



Confederation of Indian Industry

Competitiveness through Efficient Logistics

A progressive approach to help simplify logistics for service providers

KPMG IN INDIA

Foreword from KPMG in India

In India, a reduction of logistics costs by 1 percent of GDP translates to savings of over USD 7.5 billion dollars¹. The Indian Government, having realized this potential, has developed policies and is in the process of setting up infrastructure to introduce efficiencies in rail, road, water and air transport sectors. It is only imperative that the private sector enhances its capabilities to effectively compete in an increasingly exciting market by (a) gaining maximum mileage out of the government initiatives and (b) increasing its own efficiency levels.

In this paper, KPMG's Advisory Services has focused on approaches that can help drive greater efficiency in operations. Based on our international as well as domestic experience in the logistics sector, we have put together a few relevant methodologies that illustrate how such efficiencies can be achieved among service providers, through indicative case studies. We hope the paper assists you in your endeavor to push the boundaries of competitiveness.



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¹ Riding the Indian Tiger – Understanding India, the World's fastest growing market by William Nobrega and Ashish Sinha

Foreword from Mr. N. Kumar, Chairman, National Logistics Council

The growth of Indian Industry has been quite significant and even during the crisis it has maintained its growth. The logistics sector is a key driver of India's competitiveness.

The CII Institute of Logistics (CIL) continues to play a catalytic role in logistics policy, infrastructure and promotion of best practices in Industry. CIL does this through Seminars and promotes the sharing of best practices among industry players.

This publication relates to cost and service delivery in logistics using illustrations.

We are confident that this will help Industry.



[N. Kumar](#)

Past President, CII and
Chairman, CII National Logistics Council

Foreword from Co-Chairman, Logistics Summit 2009

The growing Indian economy and the receding global slowdown have brought the focus back to the drivers and barriers of growth in the Indian economy. Logistics services, with their high GDP contribution, are back in focus as competition intensifies among manufacturers just as much as it has among retailers. As logistics is a key cost element in these sectors, all aspects of the logistics business need to be examined for opportunities to improve efficiencies.

Log 09, the Logistics Summit by the CII Institute of Logistics, seeks to address the issue of Building Competitiveness through Efficient Logistics in the public and private sectors. In the public sector, the Summit addresses issues of policy and infrastructure, and in the private sector it sheds light on strategies, best practices and innovations.

This publication, in particular, illustrates some effective methodologies to improve efficiencies in logistics operations, thereby increasing the competitiveness of service providers.



B. Sridhar
Co-Chairman,
Logistics Summit 2009

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Executive Summary



We, at KPMG in India, come with a professional understanding of the logistics sector in India and the globe. In addition, our experience with logistics service providers in India has also given us an expansive view of the operational issues faced by service providers.

While India's formidable growth is widely accepted, the logistics sector with its policies, infrastructure and inefficiencies are one of the many caveats that accompany this great story. On further examination, we find that many measures have been taken by the Indian government to make this sector competitive – opening up ports, rail freight, highway development – with policies and governing bodies to help ensure their enforcement and setting up of public infrastructure. The effects of these steps are becoming evident slowly, with the near completion of the Golden Quadrilateral, commissioning of dedicated freight corridors, setting up multimodal logistics parks and free trade warehousing zones. Many more measures will need to be taken to make India a competitive and efficient logistics market.

The other major stakeholders contributing to the current stature of this sector are the logistics service providers. The burgeoning nature of trade, manufacturing and consumption in India poses a significant challenge to setting up, managing and executing efficient, bottom-line friendly logistics operations. The sector is mired in complexities and is in need of solutions that would bring in order, simplicity and hence efficiencies and profitability, that last.

In this document, we attempt to address a few of these complexities and provide methodologies that can simplify them into manageable parts that bring in substantial savings. The methodologies covered are:

- 1 Integrated Logistics Solutions to Help Create Efficiency
- 2 Efficiency through Route Optimization for Hub and Spoke models
- 3 Milk Run and Line Haul Route Optimization for Road Transportation
- 4 Efficient Benchmarking and Optimal Resource Deployment in Logistics Operations

Logistics service providers can potentially benefit greatly from these and many other solutions, and propel themselves into the global league of efficient, effective, customer centric and profitable businesses.

