Use of Information and Computer Technology to Improve the Performance of MSRTC in Ahmednagar District

Dr. Rajendrasingh Pardeshi[1]

[1]*Associate Professor, PDVVPF's IBMRD, Ahmednagar*

ABSTRACT

Twenty first century is the era of the Technology. Information and computer technology has opened various avenues in front of us. Efficient and effective utilization of Information and computer technology could be very useful way to sustain in today's cutthroat competition. The business that proves to be responsive to customer questions, complaints, or other needs can gain a clear competitive advantage. In this paper, researcher had tried to analyse the performance of MSRTC in Ahmednagar district of Maharashtra (India). Researcher collected data from financial year 2010-11 to 2012-13. Kilometers Produced, Total revenue, utilization of seating capacity, cost were prominent parameters. Secondary data analysis showed that Ahmednagar district has got tremendous potential for public road transport business. MSRTC in Ahmednagar district was not able to capitalize it as 40-42% seating capacity of buses was unutilized (Vacant).In addition to that there was a question on Reliability and Assurance factors of Service quality. It indicates that Primary research should be conducted to identify the gaps between customer's expectations from MSRTC and customer's perceptions about MSRTC in Ahmednagar District. This paper analysed the performance of MSRTC in Ahmednagar district and tried to suggest the use of ICT for improvement of Performance of MSRTC in Ahmednagar district

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Key words: CPKM, EPKM, ICT, Load Factor, MSRTC

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Introduction

MSRTC

The Maharashtra State Road Transport Corporation was established by State Government of Maharashtra as per the provision in Section 3 of RTC Act 1950.The M.S.R.T. Corporation is operating it's services by the approved scheme of Road Transport Published vide Notification MVA 3173/30303-XIIA dated 29.11.1973 in the official gazette. Significantly, the ST does not only carry people but also takes care of the postal mail, distribution of medicines, newspapers and even tiffins to children studying in the bigger towns. In rural areas, it aids

farmers to transport their goods to the cities. All this in the face of bad roads, recurring losses, hiked taxes and yet it retains its identity of a transport service for everybody.

No matter what, the ST reaches every village that is connected by road, however bad it may be, truly living up to its motto of `jitherasta, tithe ST' (where there's a road, there's a ST bus)!

Information and Computer technology (ICT)

Information and Computer technology (ICT) is the application of computers and telecommunications equipment to store, retrieve, transmit and manipulate data, often in the context of a business or other enterprise. The term is commonly used as a synonym for computers and computer networks, but it also encompasses other information distribution technologies such as television and telephones. Several industries are associated with information technology, such as computer hardware, Information and Computer technology (ICT), X telecom equipment, e-commerce and computer services.

Research Methodology

Objective of Study

1. To Analyze Performance of MSRTC in Ahmednagar district.

2. To suggest areas of improvement to MSRTC.

Scope of Research.

Scope of MSRTC Ahmednagar division performance analysis was related to only following parameters.

Schedule operated Effective kms. In lakhs; Earnings (traffic) in lakhs Rs.; Load factor (%) ; Earnings per kilometer in paisa. (EPKM in ps.) ; Cost per kilometer in paisa (CPKM in ps.); Margin (+)/loss (-) per kilometer in paisa (Margin/km ps.) ; ,Rate of breakdown per 10,000 kilometers ; Rate of accidents per lakh kilometers ; Cancelled kilometers in lakhs ; Average bus-staff ratio; Average off road vehicle

Research   Design

Type of Research: Exploratory and Descriptive

Data used for Research: Secondary data

Period of Study: 2010-13

Data Collection Method: Desk research.

Sources for Data Collection: Secondary data is collected from Books ,journals, MSRTC website, MSRTC Divisional office, MSRTC Central office, Ahmednagar District official website, Central Institute of Road Transport, Pune.

