"FREIGHT OPERATION INFORMATION SYSTEM OF INDIAN RAILWAYS AND ITS EFFECTIVENESS IN SOUTH EAST CENTRAL RAILWAY"

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Abstract-

Indian Railways decided to adopt the use of information technology to improve the utilization and maintenance of its rolling stock for better capacity utilization, increased output and to give better service to the customers. It was also realised that such computerised management information system will help in planning, monitoring and decision making. It was a very difficult task, due to its enormous size, consisting of different types of vehicles, rolling stocks, cargo, loco, geographical areas, ghat sections, number of stations, different gauges, electrified and non-electrified sections each having complexities of its own. Gradually all the information was collected and integrated almost all the activities of the freight operations were included. This led to an integrated information and management system for controlling and monitoring the multifarious activities and is known as Freight Operations Information System. In this paper, we are going to present the effectiveness of the Freight operations Information System in SECR based on survey conducted over different FOIS locations of SECR.

Keywords- Freight operations information System, Rake Management System, terminal Management System, Crew Management System, Integrated Coaching Management System, Control Office Application.

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INTRODUCTION

Freight is the backbone of the Indian Railways and contributes more than 66% of earnings even subsidizing the losses of Passenger operation. The Indian Railways decided to adopt the use of information technology to improve the utilization and maintenance of its rolling stock for better capacity utilization, increased output and to give better service to the customers. It was also realized that such computerized management information system will help in planning, monitoring and decision making. All the information were collected and integrated for controlling and monitoring, almost all the activities of the freight operations were included. This led to an integrated information and management system for controlling and monitoring the multifarious activities of the freight operations which is known as the Freight operation information system.

FREIGHT OPERATIONS INFORMATION SYSTEM (FOIS)

Freight operations information system (FOIS) has been developed to take care of the operational functions relating to Freight train operations, yard management and activities pertaining to Good shed working.

FOIS comprises of two modules

1. Rake management system (RMS)
2. Terminal management system (TMS)

STRATEGIC ADVANTAGES DERIVED FROM THE FOIS SYSTEM

1**.** Extension of the current business practice of bulk movement freight traffic in train.

2. Global tracking of consignment in real time.

3. Facilitates acceptance (customer's orders), billing and cash accountal of freight traffic are handled systematically.

4. It reduces the burden of logistics management.

5. An essential element in reducing inventory costs.

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SCOPE OF FOIS SYSTEMS

- Rake based consignment tracking and pipeline

- Train/Rake operation

- Stock holding in terms of summary of wagon types

- Train and stock interchange

- Terminal Handling performance

- Loco holding, outage and power on line

- Reporting to take care of Train/Load on summary basis

- Invoice based consignment tracking

- Wagon wise Stock Holding

- Reporting of consist wagon wise

- Invoice based loading originating tonnage and revenues

- Wagon wise Interchange

- Statement of missing Wagons/wrongly delivered

SUB-SYSTEMS IN FOIS

CREW MANAGEMENT SYSTEM

Crew consists of various combination of running staff in different categories depending on variety of factors like type of service, traction. Indian Railways has approximately 1.05 lakh running staff based over 300 crew locations, forming the most important human element directly involved in the freight train operations.

Crew management system automatically evaluates employee's skill sets against established train schedule to determine optimal staff assignments. The system tracks the locations of working employees in real time, manager can easily shuffle assignments to accommodate any issues. The order is dispatched in turn to the employees via text messages as well as in-terminal kiosk.

Crew Management System is software in which accuracy and monitoring is automatically maintained. The systems installed in 300 crew booking points and are spread over Indian

Railways the data base covers about 1.04 lakh crew members and more than 48500 crews are booked daily through the system. In South East Central Railway there are 19 Crew booking points working successfully and three more crew booking points are going to be installed. There are 6425 crews in SECR and 2800 crews are booked per day. The Crew Management System has a unique system of booking the crew through SMS. It is sent to the crew through the central database to serve it a call. If the crew acknowledges the call by sending back an acknowledgement through SMS, the crew is booked. Manual serving of call books to the crew has been stopped completely.

