

DATA ANALYSIS & FINDINGS

Difference in haulage across distance and seasons

- A final comparative for difference in haulage across distance and seasons is plotted to clearly see an **emerging pattern** out of the business model of the firms, information and infrastructure available in the market which **governs the outreach** of the trucks
- FH trips FTL trips are in the range of 0-350 Km. and consistent across seasons, for HTL trips the distance range is 300-900Km. with increase from September onwards while only handful trips are part of LTL at distance range above 1200 Km.
- The BH trips plot depicts a different scenario with most FTL BH trips concentrated in the distance range of 550-900Km. and HTL BH trips fall in 0-450 Km. range.

Month-end Skews in Freight Movement



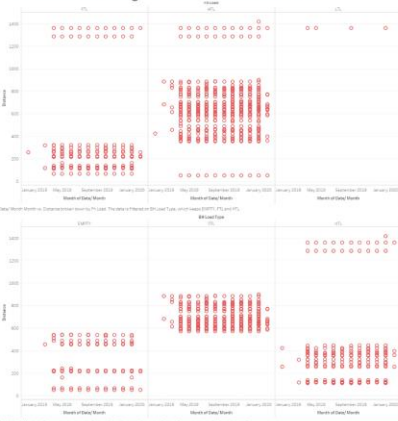
Freight Operator Response to Different Issues

Issues	Good	Avg	Bad
Road network	19	48	33
Traffic management	24	35	41
Warehouse facilities	4	40	56
Terminal area facilities	2	34	64
Booking office facilities	6	41	53
Fuel/ service facilities	30	49	21
Restaurant/ accommodation facility	20	56	24
Wayside amenities	12	27	62
Security of loaded trucks	24	50	26
Lay over time b/w trips	48	45	7
Loading/ unloading time	17	71	13
Parking spaces condition	5	52	43

Load Type Trip Share in FH for Truck Firms



Difference in Haulage Across Distance and Time



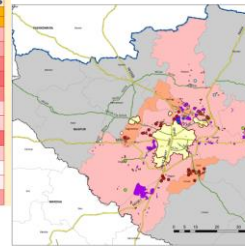
Multinomial Regression Analysis

- Thus, to estimate a best fit model using **multinomial regression analysis** is done to find the impact firms **operational parameter** and **fleet size** have on the **average turnaround times** (as the turnaround time is an important indicator for BH-FTL and BH-EMPTY trips) of trucks
- The objective of the study is to understand the impact of distance on haulage pattern hence, the most important efficiency hampering BH-EMPTY trips is assessed for the same in the following process.
- Thus, to estimate a best fit model using **multinomial regression analysis** is done to find the impact firms **operational parameter** and **market coverage** have on the BH-EMPTY trips of trucks

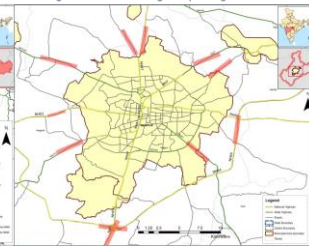
Revenue Loss Calculation Due to BH-EMPTY Trips

Transporter Firms	A	B	C	D	E
FH -FTL Trips	1438	153	457	1424	348
FH-HTL Trips	2266	1917	276	4874	898
BH-EMPTY Trips	1258	123	117	607	214
BH-FTL Trips	1038	1109	117	3349	571
BH-HTL Trips	1438	838	499	2342	462
Revenue % Lost due to BH-EMPTY trip	34.0	5.9	16.0	9.6	17.2

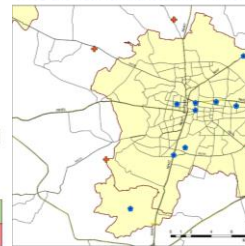
1. Minerals and Industries location in N.M.A.



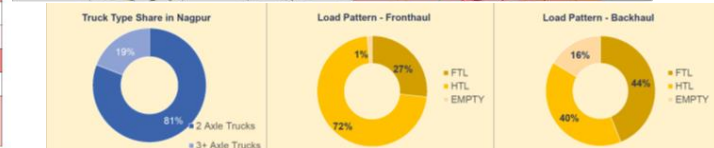
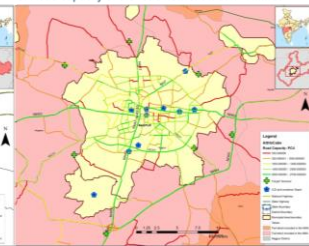
2. Unorganized truck waiting and parking zones – N.M.C.



3. ICD and Truck Terminal locations – N.M.C.



5. Road capacity of the road network within– N.M.C.



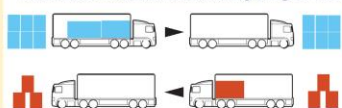
RECOMMENDATIONS

Current Scenario

- Priority given to the outbound delivery service
- Unreliability of collection and delivery options
- Inadequate knowledge of available loads
- Lack of coordination between departments
- Incompatibility of vehicles and commodities
- Resource constraints

Issues

- Majority of trucking firms' are small in terms of fleet size with **only up to 5 trucks constituting 75%** of the ownership situation
- Inefficient utilization** of trucks leading to **higher costs**



Solution

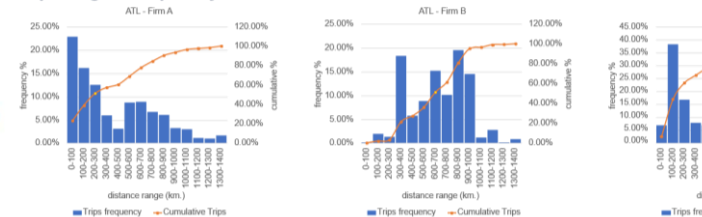
- Truck sharing will lead to larger amount of **information and load availability** in the market
- Standardization and monitoring** of freight practices and flow by a central authority on an **open unified platform** is the need of the industry in future



Recommendations

STRATEGIC	OPERATIONAL	TACTICAL
Implications for freight planning – Data capture at hubs and corridor	Vehicle condition regulation	Dispatch on off-peak days
Minimise observed impediments to back loading of trucks and efficient utilization of truck capacity	Low asset utilization rates to be improved	Route based cost standardisation
Understanding space / time relationships in truck haulage pattern	Externalities and regularity in costs	Pricing power (minimise losses for small firms)
Low levels of re-investment leading to TRUCK SHARING	Technology adaptation within the trucking industry	

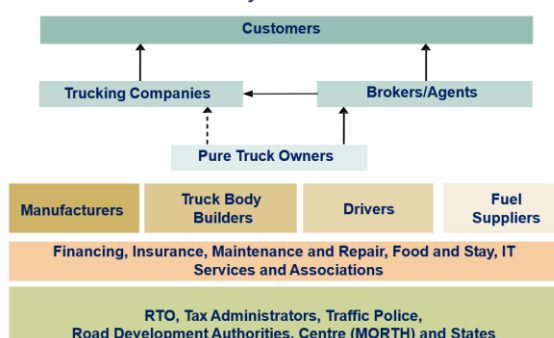
Trip Length Frequency Distribution



Load Type Trip Share in FH for Truck Firms

Load Type Trip Share in BH for Truck Firms

Truck Industry Structure - India



Why Nagpur ?

