

“Role of Information Technology on Improvement of Operational Performance of APSRTC”

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Abstract:

The transport sector and information technology sector were international influenced areas.

The IT is very useful for development of any area/sector. The transportation was not an exception. Because of IT made tremendous influence on any sector and useful to the standards and performances of the organisation.

The APSRTC bus transport is related to service sector, its future depends upon carriage the passengers, running the buses properly and using the crew and other staff members efficiently.

The APSRTC was running with 2054.53 crores of accumulated losses up to 2011-2012. There must be need to boost the performance of RTC in financial, physical operational aspects. One of the best options to improve the operational performance was IT.

This research paper explains the role of IT in the operational performance of APSRTC. The RTC must adopt the IT in its operation there must be very good resulting and improvement in the operational performance and the financial performance.

Based on several key parameters, the financial, physical and operational performance of APSRTC was evaluated. The APSRTC was facing several problems in different aspects. To rectify some operational problems only solution is IT. This study suggests many suggestions as follows.

Introduction of sms based enquiry system; online ticket booking with easy access of internet banking, debit cards and credit card and call centre to improve occupation ratio in APSRTC as a part of IT.

To reduce the problems of conductors and other staff, suggested introducing online ticket accounting system.

To reduce and control the material cost like fuel, lubricants, spare parts, tyres & tubes and reconditioned items this study suggested introducing stores inventory system with the help of technology.

To proper utilize fleet and for reduce the cancellations, accidents and breakdowns this study suggests introduce vehicle maintenance system.

To identify the route operations of every fleet this study suggested that introduce global positioning system, LAN and WAN in the operations

Conclusion: The introduction of IT in full-fledged form in APSRTC will be helpful for the improvement of the standards of overall performance of APSRTC, which caused for earning large profits besides reduced operating cost. So the APSRTC management should take immediate steps to install and utilize the IT in the operations of APSRTC.

Introduction:

Information technology (IT) plays a key role not only in the computer sector but also in the development of service and other sector.

Passenger road transport is a public utility having significant influence on the social and economic development of a country.

Information technology (IT) is a branch of engineering dealing with the use of computers and telecommunications equipment to store, retrieve, transmit and manipulate data. The Information Technology Association of America has defined IT as "the study, design, development, application, implementation, support or management of computer-based information systems".

Transport is an essential ingredient of infrastructure that plays a pivotal role in upgrading the quality of human life. Bus transport has a great significance in the movement of passengers. The bus transport becomes the prime requirement for people's mobility, as also for the movement of goods.

The Information Technology industry in India has gained a brand identity as a knowledge economy due to its IT and ITES sector. The growth in the service sector in India has been led by the IT-ITES sector, contributing substantially to increase in GDP, employment, and exports. The sector has increased its contribution to India's GDP from 1.2% in Financial Year 1998 to 7.5% in Financial Year 2012.

This sector has also led to massive employment generation. The industry continues to be a net employment generator - expected to add 230,000 jobs in FY2012, thus providing direct employment to about 2.8 million, and indirectly employing 8.9 million people.

India's growing stature in the Information Age enabled it to form close ties with both the United States of America and the European Union. However, the recent global financial crises have deeply impacted the Indian IT companies as well as global companies. As a result hiring has dropped sharply, and employees are looking at different sectors like the financial service, telecommunications, and manufacturing industries, which have been growing phenomenally over the last few years.

The Andhra Pradesh State Road Transport Corporation was formed on January 11th 1958. The dynamic development of AP road transport can be traced out with the formation of APSRTC. At the time of formation the corporation had a fleet of 609 buses, 16 depots and 5081 employees, with the objective of providing an effective, efficient and economical and properly co-ordinate road transport service in the state.

During the past 80 years, it has registered a steady growth from 27 to 21,469 buses with 766 bus stations, 202 depots and 1,880 bus shelters. APSRTC operates services to the neighboring states of Maharastra, Orissa, Chattisgarh, Goa, Kamataka, Tamilnadu and Pondyicherry.

The APSRTC transports around 12 million people every day with the services rendered by a dedicated strength of 1.17 lakh employees. The total number of routes offered is 7822. The entire network is under the administrative control of 23 regional managers in 6 zones.

This research paper deals with the impact of information technology in the efficient operational management of APSRTC.

