deposit schedule of Manali and Kullu booking counters, it was noticed that depot codes were not fed correctly by booking clerks due to which, the System generated faulty reports and all inter unit adjustments of computerised booking income was done manually by Accounts Section.

System accepts advance booking even after issuance of way bill

3.3.14 It was noticed that though the advance booking is stopped 15 minutes before departure of the bus, the System accepts booking till departure time of the bus and even after issuing of way bill. This may lead to issue of duplicate tickets against the same seat number which may not only result in chaos in the bus but also loss of business.

The Management stated that it was up to the booking officials to conduct the booking or not. Even if the booking official books the tickets, he has no other way except depositing the cash. The plea is not tenable as the System should not carry out booking after issue of way bill.

Non-updation of the System to provide free referral transport to the poor patients

3.3.15 The State Government introduced (January 2004) a scheme for free referral transport facility to the poor patients including an attendant. It was noticed in IT audit that the System had not been updated so far to accept booking in respect of such patients under this scheme depriving poor patients of the intended benefit.

Non-providing of discount for one month's advance booking through the System

3.3.16 The Corporation implemented (September 2004) the Government's decision (July 2004) for providing 25 *per cent* discount for one month's advance booking. It was noticed that the System was not updated for allowing such discount on advance booking resulting in non-extension of benefit to the consumers. Thus, the objective of attracting more passengers by allowing discount on one month's advance booking was not achieved.

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[9] *Regional Manager, Baijnath and CBAs: Kullu & Manali, Shimla, Chandigarh and Delhi*

There was lack of consistency in executable programs working in different booking counters.	**System management**

Lack of change management procedure

3.3.17 An organisation should ensure consistency in executable program used in different units especially for the Systems used to collect revenue. The same program should work at all places. Audit noticed lack of consistency in executable programs working in different booking counters. Resultantly, leakage of revenue could not be ruled out as different programs were running in different counters. In the absence of uniformity in program at all locations, the chances of a booking clerk clouting with a programmer to misappropriate revenue could not be ruled out. On change of fare by any State, the Systems at all the counters of the organisation are also not updated simultaneously leaving loopholes in revenue collection.

The System generates daily cash deposit schedule (Form B) that shows depot-wise fare collected in respect of each State distinctly to facilitate inter-unit booking and payment of passenger fare for those States in which tax is paid on the basis of passengers' income. It was noticed in IT audit of the computerised booking system at CBA, Kullu and Manali that the System had no field for charging Uttranchal State fare separately. The fare of Uttranchal State was being charged with the Uttar Pradesh fare. Thus, the System was generating wrong information and failed to deliver the desired results. The System not only fails to calculate the fare of Uttranchal State and Uttar Pradesh State separately but this may also lead to wrong payment of passenger tax as the passenger tax of Uttranchal State is paid on the basis of passenger income (*i.e.* 21 *per cent* of basic fare collected by the concerned unit) and Uttar Pradesh tax is paid on kilometers (kms) basis. The matter was reported to the Management (February 2007); their reply is awaited (August 2007).

To comply with Sub-section 3(C) of Section 146 of the Motor Vehicle Act, the BODs approved (May 2003) a scheme to create Passenger Accident Insurance Fund (PAIF) to meet out all expenses relating to bus accidents and this scheme was implemented with effect from 1 August 2003. For this purpose, additional charges were to be levied by issuance of separate tickets of the denomination of Re.1 and Rs.2 in respect of passengers traveling for 51 kms to 100 kms and more than 100 kms respectively. This was also to be ensured in the computerised booking.

Test check of records of Palampur booking counter revealed that the System was not levying additional charges in nine routes[10] on account of insurance of passengers who traveled more than 50 kms in the Corporation's buses. This resulted in recurring loss to the Corporation since August 2003.

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[10] *Shimla:3 routes, Pathankot:3 routes; Nayagram:1route ; Katra: 1 route and Chamba:1 route*

Due to damage of Gagger bridge, the Corporation directed (August 2006) all the Divisional Managers to charge additional fare of Rs.4 per passenger with immediate effect for ordinary buses plying to and fro Delhi via Rajpura from different locations of the State. During test check of records of Baijnath unit, it was noticed that the unit failed to charge additional fare of Rs.4 per passenger for three buses plying for Delhi via Rajpura resulting in loss to the Corporation from 31 August 2006 to 15 February 2007.

Increment in bus fare by Uttaranchal Transport Department from 41.68 to 45 paise per passenger per km for plain area with effect from 8 July 2005 was made effective by the Corporation from 30 August 2005 resulting in less charging of enhanced fare.