Introduction



Logistics costs contribute to 13 percent of Indian GDP, while they contribute to only about 8 percent in developed countries.² A reduction of logistics costs by 1 percent of GDP translates to savings of over USD 7.5 billion dollars¹. While this is an indication of the level of inefficiencies in the logistics sector in India, investments to the tune of USD 1 trillion² are in the pipeline for the logistics sector in India covering rail, road, ports, airlines, logistics service providers, warehouses and warehousing zones. The size of the booming distribution and logistics market is expected to exceed USD 125 billion by 2010². Policies and government regulations to improve the public infrastructure are being instituted and implemented with varying degrees of success, but with the overall effect of improving the efficiency of the logistics sector.

Policies Impacting Competitiveness

The logistics sector could benefit greatly, in efficiency and hence competitiveness, with integration and rationalization of policies governing this sector. Currently logistics is being handled by multiple Ministries at the center – Railway, Surface transport, Ports.

In the ports sector, a unifying regulatory/ policy regime for ports in the country can go a long way in integrated ports policy and governance. Currently, there are pockets of jurisdictions with diverging interests. State government policies vary from state to state, with Gujarat, Andhra and Orissa being progressive. A unifying regime could also lead to rationalized investment in ports.

In railways, while there has been liberalization to the extent that some licenses have been awarded for private players, it needs to be examined whether this is sufficient for private players to generate scale or be competitive enough to compete with India Railways. Given the focus and high level of subsidization of passenger transport on railways, policies that envision creation of redundant rail networks for freight and passenger transport need to be actively looked into.

² Riding the Indian Tiger – Understanding India, the World's fastest growing market by William Nobrega and Ashish Sinha

Logistics Infrastructure in the Public Domain

Sixty two percent of the freight in India is carried on roads³. The vision for development of Road infrastructure in India has been well conceived and is in the process of being implemented. Nevertheless, there are multiple hurdles and roadblocks in project execution, implementation and co-ordination with state highways.

The Golden Quadrilateral, phase I of National Highway Development Program (NHDP), is about 93 percent complete³. The progress of the remaining phases by National Highways Authority of India (NHAI) has currently been in small segments, with bidders not having enough scale to improve project efficiencies. In addition, some bidders have been disqualified by NHAI for non-performance,³ leading to slow development of road infrastructure. The quality of infrastructure provided by state highway departments does not compare well to the national highway infrastructure.

Table 1: Status of NHDP projects

	Unit	GQ	Port connectivity	Others	Phase I	Phase II	Phase III	Phase V	Total
Total Length	Km	5846	380	952	7188	7274*	12109	6500	33071
Completed till date	Km	5721	206	781	6708	3399	787	102	10996
Completion rate as a % of total	%	97.9	54.2	81.2	93.3	46.7	6.5	1.6	33.2
Under Implementation (UI)	Km	125	168	161	454	3032	1878	928	6292
UI as a % of total	%	2.1	44.2	16.7	6.3	41.7	15.5	14.3	19.0
Balance length for award (BFA)	Km	0	6	20	26	843**	9444	5470	15783
BFA as a percentage of total	%	0.0	1.6	2.1	0.4	11.6	78.0	84.2	47.7
Cost incurred so far	Rs. Billion	287	72		359	288	84	13	744

* Actual length is 7274 kms (excluding 442 km of common length with GQ). The original approved length of NSEW corridor is 7300 km

** Includes 53 km terminated in 2008

Source: National Highways Authority of India (NHAI), (Credit Rating and Information Services of India Limited) CRISIL Research

3 CRISIL research on Indian Roads July 2009

Inland Container Depots (ICDs) have been developing at a fast pace but railway connectivity to these ICDs has not kept up the same rate. There is also a need for development of dedicated freight corridors within and across state boundaries and providing last mile connectivity and rail infrastructure development for regions that are unconnected or projects that have not been cleared.