Statistical Tools used for Data Analysis: Tabulation, Graphs, Charts and figures were used for analysis of data.
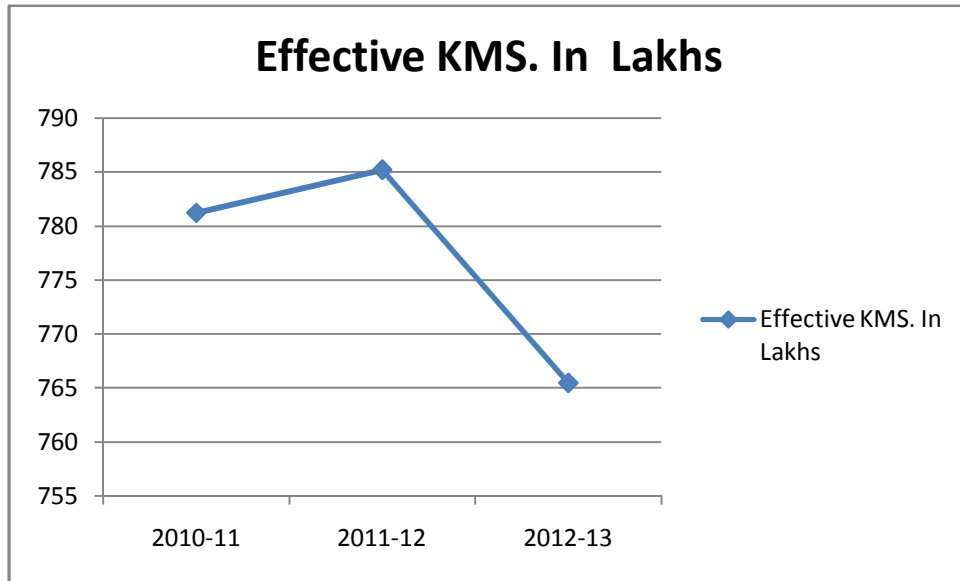
Data Analysis

Parameter: Effective Kms. in Lakhs

Table 1: Effective Kilometers Generated in Lakhs by MSRTC in Ahmednagar District

Year	2010-11	2011-12	Remark	2011-12	2012-13	Remark
Effective kms. in lakhs	781.21	785.19	+0.5%	785.19	765.51	-2.5%

Source: Primary Data

**Graph 1:** Effective Kilometers Generated in Lakhs by MSRTC in Ahmednagar District

Interpretation: There was an increase in Effective kilometers operated in 2011-12 but a steep decrease in year 2012-13 which leads overall fewer Kilometers operated. Which could lead to cancellation of Trips, Schedules and fewer services are available to customers.

Parameter: Earnings (Traffic) in Lakhs Rs.

Table 2: Earnings (Traffic) in Lakhs Rs. by MSRTC in Ahmednagar District

Year	2010-11	2011-12	Remark	2011-12	2012-13	Remark
Earnings in lakhs Rs.	16275.32	17386.75	+6.82%	17386.75	17947.47	+3.22%

Source:Primary Data
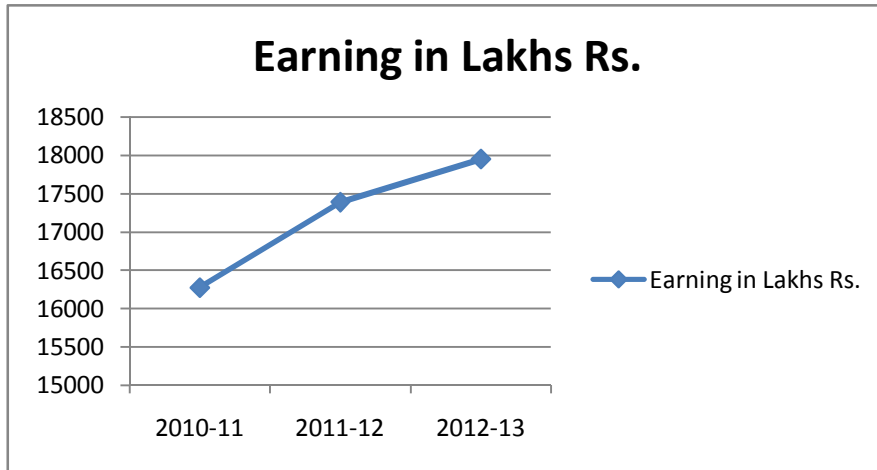
Earning in Lakhs Rs.