The orders of Secretary, Transport, Government of Jammu & Kashmir (14 December 2005) levying 10.5 *per cent* surcharge in respect of High Speed Diesel (HSD) driven vehicles after merging the basic fare and surcharge in respect of the existing notified passenger fare subject to the rounding off to the nearest 25 paisa was circulated by the Management on 12 January 2006 resulting in less charging of enhanced fare.

The Corporation decided (December 2002) to impose user charges on passengers traveling in Corporation's buses operating on the National Highway-1 (NH-1) on the basis of Haryana Transport Department notification dated December 2002 with immediate effect. These charges were to be imposed in addition to the fare as per the rates detailed below:

Distance	Rupee/Rupees
1 Km to 15 Kms	Nil
16 Kms to 25 Kms	1
26 Kms to 75 Kms	2
76 Kms to 125 Kms	3
126 Kms to 175 Kms	4
176 Kms and above	5

Test check of records in three[11] booking counters revealed that these booking counters failed to impose user charges on the passengers in 23 routes plying on NH-I on Chandigarh - Delhi route at the rate of Rs.5 per passenger and Chandigarh - Haridwar (via Ambala) route at the rate of Rs.2 per passenger. This resulted in non-realisation of user charges and consequent loss to the Corporation from December 2002 to February 2007. The matter was reported to the Management (February 2007); their reply is awaited (August 2007).

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[11] *Kullu, Manali and Palampur*

Other points of interest

Excess payment of passenger tax

3.3.18 The Chandigarh Administration fixed (January 2006) the maximum rate of fare for stage carriages plying in the Union Territory of Chandigarh as Rs.5 per passenger per trip irrespective of the distance travelled. The passenger tax for Chandigarh area is paid to the Excise and Taxation Officer, Chandigarh, by the concerned units on the basis of passenger fare collected from Chandigarh area at the rate of 35 *per cent* of the basic fare.

It was observed that though the Corporation charged fare for Chandigarh area at the rate of Rs.5 per passenger through computerised booking, the fare had been charged at the rate of Rs.9 per passenger in manual booking due to non-availability of tickets of Rs.5 for Chandigarh area. Adjustment of total fare had been made by less charging of fare of Rs.4 per passenger from other States so that the total fare remains the same. During January 2006 to January 2007, 11,49,700 tickets of Rs.9 denomination for Chandigarh area were consumed by different units test checked in audit. On the total collection of Chandigarh fare of Rs.1.03 crore, the Corporation had to shell out 35 *per cent i.e.* Rs.26.83 lakh to the Excise and Taxation Officer, Chandigarh as tax.

Less charging of fare in comparison to Special Road Tax paid

3.3.19 It was observed that input controls were not ensured by the Corporation. For example, distances fed in the computer should be counter checked with the distance for which Special Road Tax (SRT) is to be paid. Lack of input control led to loss of Rs.1.88 lakh to the Corporation from May 2003 to January 2007 due to non-charging of fare as per distance on which SRT was payable as detailed below:

∗   During test check at Palampur unit, it was noticed that the unit paid SRT for two routes plying from Palampur to Shimla (via Mandi and via Panchrookhi) for 252 and 260 kms whereas through the booking system, it charged fare for only 243 and 251 kms respectively. Thus, the Corporation either suffered a loss of Rs. 6 per passenger on these routes or paid extra SRT of Rs.1.21 lakh from May 2003 to January 2007.

∗   During test check at Baijnath unit, it was noticed that the unit paid extra SRT for two routes plying from Baijnath to Shimla (via Bharol and via Hamirpur) for four and six kms respectively in comparison to the fare charged from the passengers. Due to non-realisation of fare on the basis of SRT paid, the Corporation suffered a loss of Rs.3 and Rs.5 per passenger on two routes respectively and or paid extra SRT of Rs.0.67 lakh from May 2003 to January 2007.

The matter was reported to the Corporation/Government in June 2007; their replies are awaited (September 2007).

Conclusion

Though the Corporation has done a commendable work in in-house development of this software, the System has certain limitations. Only major bus stands have been covered under this project though the System is in use for more than 11 years. There is no documentation of the source code/ program to ensure business continuity. Further, being operated on stand alone machines, the System is vulnerable to loss of data and cash on crash of machines. Operation of different programs at different locations also makes it vulnerable to misappropriation of funds. At certain places, the System failed to generate desired reports leading to non-achievement of desired objectives.

Recommendations

∗   **System should be reviewed with a view to incorporate all the business rules of the Corporation. Further, it may be ensured that same version of software is installed at all the locations.**

∗   **Organisation wide back up policy and password policy should be devised for ensuring IT security.**

∗   **Management Information System and reporting features of the System need to be strengthened for effective monitoring.**