As far as infrastructure in ports goes, there is a need for more terminals across major ports to increase capacity utilization. Efficiency improvement with modern and automated equipment and better infrastructure to enable better evacuation of cargo, improve ability to dock bigger vessels, etc. so that the landed cost of cargo is minimal are all potential areas of improvement.

Logistics in the Private Sector

Along the same lines, it is imperative that logistics service providers improve their efficiencies through new initiatives, processes and monitoring systems to maximize their competitiveness in an increasingly exciting market.

Need of the hour for Third Party Logistics

The third party logistics market is still in its nascent stages in India, facing issues such as lack of infrastructure (viz, warehouses and cold storage chains), lack of economies of scale due to unorganized private truck operators, and lack of efficient processes and automated, technologically advanced monitoring systems.

Building Competitiveness through Efficient Logistics



While the issues related to policies and public infrastructure in the Logistics Sector are being addressed by government and other agencies, this paper addresses the main issues of achieving competitiveness among Indian logistics service providers by improving the efficiency of operations.

Logistics services consist of a variety of operations – inbound logistics, outbound logistics, material handling, warehousing etc. Some of the key features of these operations are:

- They involve multiple parties, especially in case of 3PL service providers, requiring capabilities in contracting, vendor management, scheduling, coordination, monitoring and sharing of information
- Transportation being one of the major components of logistics, automatically gives rise to a host of related issues, such as, route planning, scheduling, vehicle placement, transit adherence, addressing damage/ loss, etc.
- Warehousing requires planning of resources, assets, processes, and accurate demand forecasting supported by scalable infrastructure to be profitable
- It involves handling of disparate loads across different regions/ sectors calling for meticulous planning of vehicles, modes of transport, process compliance and service quality adherence
- Many of the operations are manpower intensive, and hence planning for manpower – temporary and permanent – is a critical element in addressing efficient logistics
- Given the complexities by way of volumes, scale, and geographic spread of operations of logistic service providers, any process implementation is a challenge and needs to be backed up by appropriate information and monitoring systems. Scientific tools need to be used extensively to aid data-based decision making involving large volumes of data.

This whitepaper attempts to address a small cross section of the issues mentioned above. It analyzes factors that impact efficiencies in these areas and suggests strategies and initiatives that can help streamline these efficiencies, reduce costs and increase the competitiveness of logistics service providers.

The rest of this document deals with a set of methodologies that have been designed to address efficiencies in logistics, as listed below:

- 1 Integrated Logistics Solutions to Create Efficiency
- 2 Efficiency through Route Optimization for Hub and Spoke models
- 3 Milk Run and Line Haul Route Optimization for Road Transportation
- 4 Efficient Benchmarking and Optimal Resource Deployment in Logistics Operations



Integrated Logistics Solutions to Help Create Efficiency

The Company

ABC Logistics is a part of the multi billion dollar XYZ Group, one of the largest business groups in India. Today, ABC Logistics is one of the front-runners in the container rail operator space ever since the industry was opened up for private participation in 2006-07. ABC Logistics offers comprehensive end to end logistics solutions for handling a wide range of cargo including containers, break bulk dry and liquid cargo, perishables and project cargo, in the form of full train load, full container load and less than container load. This case study captures the transition of ABC Logistics from road logistics to rail logistics operation to improve efficiency.

The Operations

ABC Logistics operates container trains on the NCR – Mundra route and utilizes its Inland Container Depot in Gurgaon as the terminal for handling these volumes. These volumes comprise export / domestic outbound cargo generated in Gurgaon and import / inbound domestic traffic for this region.

The Context

Rail transportation cost is on an average 25 percent less than that of road over long distances. However, despite the total cost advantage of rail transportation over that of road, the conversion so far from road to rail has been poor.

Consider the case of a cargo weighing 15 tonnes. The cargo needs to be transported from the factory to the closest Inland Container Depot (ICD) located at a distance of 30 km. From here the cargo needs to be transported to a port located at a distance of 1400 km from the ICD. On analysing, we observe that the cost of transporting this cargo using rail transport is cheaper than that of road by about 25 percent, for this distance.