Review of literature: There are so many works were done in the area of information technology, APSRTC and road transport separately. But research works like the impact or influence of IT on APSRTC performance improvement was not done by any researcher, so to fill that gap this research study was done.

Objective:

The objective of this paper was to find out the influence of Information Technology in the Operational performance improvement in Andhra Pradesh State Road Transport Corporation.

Methodology:

Based on secondary data the role of IT and its impact in different area of operations of APSRTC were assessed. With help of different parameters the operational performance in APSRTC was assessed.

Findings and Suggestions

After keen observation and evaluation of different key parameters information during 2003-04 to 2009-10, there are so many problems were found in RTC. The financial, physical and operational performance of the APSRTC was not good and accumulated losses were reached nearly Rs. 3000 crores.

In this connection to improve the performance of APSRTC suggest major revamp with the help of Information Technology in the operations of RTC.

Problem-1:

The passengers carried by the corporation in 2003-04 were 407.39 crores and in 2009-10 were 489.35 crores. In all the year passengers carried by RTC was increased. The difference was .82 crores within 7 years.

Every day the RTC carried passengers in 2003-04 were 111 lakhs, in 2009-10 it was 136. Even though the no. of passengers travelled was increased, the OR was reducing every year.

The occupation ratio of the corporation regarding 2003-04 was 60 %, in 2005-06 it was 65 % and in 2007-08 it was 70%. In 2008-09 it was 72 but in 2009-10 it was 69%.

| Key parameter | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 |
|--------------------------------------|---------|---------|---------|---------|---------|---------|---------|
| Passengers carried (in lakhs) | 40,739 | 42,749 | 42,876 | 46831 | 47878 | 51,107 | 48,935 |
| Passenger carried per day (in lakhs) | 111 | 117 | 117 | 126 | 131 | 140 | 136 |
| Occupation ratio (%) | 60 | 62 | 65 | 68 | 70 | 72 | 69 |

The APSRTC carried passengers per year, per day, were increasing but the RTC getting losses. The OR was most important to get profits through occupation passengers in the buses.

Suggestion-1:

With the help of Information Technology it is suggested to improve Occupation Ratio

Introduction of SMS based enquiry system: It is proposed to introduce SMS based enquiry through SMS, the citizens can know the details like distance, fare, availability of seats.

Anywhere to anywhere ticket booking: By inter connecting major bus stations, it is proposed to provide the facility of anywhere to anywhere ticketing like railways, as also online return journey reservation. Introduction of ticket reservation network, return journey ticket, telephone reservation facility and delivery of reservation tickets at doorsteps; Tickets, CAT Cards and renewal passes are arranged to be issued through internet may also introduced in APSRTC to improve OR.

Call Center: It is proposed to introduce a call center to provide information of APSRTC services to the citizens. Wireless Communications, Introduction of Electronic System. The mobile and wireless system is to be incorporated in the buses running in main routes. Establishment of customer information call centre and good-will centre. Buses will be regularized through sms and through sms complaints can be done.

Problem-2:

The total employee's strength of the corporation in 2003-04 was 1,19,219 and in 2009-10 they were 1,15,898. The difference of the decrease employment of the corporation in 7 years was 3,321.

Among the total staff the conductors in 2003-04 was 42,079 and in 2009-10 they were 44,566. At the time of submit their collection they are facing problems.

| Key parameter | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 |
|---------------|---------|---------|---------|---------|---------|---------|---------|
| Conductors | 42,079 | 41,887 | 41,087 | 41,504 | 41,212 | 42,304 | 44,566 |

Suggestion -2:

To reduce all the calculation problems of different staff it is suggested to introduce

On-Line Ticket Accounting System (OLTAS): The introduction of OLTAS was useful, to improve the efficiency of handing over / taking over of waybill to / from conductor and to reduce errors in calculations, to reduce loss of kilometers by way of cancellation due to absenteeism of crew by properly monitoring attendance particulars; to reduce computational work involved in tedious calculations for disbursing various kinds of incentives, allowances paid to employees; to eliminate or minimize the need for various waybill audit functions etc; to reduce conductors waiting time at the counters; Manpower was reduced extensively and utilized them for other purposes was very useful for APSRTC operational performance.