System generated alerts are also sent to the required personnel as given below.

1. Morning position of crew strength at various crew booking locations.

2. Alert for crew strength at particular crew booking point going below a critical limit.

3. Automated alerts for the nominated Inspector, for crew becoming due for monitoring.

4. The crew can have his personal information like turn of crew booking, Status, PME (periodical medical examination), mileage and other Training due dates on his mobile.

5. Birthday greetings to the crew members whose date of birth is in the data base.

INTEGRATED COACHING MANAGEMENT SYSTEM

Coaching Stock Module is the second vital phase of Integrated Coaching Management System. There has been a substantial growth of passenger traffic on Indian Railways in the last few years and in the number of coaches for the different types like vacuum and air brake, AC Ist class, 2-tier, 3-tier, chair car, and non A/C Sleeper coaches, Day coaches, Pantry cars and Brake vans etc.

Objectives of Coaching Management System:

- To monitor the condition and location of the coaching stock.

- To monitor the coaching rakes their locations, arrival and departure.

- To work as a management tool to provide for planning and rescheduling of rakes.

- To optimize utilization of each coach and timely maintenance (POH) and repairs.

- Prompt planning for idle coaches and their timely bookings and usage to generate more revenue for the Railways.

- To avoid manual manipulations and to provide full-proof service to enhance the image of the Railways.

- To provide MIS Coaching Operations.

CONTROL OFFICE APPLICATION (COA)

COA is comprehensive software for the automation of Control charting at Railway Divisional Control office. COA is intended to replace the tedious manual plotting of running trains on a chart. The benefits of COA include better planning and decision making in train operations and thus contribute to increased operational efficiency. COA is designed to form core application to drive the existing allied system like FOIS, NTES and COIS. The integration with allied system will be facilitated through a central application server at CRIS.

COA covers the following core functionalities of the control office operations:

Train Ordering, Maintain Train information, Manage Train movement (Abnormal working, stabling, banker movement), Report unusual occurrences, Management of maintenance blocks, Caution orders, Plot graphs, Advance plotting – System/manual, Maintain referential data, MIS report, Yard management/siding, miscellaneous functions, and View Station layout.

The application will have interfacing capability with Data Logger to capture data pertaining to train movements in the final version of the product

Table-I FOIS LOCATIONS OVER SECR

DIV	RMS	TMS	CMS	ICMS	COA
BILASPUR	7	49	7	7	7
RAIPUR	7	28	5	3	3
NAGPUR	4	18	7	3	3
TOTAL	18	95	19	13	13

Objectives of the Study

1. To study the Freight Operations Information System of South East Central Railway.

2. To determine the factors influencing the effectiveness of FOIS.

3. To analyse the Strategic advantages derived from the FOIS system in SECR.

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Methodology

Universe	South East Central Railway
Sample Size	30
Sample Unit	Employees of SECR
Sampling Technique	Survey Method
Research type	Descriptive and Exploratory Research
Data source	Secondary data

Data Analysis based on Survey Report

- Control Office Application(COA) based on Controllers

- Crew Management System (CMS) based on Train Drivers

- Terminal Management System (TMS) based on commercial supervisors

- Rake Management System (RMS) based on Train clerks

Sn	Information	COA	CMS	TMS	RMS
1	No. of Railway staff	30	30	30	30
2	No. of private staff	0	0	0	0
3	Education qualification- HS	-	-	4	21
4	Education qualification- Graduate	-	-	19	7
5	Education qualification- Post Graduate	-	-	7	2
6	No. of staff having IT experience	17	21	24	26
10	No. of staff having knowledge of trouble shooting	7	5	17	27
12	No. of staff having working of 6 hrs	30	0	0	0

