Computer Application in Road Transport Industry in India: Study on Truck History Card

*DR. PORAG KALITA

HEAD - Automobile Engineering Department,
Vocational Education (+2),
M R S Higher Secondary School, Govt. of Assam.
Titabor, Jorhat,
Assam, India- 785 630
Email:poragkalita@rediffmail.com

Abstract:- Due to the globalization impact, now days, everybody talks to resource mobilization in India and therefore, in terms of hard infrastructure development by road transport industries are providing satisfactory among the people and wining public confidence. In India, large road transports organizations have computerized in different areas of their operational to get better and faster information for the management control and reduce cost and to take care in volume of date. Therefore, Truck History Card is an important factor that affects the performance of Truck/Drivers, towards faster information. However, paper works in road transport is very high and it is very difficult to keep records of accomplishment of all important factors.

The Efficient road transports as well as individual mobility along with buses are necessary in an economic cycle of production, distribution and consumption. Common application areas by computer in road transports industries are:
1]. Statement of Consignment Notes (Sales),
2]. Statement of Lorry wise challan (purchase),
3]. Costing Statement,
4]. Party wise business statement,
5]. Outstanding Statement,
6]. Other MIS and misc reports etc.
Writers on transportation have forecast the future based on the continuation of presently existing and visible trends in technology, organization and physical management.
Keywords: Hard infrastructure, TOS, Truck History Card, Vehicle Ledger, Fuel Consumption, Vehicle Weight and Horse Power, vehicle Ledger, Intilligent vehicles and intelligent highway (IVHS).

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I.INTRODUCTION

Automobile plays an indispensable role in modern road transportation. However, most important contribution of the road transport in India, which in generating employment in population of fund deployed. As per study it was found hat that the direct employment is a high as 12:63 persons and from the investment angle , the road transport is ideal for a job in agriculture , 5000 in housing , 1900 n railways and 1700 in industry and the road transports its creates 10,400 jobs.

Therefore, efficient of transportation, which is improving its operations by means of computer application. Today, there is inflation all over the world, all cost is going up and through the prices of Software, and operations are going up every year.
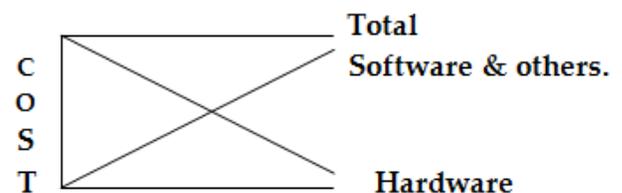

Fig: 1(a): Typical investment for computtresiation.

1.1. Trip operational Sheet:
Compurisied Trip Operatonal Sheet (TOS), the **Format of TOS:**
Trip operational statement No..........
Truck No...... Driver..... Date..... From.... To...

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From...        To...
Station Date Station Date Distance Days Idle Truck Cash
                                    Days hire    Rs.

                    Truck Hire
                    Advance
                    Total
                    Pay order Entries
                    Total
                    Remittance
                    Cash Records
                    Balance Amount
   Total            Payable


H.S.D.   Lubricants  Repairs & spares  Misc. Accessories

Bill No.    Bill No.     Bill No.      Bill No.
Date        Date         Date          Date
Cts Amt.    Spec. Amt.   Spec. Amt.    Spec. Amt.

Total Rs...  Total Rs...  Total Rs....  Total Rs....

Salary      Total Expenses
Details     Details           Amt.   Brief Report on Repairs
Amt.


            H.S.D...................................
            Lubricants.............................
            Accessories...........................
            Loading................................
            Fines...................................
            Commission..........................
            Govt. Charge........................
            Salary.................................

   Total             Total....................

Truck Documents   Reasons for delay-repairs, extra fuel
     Verify

R.C.Book        Tax Token................................
Goods Tax       Insurance...............................
T.P.G. Book     Permit...................................
Fitness         Log Book................................
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b) The distance between the stations,
c) The number of days taken for the journey,
d) The number of idle days,
e) Fuel consumption,
f) Lubricants consumption,
g) Repairs and spares,
h) Loading and Unloading,
i) Fines and expensese incurred during a journey,
j) Commission and general expenses,
k) Govt and Municipal Chagres and salay, etc.

These expenses are summarized and given in another column, called Total Expenese Column:

1. The total truck hire, against the each pay order, which is given in the Truck Hire Column.
2. The cash A/C column indicates the cash balance recoverable / payable.
3. Columns are provided for a short report on the repairs carried out during a trip and indicates the reasons for delay, repairs, consumption of extra fuel etc.