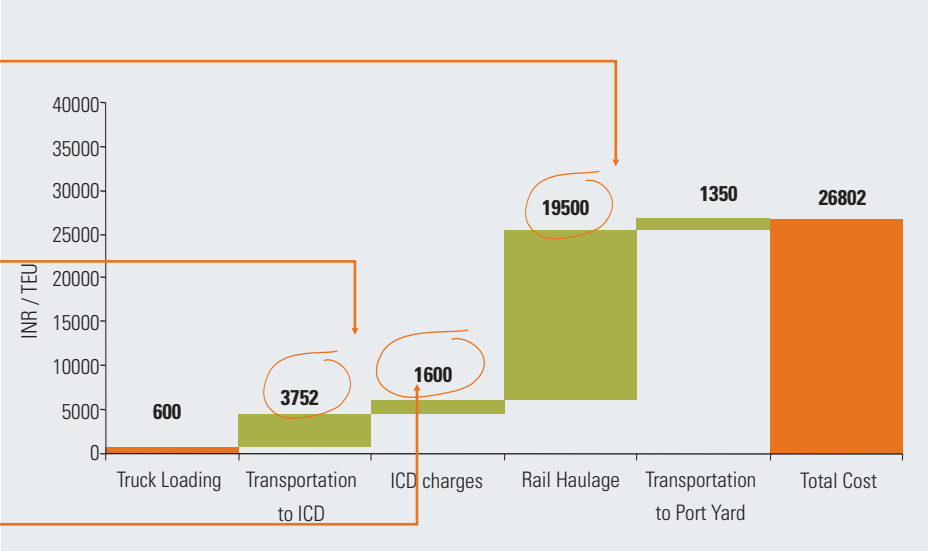
Until recently, the fast growing Export Import (EXIM) container trade had only one player providing rail transportation of its containers. The existence of only one player in a fast growing market resulted in the rail container services market being a supplier-driven market. This in turn led to a situation where the cost advantage of rail movement was not fully leveraged.

Rail Transportation Cost

No discounts assumed-often, 'in-kind' incentives are provided for traffic volume guarantees, exclusive carrier status, guaranteed slot availability in any rake, etc.

Accounting for maximum possible discount of 10% (provided by the facility operator)

Accounting for a cash discount of INR 200, based on guaranteed share of traffic and exclusive carrier status. Discounts are often in the range of 9% for large traffic commitments

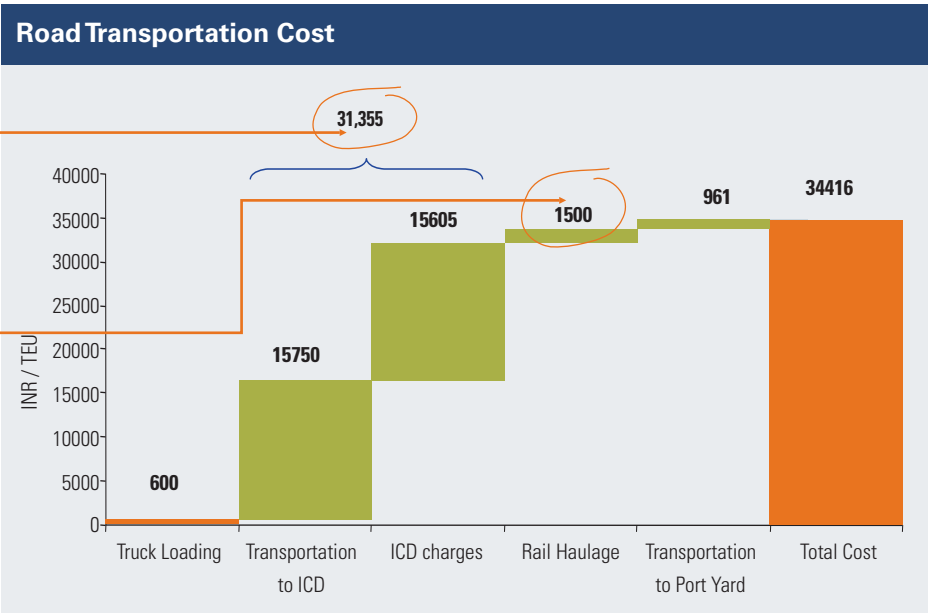


Source: KPMG in India's Competitiveness through Efficient Logistics 2009

Road Transportation Cost

Accounting for a 10% discount in fixed trucking costs. Trucking charges are quoted as a single cost; discounts are given for a guaranteed share of traffic and exclusive carrier status, and the quantum is typically 10% of the total road transportation cost for large traffic commitments