Graph 2: Showing Earnings (Traffic) in Lakhs Rs.by MSRTC in Ahmednagar District

Interpretation: There was a continuous increase in Traffic Earnings in year 2011-12 and year 2012-13 in spite of less no. of schedules and less no. of Kilometers operated.
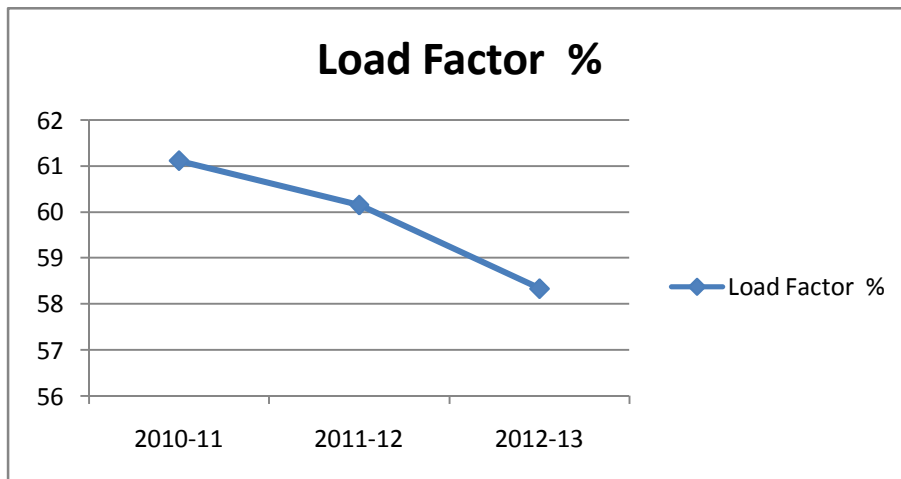
It shows increased efficiency of Ahmednagar district, but it was combined effect of multiple Fare hikes during the period.

Parameter: Load Factor (%)

Table 3: Load Factor (%) by MSRTC in Ahmednagar District

Year	2010-11	2011-12	Remark	2011-12	2012-13	Remark
Load Factor (%)	61.11	60.15	-1.57%	60.15	58.34	-3%

Source:Primary Data

Load Factor %

Graph 3: Load Factor (%) by MSRTC in Ahmednagar District
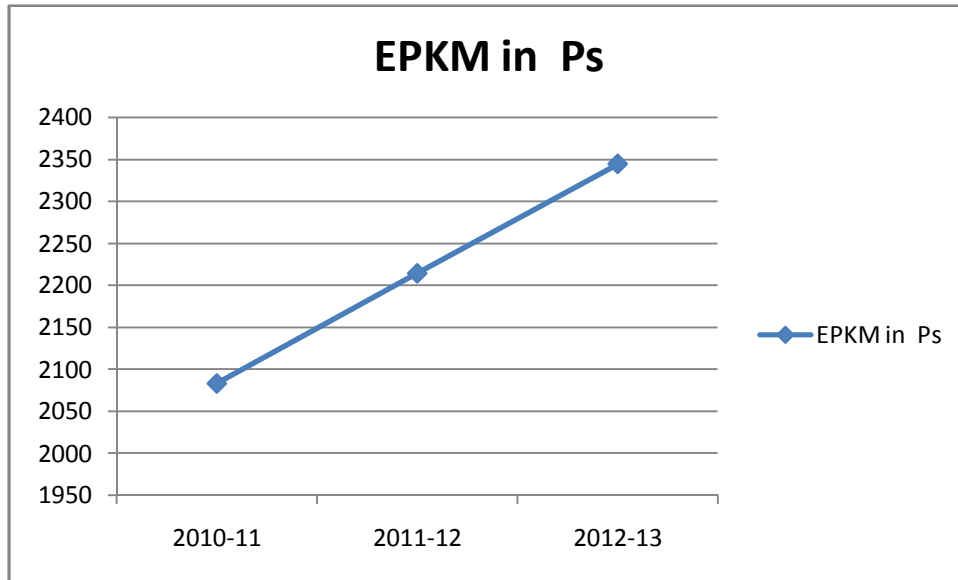
Interpretation: There was a continuous decrease in Load Factor (%) in the year 2011-12 and year 2012-13 in spite of Increase in Traffic earnings. It could be because of less no of schedules and less no of Kilometers operated as well as it indicates that Customers did not preferring MSRTC as a Transport operator.