13	No. of staff having working of 8 hrs	0	10	29	30
14	No. of staff having working of 12 hrs	0	20	01	00
15	No. of staff having working of 24 hrs	0	0	00	00
16	No. of staff satisfied with available software	22	21	30	30
18	No. of staff given any suggestion to improve COA	13	-	-	-
19	No. of staff not given any suggestion to improve COA	17	-	-	-
20	No. of staff who accepted that implementation of COA minimizes work load of SECR	25	-	-	-
22	No. of staff who accepted that present Rly administration training (IT) is sufficient to work in COA	18	-	-	-
24	No. staff co-ordinating with divs/Zonal/CRIS	-	25	-	-
25	No. of staff who availed roster rest	-	29	-	-
26	No. staff co-ordinating with crew controller/Trains clerk	-	15	-	-
27	No. of staff taking remedial steps to eradicate field problem	-	15	-	-
28	No. of staff using all the	-	00	-	-

	option of kiosk				
29	Are you Satisfied with the available present system of working after implementation of IT application in train operation?	Satisfied	Satisfied	Satisfied	Satisfied

Discussions:

The current study reveals that with the recent application of Freight Operations Information System in South East Central Railway (SECR), the staffs present in the various sub systems of the Railways are satisfied and feels that it decreases the work load and work time. About 73% controllers working in COA system are satisfied with the available current software, about 70% Train Drivers (CMS), 100% commercial supervisors (TMS) and 100% Train clerks (RMS) are satisfied with the same. Therefore it can be concluded that the Freight Operations Information system is effective in SECR.

Conclusions:

The current study reveals that with the recent application of Freight Operations Information System in South East Central Railway (SECR), the staffs present in the various sub systems of the Railways are satisfied and feels that it decreases the work load and work time. About 73% controllers working in COA system are satisfied with the available current software, about 70% Train Drivers (CMS), 100% commercial supervisors (TMS) and 100% Train clerks (RMS) are satisfied with the same. Therefore it can be concluded that the Freight Operations Information system is effective in SECR.

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Bibliography:

1. Raghuram G., Gangwar R., Marketing Strategies for Freight Traffic on Indian Railways: A Systems Perspective, IIMA Research and Publications, 2007, W.P. No 2007-07-03.

2. FOIS for Indian Railways

3. Rangaraj, N., Sohoni M., Puniya P., Garg J., Rake Linking for Suburban Train Services. ICORD – 2002, 2002.

4. CMC Ltd (2013). 'Freight Operation Information System,

5. CRIS Projects – Freight Operation Information System (2013)

6. Agarwal S., Singhal R., Mittal R., Freight Operations Information System (FOIS) – advanced architecture & its Future. IJLRST 2013, Vol 2 Issue 2.

7. Design Document of FOIS-CMC

8. Railway Audit Report, Chapter 2 Freight Operations Information Systems in Indian Railways, Report No 8 of 2010-2011.

9. Agarwal, Seema, IJECS Volume 2 Issue 5 May, 2013 Page No. 1685-1687

10. C. R. Kothari, Research Methodology (Methods & Techniques), New Age

11. International Publishers, 2nd Edition, 2004, ISBN No. 81-224-1522-9.

12. Indian Railways, Annual Report & Accounts 2010-2011

13. Railway Budget 2012-13: An Assessment, RBI Monthly Bulletin May 2012, Page no. 1095-1106

14. Different Circulars issued from time to time by Railway Board

15. ESCAP: Guidelines for Development of Railway Marketing Systems and Procedures, Chapter 3, Page no. 11-19

16. ESCAP: Guidelines for Development of Railway Marketing Systems and Procedures, Chapter 6, Page no.32-43

Websites:

http://www.fois.indianrail.gov.in/FoisWebsite/

http://www.cmcltd.com/industry_practices/transportation/railways_freight_ops.htm

http://cris.org.in/CRIS/Projects/FOIS

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