Accounting for a discount of INR 200. Port-side CFS charges are lower than ICD charges and discounts are small due to high demand for facilities



Source: KPMG in India's Competitiveness through Efficient Logistics 2009

Strategy for logistics efficiency improvement

ABC Logistics leveraged its strategic advantages at the Mundra port and its vision for its Logistics business and arrived at an Integrated Logistics Solution to improve logistics efficiency. The following were the steps taken towards this end:

1. Conversion of road traffic to rail traffic:

- Setting up of ICD at a location where consolidation of all cargo to and from Gurgaon is required
- Acquire adequate volumes by acquiring business of large passenger car manufacturer in the area. Cars that were being moved by road to Mumbai are now using the ICD/ rail route for transportation to Mundra port. The passenger car company accounts for 6,000-7,000 TEUs of ABC Logistics' ICD's volumes
- Implementing the required infrastructure changes to enable double stacking (and hence lesser per unit costs) on the Mundra route enabled ABC Logistics to leverage cost efficiencies and pass them on to the customer

2. Leverage strategic advantage/ partnership at port

- ABC logistics has tied up with Mundra port, where a dedicated Ro-Ro container terminal is planned to be constructed for car traffic that is carried from the ICD to the port

Key takeaways

Key levers which enabled ABC Logistics to offer this solution

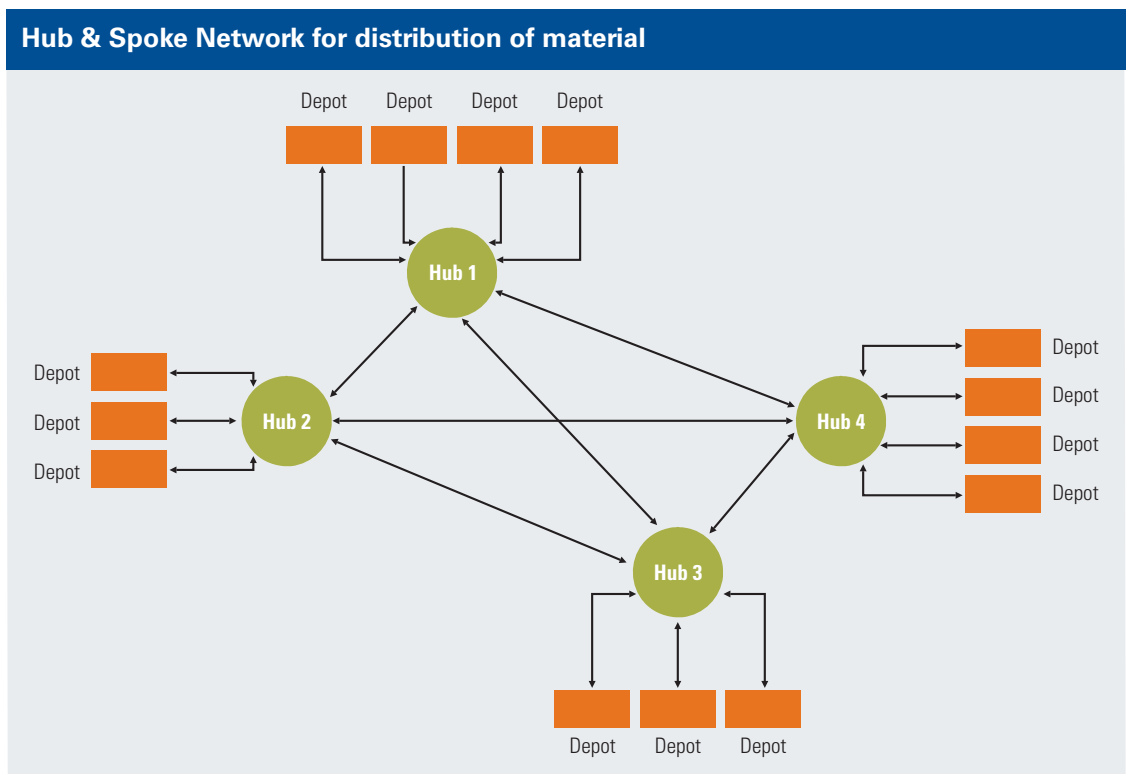
- Cost Efficiencies: Reduction in cost of transportation that could potentially be as high as 25 percent compared to transportation by road for the same route.
- Service Differentiation: ABC Logistics' ability to offer an end-to-end solution by leveraging its strategic advantages at the Mundra port terminal to setting up an ICD has vastly improved the quality of logistics service delivered to its customer and hence resulted in an increase in customer satisfaction
- Policy: Enabling policy which opened up the container rail space to competition which in turn has led to innovation, greater competitiveness and efficiencies in operations enabled ABC Logistics to convert road volumes to rail reducing overall system costs of logistics