Parameter: Earnings per Kilometer in Paisa. (Epkm in Ps.)

Table 4: Earnings per Kilometers in Paisa Generated by MSRTC in Ahmednagar District

Year	2010-11	2011-12	Remark	2011-12	2012-13	Remark
Earnings per Kilometers in Paisa	2083.35	2214.34	+6.29%	2214.34	2344.51	+5.88%

Source:Primary Data

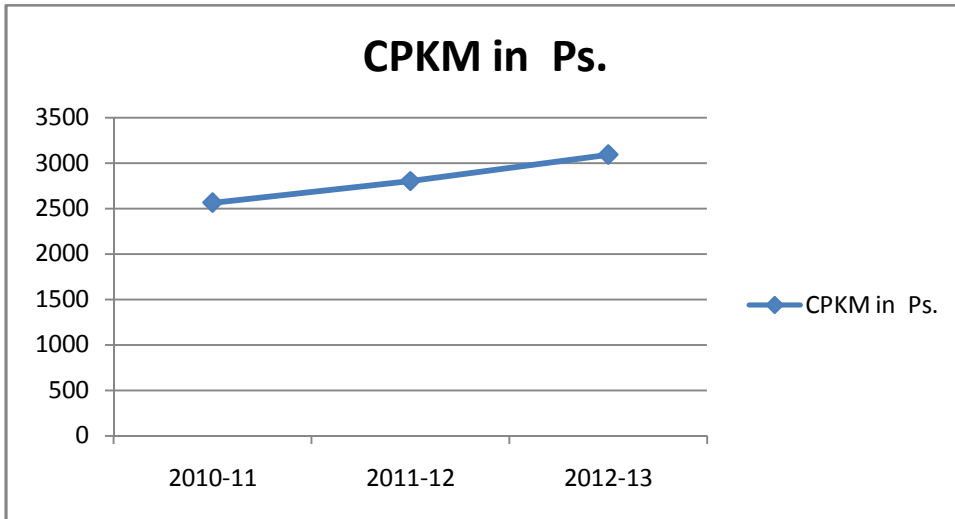**Graph 4:** Earnings per Kilometers in Paisa generated by MSRTC in Ahmednagar district

Interpretation: There was a continuous increase in EPKM in year 2011-12 and year 2012-13 in spite of less no of schedules and less no of Kilometers operated. It was because of Increase in Traffic earnings as a result of Fare hike.

Parameter: Cost per Kilometer in Paisa (Cpkm in Ps.)

Table 5: Cost per Kilometers in Paisa incurred by MSRTC in Ahmednagar district

Year	2010-11	2011-12	Remark	2011-12	2012-13	Remark
Cost per Kilometers in Paisa	2563.34	2800.75	+9.26%	2800.75	3092.11	+10.40%

Source:Primary Data

CPKM in Ps.

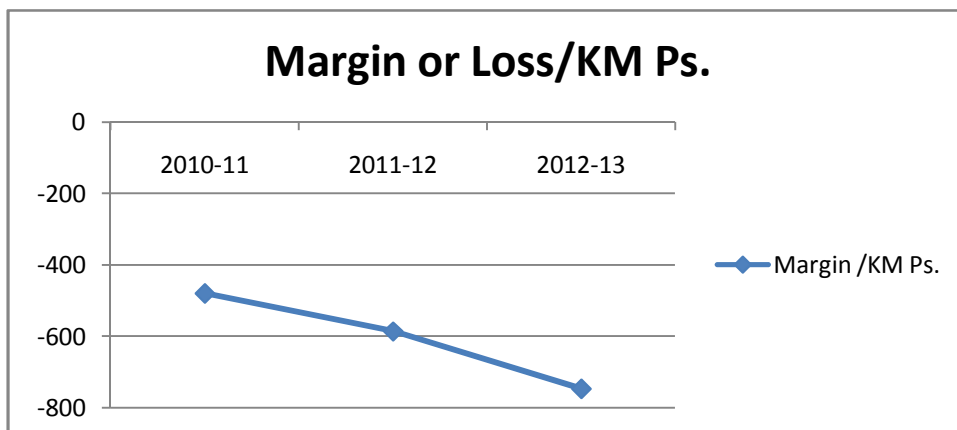**Graph 5:** Cost per Kilometers in Paisa incurred by MSRTC in Ahmednagar district

Interpretation: There was a continuous increase in CPKM in year 2011-12 and year 2012-13 in spite of less no of schedules and less no of Kilometers operated. It was because of Increase in Price of Fuel (Diesel) as well as spares, supplies required for operation purpose. There was also rise in the salary of employees during the period.