1.2. Tyre Records:

The cost of tyres has ncreased enoumously in recent years and has become a major cost factor. It is therefore essential to maintain a computerized record of the tyres that are fitted to a vehicle and a better selection of tyres may be made. The following format of the tyre records:

Tyre Records:

Truck No.						Make
Tyre Number	Make	Cost	Date Fitted on Vehicles	Position	Mileage when Finally Removed	Remarks

1.3. Vehicle Ledger:

The computerized data that are available from the TOS are posted in a Ledger called vehicle Ledger. The trip is indicated by means of the Trip Number, which is the TOS Number. Additional columns are provided for gross profit before vehcle tax, epreciation and tyre cost. The balance of cash available at the end of each trip is given in the last column. Format of the Vehicle Ledger is given below:

Salient features of the the following:
i) TOS Number will alternatively be the Trip Number.
ii) More detailed datas are indicated as to:
a) The dispatching and destination points,

Vehicle Operational Staement:

Truck No.......   driver's Name..............

Trip No..........

Distance

From.............................

To.............................   **Date**

Running Day....................

Idle day..........................   **Duration**

Qty..............................   **Diesel**

Amount.............................

Major.............................

Minor.............................   **Repairs.**

Misc. ace.............................

Loading/unloading...

Fines& Dly expenses...

Commission & Govt.

Expenses...

Salary...

Municipal Charge...

Total Charge...

Total Lorry hire...

Gross Profit...

Tax Paid...

Balance...

Truck No	Jan	Feb	Mar	Ap	May	Ju	Ju	Au	Sep	Oct	Nov	Dec
Type												
Driver												
Card No.												
Ledger Folio												
Cleaner												
Tax												

Date...............................

Mileage.............................   **Fitness Valid**

Oil Change........................

Accidnt............................

Exchange............................

Head...............................

Piston.............................

Crank Shaft........................   **Engine**

Fuel Pump.........................

Nozzle.............................   **Insurance**

Accessories........................

Exxchange.........................

Mainshaft..........................   **Gear box**

Bearing............................

Clutch.............................

Wheel alignment...................

Front Axle.........................

Rear spring.........................   **R.C.Book**

Diffential.........................

Rear axle..........................

Crown..............................

Front Tube.........................

Rear Tube..........................

Wheels.............................

Propeller Shaft....................   **G.P.Book**

Breake Lever.......................

Steering...........................

Electrical.........................

Front Tyres........................

Rear Tyres.........................

Battery............................   **T.P.G.Book**

Other Minor Repairs.............

Other Major Repairs.............

Hub Grease ....

Rs............. Ps....................

2. Literature Review:

In India, normally five type's trucks are used for the transportation. The type of body i.e. platform is 4"from the ground and half body and Punjab /Agra body is $3\frac{1}{2}$ " from the ground to top of the rear wheel.

For example, Telco 1612 (Heavy Diesel vehicle) , have maximum gross vehicle weight 16 toone and horse power is in between 120 to 130 PS (perfect stake). However, for the bigger profit road transport industry have been loaded up to 30 tonne and as a result, engine breakdown , body noise on highway and tyre wearing etc. and directly and indirectly may problem towards warranty procedure. In this connection, due to delay delivery of consignment of goods is the biggest questions, now a day.

Because, Truck History Card is that the performance of a truck during a period needs evaluation so that the management may be able to decide whether to keep or scrap

TRUCK HISTORY CARD
Running Mileage per month

vehicle. Over and above the general information on mileage/month, tax paid and documents required. Truck History Card gives detailed information on the repairs that carried out to the vehicle and the amount involved in the major repairs are posted in the vehicle ledger.

View for going, experimental was completed and a complaint has been recorded that "Engine Oil was mixing in Radiator Water", due to vehicle overload within the warranty period, the following observation:

2.1. Complaint Reported: "Engine Oil was mixing in Radiator Water".
2.2. Owner's Name: M/S B N Automobiles.
2.3.Engine No: 697 DI 21 B VQ 1 03705.
2.4.Chassis No: 357 SP 21 F VQ 7 43876.
2.5.Vehicle Registration No: AS O3A/1234
2.6.Iteam Checked:

2.6.1. Cooling System.
Water level of the Fen belt tension was found OK.

2.6.2.Thermostat (Wax Type):
Thermostat checked in between opening temperature around 80° to 95° c and found OK.