Efficiency through Route Optimization for Hub and Spoke models

The Hub and Spoke model of Logistics is unique in its ability to deliver efficiencies and in its propensity to build in inefficiencies. Addressing these inefficiencies enables logistics service providers to gain the competitive advantage that should ideally accrue on using the hub and spoke model for logistics.

The Context

Let us consider the case of a logistics service provider in India handling several thousand MT of load per day across India following a Hub & Spoke Model for Distribution consisting of Hubs and Depots.



Source: KPMG in India's Competitiveness through Efficient Logistics 2009

The operations staff picks material from customer and brings it to operating unit, where the load is consolidated and sent to the attached hub in the evening. Material reaches hub from different operating units, and is segregated and sent to different hubs the same night. The delivery hub receives the material and sends it to operating unit for delivery by the operations staff.

Multi-mode model followed for distribution using Road & Rail. Also multi-capacity vehicle could be used for distribution and hence choice of right time of vehicle is critical.

Challenges to Improving Efficiencies in a Hub and Spoke Model

The hub and spoke model needs to address a unique set of challenges effectively in order for it to deliver efficiencies. These include:

Internal Factors

- High load imbalance between different hubs
- An optimal network design which helped optimize cost and service level
- High waiting time at hubs due to process inefficiencies
- Load Seasonality
- Choice of Optimal modal mix
- Optimal choice of vehicle type to be used
- Further connectivity from Hub to depots was critical in deciding a feasible route option
- The prevailing vendor rates varied between hubs
- Lack of a route optimization tools:
 - led to a mix of centralized and de-centralized mechanisms of designing new routes
 - Routes were designed based on individual hub requirements instead of an objective mechanism to evaluate possible alternate routes

External factors

- Different statutory requirements in different states such as Transit pass, octroi
- No-entry restrictions prevailing in some key cities
- High waiting time at inter-state check posts
- Lack of adequate road infrastructure – resulting in varying speed of vehicles in different sectors



Objective

To achieve cost and service delivery efficiencies through the design of an optimal routing model, given the high degree of complexity in distribution and high service level commitments to be met. These can be broken down to the following metrics:

Cost Optimization Metrics

- Reduce cost per km per kg
- Reduced Cost
- Reduce load imbalance

Service Delivery Metrics

- Ensure less number of touch points between locations
- Provide option with users to select between different route options based on feasibility and impact of external factors
- Maintain the service level commitment to customers