Parameter: Margin (+)/Loss (-) per Kilometer in Paisa. (Margin/Km Ps.)

Table 6: Margin (+) / Loss (-) per Kilometers in Paisa Incurred by MSRTC in Ahmednagar District

Year	2010-11	2011-12	Remark	2011-12	2012-13	Remark
Margin(+) / loss (-)	-479.99 Loss	-586.41 Loss	+22.17% Loss increased	-586.41 Loss	-747.6 Loss	+27.49% Loss increased

Source:Primary Data

Margin or Loss/KM Ps.

Graph 6: Margin (+) / loss (-) per Kilometers in Paisa incurred by MSRTC in Ahmednagar district

Interpretation: There was a continuous decrease in Margin per Kilometer or increase in the losses incurred by the MSRTC in Ahmednagar district in year 2011-12 and year 2012-13 in spite of Increased traffic earnings as well as EPKM. It was because of steep Increase in CPKM.

Findings

There was an increase in Effective kilometers operated in 2011-12 but a steep decrease in year 2012-13 which leads overall fewer Kilometers operated. Which could lead to cancellation of Trips, Schedules and fewer services are available to customers.

There was a continuous increase in Traffic Earnings in year 2011-12 and year 2012-13 in spite of less no. of schedules and less no. of Kilometers operated. It shows increased efficiency of Ahmednagar district, but it was combined effect of multiple Fare hikes during the period.

There was a continuous decrease in Load Factor (%) in the year 2011-12 and year 2012-13 in spite of Increase in Traffic earnings. It could be because of less no of schedules and less no of Kilometers operated as well as it indicates that Customers did not preferring MSRTC as a Transport operator.

There was a continuous increase in EPKM in year 2011-12 and year 2012-13 in spite of less no of schedules and less no of Kilometers operated. It was because of Increase in Traffic earnings as a result of Fare hike.

There was a continuous increase in CPKM in year 2011-12 and year 2012-13 in spite of less no of schedules and less no of Kilometers operated. It was because of Increase in Price of Fuel (Diesel) as well as spares, supplies required for operation purpose. There was also rise in the salary of employees during the period.

There was a continuous decrease in Margin per Kilometer or increase in the losses incurred by the MSRTC in Ahmednagar district in year 2011-12 and year 2012-13 in spite of Increased traffic earnings as well as EPKM. It was because of steep Increase in CPKM.

Recommendation

Use of Customer Service Technology in MSRTC

Provide Right Information to Right Passenger at Right Time: As the information around us becomes ever denser, access to high quality facts has gained increasing importance. Within MSRTC environments, effective provision and access to information shifts greater control to the customer. That in turn enables them to make informed decisions about their commute, helps them manage their time and experience.

Use of Information Technology in MSRTC'sTicket Management system

Source: Infostructure/Oliver Petrie

Figure 1: Fare dodgers could be automatically flagged without the hassle of everyone validating their tickets

The project entitled Forward Motion proposes a station environment where digital technologies are seamlessly integrated with the building fabric to enable an innovative mode of ticket validation for public transport users. It can be used at departure and arrival stations by MSRTC.

Described as the "shame security system," and comprising Radio (RFID), a multi-touch sensor system and LED lighting integrated within the flooring, the system detects a customer's presence, and automatically communicates with their RFID embedded ticket. Or it automatically red-flags those trying to evade paying their fare.

The efficiency of the system primarily lies in the sensor activated ticket validation eliminating the physical act of stamping, tapping or swiping a ticket.

Updating in real time for passengers of MSRTC

The mobile phone application designs demonstrate the convenience of access to location-based real time information. Not only does this information travel with you, but it can also be responsive to other context specific information as your environment changes.