Problem-3:

Without proper maintenance of material levels the RTC facing several problems **Material Cost:** Material cost includes fuel/power, Lubricants, reconditioned items costs. In the total cost, the material cost contains 31.84%. In the material cost the fuel cost have 82.39% share. The total material cost in 2003-04 was 1040.64 crores and in 2009-10 were 1821.78 crores. In 7 years the total increase of total cost was 781.14 crores.

Fuel: The fuel or power expenditure cost in 2003-04 it was 838 crores, in 2004-05 it was 1015.01 crores, in 2005-06 it was 1258.86 crores, in 2006-07 it was 1428.04 crores, in 2007-08 it was 1440.17 crores, in 2008-09 it was 1548.89 crores and in 2009-10 it was 1501.09 crores.

The fuel cost increases in 7 years except 2009-10. The average increase was 175 to 225 crores per year. With in 7 years the increases of the fuel cost were 663.09 crores between 2003-04 and 2009-10.

The lubricant cost in the 2003-04 was 16.81 crores; in 2009-10 were 30.63 crores. The spare parts/store cost in the year 2003-04 was 41.92 crores and in 2009.10 it was 72.50 crores.

The tyres & tubes cost was in 2003-04 were 73.43 crores and in 2009-10 it was 120.66 crores. The reconditioned items cost in 2003-04 was 70.48, and in 2009.10 it was 96.90 crores.

The lubricants, spare parts, types tubes and reconditioned items cost are increasing every year, except the tyres & tubes cost in 2004-05 and reconditioned items cost in 2008-09.

| Key parameter | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 |
|----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Material Cost Total | 1,04,064 | 1,21,803 | 1,49,124 | 1,72,471 | 1,75,751 | 1,86,704 | 1,82,178 |
| Fuel (Diesel) | 83,800 | 1,01,501 | 1,25,886 | 1,42,804 | 1,44,017 | 1,54,889 | 1,50,109 |

| | | | | | | | |
|---------------------|-------|-------|-------|--------|--------|--------|--------|
| Lubricants | 1,681 | 1,787 | 2,024 | 2,919 | 3,387 | 3,715 | 3,063 |
| Spare Parts stores | 4,192 | 4,522 | 5,375 | 6,565 | 6,855 | 7,024 | 7,250 |
| Tyres & Tubes | 7,343 | 6,955 | 8,751 | 11,126 | 12,118 | 12,123 | 12,066 |
| Reconditioned Items | 7,048 | 7,038 | 7,088 | 9,057 | 9,374 | 8,953 | 9,690 |

Suggestion -3:

Introduction of inventory system is very useful for RTC to reduce unnecessary cost regarding purchase or maintenance of inventory

Stores Inventory System (STOINS): the STOINS introduction with the help of Information Technology the APSRTC can be benefited to maintain the optimum level of stock of materials in the depot stores; to facilitate proper and easy accounting of all transactions taking place in the depot stores; to eliminate the tedious work put for generating reports and statements; to control the cost of the vehicle operations by effectively monitoring the vehicle-wise consumption of costly and repeatedly used items and total spares consumption; to provide the on-line query facility for finding out the item-wise stock position and their vehicle-wise consumption and to computerize the transactions between zonal stores and depot stores by sending indent and receiving issue note through floppy/CD.

Problem-4: lack of vehicle maintenance properly the RTC facing several problems

The corporation have total fleet in the year 2003-04 was 19,108 and it was 21,606 in the year 2009-10.

The corporation operated own buses in 2003-04 was 17,568, in 2004-05 it was 17,825, in 2005-06 it was 17,550, in 2007-08 it was 17,370, in 2008-09 it was 17,155 and in 2009-10 it was 17,351. In seven years there is no increase in the RTC owned buses and the decrease was 217 buses.

Regarding to the hired buses, every year they are increasing. In 2003-04 it was 1,445 buses; in 2009-10 was 4,045. with in seven years the hired buses increased to 2,600 buses. Rate of cancellation were increases in 2005-06 was 3.04 and in 2009-10 was 3.99. Rate of accidents per 1 lakh Kms of the APSRTC in 2003-04 was 0.10, in 2006-07 it was 0.12 and in 2009-10 it was 0.11. The number of accidents in 2003-04 was 2,339 and in 2009-10 it was 2,658.