2.6.3.Assy. Plate Type Heat Exchanger:
Found internal leakage (marked with white paint). Due to leakage of heat exchanger , engine oil mixed with radiator water, No. 2534 1817 01 05 , make not visible except V5/94 , tightened torque for heat exchanger is 25 mkg., Found OK.

2.6.4.Gasket:
Found OK and re-used same.

2.6.5.Cylinder head bolt:
Found tighten within with in specific limit.

2.6.6.Corrective Action Taken:
Fitted the New Heat Exchanger and tested and found OK.

Therefore, the rapid growth of overloading, the computer data basis Truck History Card may problem towards Monthly Opertional Statement, which is required for the Board of Directors Metting in every month.

3. Methodology:

The size of an organization of a transport company naturally depends upon the volume of traffic and the scale of its operation such as network of its branch and its fleet strangth. Common application (Computer) areas in Road Transports industry, the following:

3.6. Statement of Consignment Notes (Sales):
This gives the statement would ready information about each sale giving details such as customer name, value of business and shows the originating as well as terminating city.

3.7. Statement of Lorry –wise challan (Purchase):
This gives the details of Loories hired with amount, to be paid out to the lorry Owners and lists out towards consignment notes that have gone along with Lorry and shows the originating and terminating city.

3.8. Costing Sttement:

This statement is prepared Lorry wise to find out profit from each trip. All sales and rebates are picked up from consignment notes and expenses from the challan.
This statement has to prepare in the following additional sequence:
1. Customer wise.
2. City wise – To highlight profitable routes.
3. Lorry owner wise- To highlight source of Lorries which are more reliable and profitable, etc.

3.9. Party Wise Business Statement:
This helps to bring to management's attention of any party, where the business has been started falling, Business in current month, year-to-date and business in previous year could be printed Profit from the each customer could be caopared.

3.10. Outstading statement:
This show all outstading invoices and management's attention focusing on large outstadings and old outstadings, which is possible to reduce the same substantially. In one organization outstading was reduced by 10%, within one year of implementation of this system and therefore, saving interest giving an oppprtunity to expand the business due to availability of funds.

3.11. Other MIS and misc reports:
Some of the other information that can be available to the management to take corrective operations and profitability's are:
i) Missing serial number of consignment notes and challan.
ii) Destination wise pending Lorry hire challan.
iii) Destination wise outstading list of consignment notes.
iv) Station to station costs for full load time of the journey, etc.

4. Result & Discussion:

Movement of vehicles means, this gives the details of Lorries hired with amount to be paid out to the lorry owner. It lists will out all the consignment notes towards lorry and shows the organiting and terminating city.

Movements of Goods are consists by following:
1. All goods consignment notes have to be sorted out by code wise, serial wise and destination wise.
2. Insert and extra copy of white paper for sending intination to the branch concerned.
3. Records details of the trucks:
4. Engine Number, c) Chassis Number,
5. Owners Address. d) Driving Licence Number,
6. Send the HQ copy of MF to Head Office and dispatch memo. To the respective branch concerned. Etc.

Cost per Trip is more important for the transport company and vehicle owner.

For the purpose of record, control and followup , booking should be entered in a register in serial order and the volume of booking at a particular booking station is recorded in this register is called the Booking Register.

Loading sheet is an important document for the transport company and the following factors are usually taken into consideration:

i) Volume of space available,
ii) Nature and volume of goods,
iii) Adjustment in the position of the goods loaded,
iv) Destination, etc**.**

Load of consignment is consisting by:
i) Goods that may be delivered on the way.
ii) Goods that may not be delivered at destination.
iii) Goods that may not have crossing and have to be delivered at destination.
iv) Goods that may have crossing or transshipment at destination, etc.

The rise in civilization in India, is closely related to improvement is transportation system and in June 1999 , the honorable supreme court of India, ruled that vehicular emission had to be reduced at a much quicker pace than planned so far. Therefore, as the Indian emission legislation corresponds to European regulation and it is worth looking into limits planned for Europe in future. Therefore, recent developments, vehicle and computer technologies are merging to provide consumers with PC functionality as Intelligent Transport System (ITS), special reference to India

Although the commercial vehicle market has been an early adopter of many IV technologies, Rillings said that Toyota is the worldwide leader among automotive OEMs. In Europe BMW closed behind. He said GM is the U.S. Leader. IV stems are being introduced where consumer demand exist and usually on upscale models for which the costs of the systems can be easily justified.