The digital technologies featured here are in many cases already operational in small and large scale applications. RFID technology is used for public transport ticketing in London with the Oyster card, Hong Kong's Octopus system, and in San Francisco's Clipper cards. It's alsoused for facial recognition with biometric data integrated into passports and augmented reality information applications on many smart phones.

So these technologies are not new, but developments in how they are manufactured and their cost suggest new and innovative applications.

The challenges to change

The implementation of urban digital media design-based concepts within the public transport arena is both critically relevant and challenging as operational area of MSRTC is very large and customer base is very diverse.

Any changes to MSRTC transport networks have to be managed carefully. Their sheer scale and public nature means the system must remain operable, well maintained and managed. This is a key constraint to implementing new technologies.

While mobile phone applications circumvent some of the risk and cost constraints, coordination, management and quality of data content sourced from multiple stakeholders can also inhibit implementation.

In each of the scenarios mentioned above, consideration needs to be given to the varying cognitive and interactive capabilities of all users of MSRTC.

Designing a better travel experience for MSRTC passengers
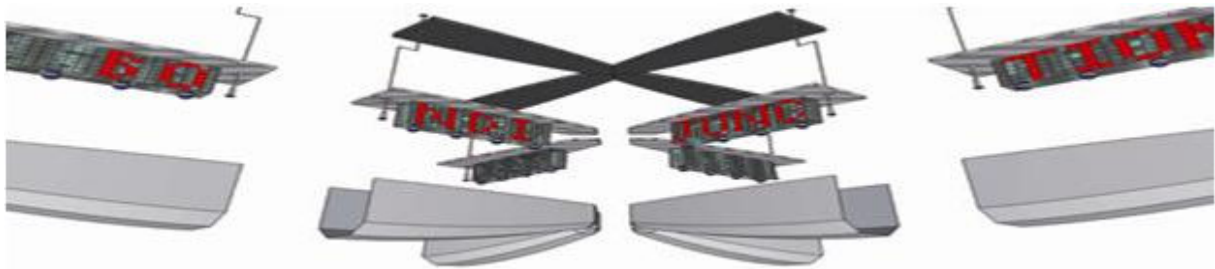
Source: Infostructure/Christian Moi

Figure 2: Bus Stations could become a Lot Smarter in the Future, and Help Guide You to Where You Need to Be

The integration of digital media technologies with broader design solutions for public transportenvironments provides opportunities to simultaneously address both operational and customer experience issues.The design of a Busstation – its architecture and the way it defines space, has the potential to operate "informationally." That means surfaces such as the wall, floor or ceiling have the possibility to both transmit and receive information. They can become responsive to the user, and therefore focused on the customer.

Satellite Automated Public System (SAPS) for transit systems

Allows public vehicles like buses to have a real time tracking with playback of previous routes, alerts of urgency, route building, estimated time of arrival to stops, speed, and many others that allow users and dispatchers to know what is happening in real time with the transit system.

Automated Passenger Information System (APIS)

The automated passenger information system provides riders the necessary tools to use the public service and plan ahead their time with the easy to use online route planner and estimated time of arrival of the public vehicles. MSRTC can use it very effectively.

Arrival Forecast system

With this system MSRTC can make the promise of mass transit a reality by informing passengers when their bus in route is due to arrival. These and other features ensure customer satisfaction by keeping passengers informed and in control of their own time.

Route Management & Analytic Reports

This system can manage fixed-route and variable route bus service, define and edit bus routes, fuel efficiency and analyze on-time performance.

Anti-Bunching System

This system would give MSRTC, total control over bus fleet routing system with Anti-Bunching System, reducing passengers' frustration and operating costs. MSRTC Host Mobile could provide In-Cabin Solution bringing the ultimate control over the public system operation.

Conclusion

Information and Computer technology leads to customer service technology which will identify needs, wants, desires and demands of customers more effectively and efficiently this is going to be helpful for organizations to attain customers. Providing better product, better process and better service will help to retain the customers. In long term Customer loyalty could be built successfully by organizations. MSRTC, definitely can fight with competition and retain their customers with the help of ICTand these ideas may not be too far away from becoming a reality. Improving the spatial and visual user information and computer technologies for public transport will start very soon. Stand by for your daily commute to get a lot smarter.

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