Rate of break downs per 10,000 Kms in 2003-04 was 0.13 and in 2009-10 it was 0.08.

| Key parameter | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 |
|------------------------------------|---------|---------|---------|---------|---------|---------|---------|
| Fleet held (RTC + Hired) | 19,108 | 19,609 | 19,407 | 19,618 | 19,987 | 20,606 | 21,469 |
| Fleet (operated) RTC | 17,568 | 17,825 | 17,550 | 17,425 | 17,370 | 17,155 | 17,351 |
| Fleet (operated) hired | 1,445 | 1,689 | 1,748 | 1,805 | 2,442 | 3,385 | 4,045 |
| Rate of cancellation (%) | 2.05 | 2.01 | 3.04 | 1.76 | 2.18 | 1.76 | 3.99 |
| Rate of accidents per 1 Lakh Kms | 0.10 | 0.10 | 0.11 | 0.12 | 0.12 | 0.11 | 0.11 |
| Rate of Break-downs per 10,000 KMs | 0.13 | 0.12 | 0.13 | 0.13 | 0.12 | 0.09 | 0.08 |

Suggestion -4:

Introduce Vehicle Maintenance System (VEMAS): The VEMAS was useful accurate and meaningful analysis of maintenance, performance and preparation of statements such as breakdown analysis, low Kmpl vehicles, low Kmpl drivers, vehicles performance statements in the APSRTC, which is useful to improve operational performance.

Problem-5: The RTC operating crores of Kms and in thousands of routes. Lack of co-ordination of running buses the RTC facing several Problems.

The corporation effective operated Kms are increasing every year. In 2003-04 was 226.65 crores Kms and 2009-10 was 277.16 crores of Kms.

The total no. of routes was operated by the corporation decreasing in the assessment years. The routes in 2003-04 was 8192 and in 2009-10 was 7955 the reduced routes are 237.

| Key parameter | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 |
|---------------------------------|---------|---------|---------|---------|---------|---------|---------|
| Kms operated effective in lakhs | 22,665 | 23,250 | 23,808 | 24,473 | 25,347 | 26,749 | 27,716 |
| Total No. of Routes | 8,192 | 8,132 | 7,641 | 7,363 | 7,551 | 7,701 | 7,955 |

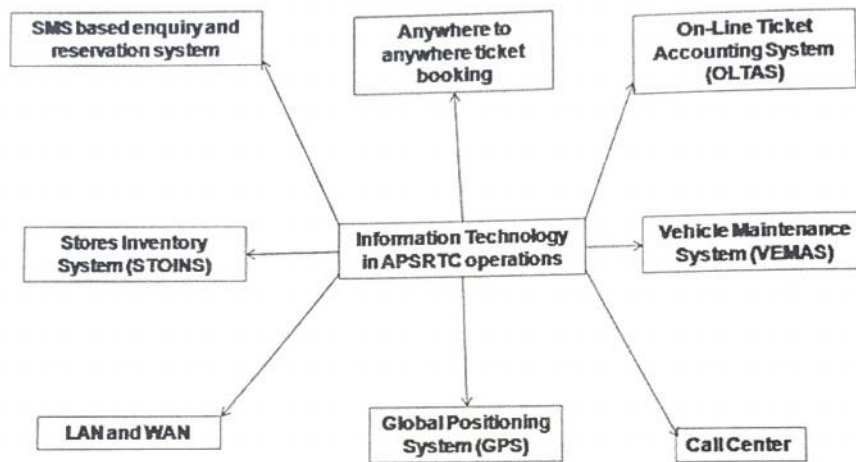
Suggestion -5:

Introduce GPS, LAN and WAN in RTC the co-ordination among routes, operation of Kms were possible
Global Positioning System (GPS) not only monitors vehicle operation but also helps to provide passenger information system. This will be very useful and necessary for urban APSRTC in particular. Local Area Networking and Wide Area Networking has immensely benefited in terms of providing right information at right time at right place. This has resulted in profit maximization and also reduction in cost of operation.

In APSRTC, it is necessary to get the competitive advantage by bringing in improved technology through Intelligent Transport System with Advanced Public Transport System.

Conclusion : The introduction of IT in full-fledged form in APSRTC will be helpful for the improvement of the standards of overall performance of APSRTC, which caused for earning large profits besides reduced operating cost. So the APSRTC management should take immediate steps to install and utilize the IT in the operations of APSRTC.

**Proposed Applications of Information Technology in APSRTC
 Operations will be useful to Improve Overall Performance**

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