1. **Basic Vehicle :**
   (a) Comfort and convenience,
   (b) Power train control,
   (c) Energy management,
   (d) Lighting control, etc.
2. **Safety and Security:**
- Collision warning/avoidance,
- Location specific alert and warning,
- Obstacle/pedestrian detection etc.

3. **Information and entertainment :**
- Navigation and route guidance,
- Real time information,
- Communication,
- Stored onboard information database, etc.

5. Type of Data: (Intilligient Vehicle Technology)

Delphi Automtive Systems is developing a family of collision-avoid-ance systems that includes adaptive cruise control (ACC), collision warming, and collision intervention. The systems are designed to help prevent vehicle crashes through the combination of object detection sensors and automatic control of brakes, throttle, steering and suspension. They are meant to help drivers avoid crashes by detecting impending collisions or unsafe driving conditions, asses the threat and issue mechanical, visual and audio warings and assist the driver during potential crash situations and the following collision Warning Systems:

1. Forward – Looking Rader Detection:

\# improves highway Safety by reducing the risk of forward collisions.
\# aligns with highway safety by reducing the risk of forward collisions.
\# Systems uses a 76 – GHz microwave rader sensor to detect objects up to 150 m in front of vehicle regardless of speed.
\# If the driver does not respond to visual warnings , a warining is issued through he audio system – the system can also be programmed to pulse the brakes or vibrates seats or combination to provide additional tactile feedback to driver. Etc.

2. Side-Detection Stsyem:

\# improves driver awreness of vehicles travelling in blind spots.
\# discriminates target reports of valid concerns only.
\# Automaic operation when vehicle is moving. Etc.

3. Rear – side – up Aid system:

\# Assaists in parking situations.
\# provide warnings to prevent backing accidents. Etc.

6. Conclusion:

From the application of Computer in Road Transport industry in India, the following factors that affect the performance of Truck Driver towards the Truck History Card , because economic transpotaion of goods and the perfect management of vehicles is necessary .

a) Working Hours of Drivers:

The longer the working hours, the less vigilant and efficient the driver would be. Because he would be tired, as a result in an accident or damage to the vehicle or cargo carried in it.

b) Rash Driving:

Some drivers tend to drive very fast – a fact which increases the consumption of fuel and the possibility of an accident or damage to the vehicle.

c) Distance:

The distance that a truck can travel depends on:

- The Driver
- The condition of vehicle,
- The condition of the road,
- The time taken for loading/unloading ,
- Detention at checpost,
- Breakdowns,
- Weather and
- Other allied factors. Etc.

d) Tyres: The life of tyres depend on:

- The quality of tyres,
- The maintenance of the tyres,
- The condition ofvthe truck and road,
- The driver, etc.
-

e) Recods:

- For the proper management of vehicle, certain basic information by computer, this made available from the records that are maintained in the office. A few of these records are;

1. Log Book,
2. Trip Opertaionl Sheet,
3. Truck History Card,
4. Vehicle Ledger,
5. Tyre records, etc.

f) Half Yearly Report :

A half yearly report of all vehicles on the distance covered in six months and the profits made during the period and total reparing charges paid is submitted to the management to enable it to review the utility of each vehicle.

g) Scheduling of Routes:

To ensure optimum fleet operation, it is necessary to plan the movement of trucks on each route. A model scheduling of a route A to J covering a distance of about 2000 kms is given below:

Route   A to J

Distance: 2000 kms.

Stations: A B C D E F G H I J

The repair are carried out at E, Fuel, too is fille in at E. etc.

From the above discussion, Multi-Model Transportaion companies will come into existence as against rail-road, truck, air and water. Many parties will be working together to achieve mre effective application of vehicle emission control technology to reduce the release of toxic chemical into the environment due to tranportaion activities and address comprehensively issue related to global climate change and environment dedgradation

with the growing energy constraints, there will be continuous attempts to identify more fuel efficient tranportaion   alternative. Intilligent vehicles and intelligent highway (IVHS) can alleviate congestion on streets and highways using automated traffic real-time conditions.

Today, there is inflation all over the world and all costs going up everyear and in this regard, computer help in faster reterival of screned information and decision to right moment. General purpose of software for Transport Company that at the present readymade packaged of software is not available and each company have to develop their own software i.e. word pocessng pakage, speed sheet and Data base management system etc.

7. Acknowledgements:

8.   BIOGRAPHIES

The author as Engineering Graduate, MBA along with Ph.D. in Automobile Engineering from International University, Washington, USA/2001 and Published numbers of research paper/projects completed.

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