Model

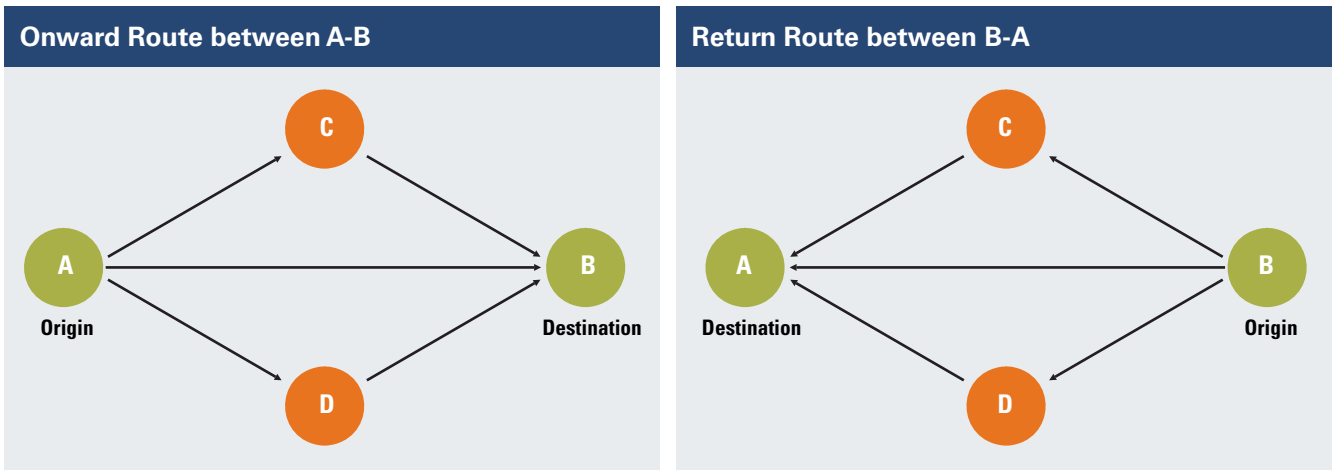
A Route Optimization Model addresses not only the internal but also the external issues being faced by logistics service providers. KPMG has developed one such route optimization model which is discussed in this section.

Assumptions

One of the key assumptions of the model is that the Origin point for onward route is the destination for the return route and vice-versa.

Benchmarks

- Maximum vehicle capacity utilized
- Distance covered by a vehicle per day
- Average Cost per KM between two locations
- Average speed of vehicle between two location
- Average stoppage time at each location
- Load consolidation points for low volume generating locations



Source: KPMG in India's Competitiveness through Efficient Logistics 2009

For Fig2: Possible Options:

Onward Route: AB, ACB, ADB

Return Route: BA, BCA, BDA

The model first generates the possible options between hub locations and then gives the suitable return routes. The model is an iterative process of optimum route selection and load absorption.

Approach to Model

- The model calculates the Cost per Kg per Km for each of the options generated and the load handled at each point
- Co-efficients are defined to help ensure that load imbalance is handled and unnecessary touch points are avoided
- Based on the load and distance, the model gives various options to reach two points
- On inputting values for load handled, cost of the trip, load imbalance reduction, transit time and feasibility the user can select the best option
- After every selection, the model then removes the load handled and then runs an iterative process of options selection and load being handled

Route Optimization Model Output 1: Indicative list of all optional routes between hub locations

Route	C/QKM	Coef-1	Coef-2	Cost	Veh. Cap.	C/Kg	Dist	T.Hrs	Route	C/QKM	Coef-1	Coef-2	Cost	Veh. Cap.	C/Kg	Dist	T.Hrs
NCR-MAA-Options	7.034	MT							MAA-NCR-Options	5.042	MT						
NCR-MAA	0.169	1.000	1.000	28060	6.75	3.86	2286	85.3	MAA-AMD-NCR	0.169	4.000	4.000	31245	6.75	4.63	2732	80.1
NCR-BRG-MAA	0.169	4.000	1.473	33753	6.75	5.00	2852	86.3	MAA-BOM-NCR	0.169	2.000	2.000	31222	6.75	4.63	2730	80.0
NCR-AMC-MAA	0.169	4.000	4.000	31803	6.75	4.70	2852	86.3	MAA-PCY-NCR	0.169	2.000	2.000	30093	6.75	4.46	2631	77.2
NCR-VPI-MAA	0.169	4.000	4.000	31268	6.75	4.63	2734	80.1	MAA-BLR-NCR	0.169	1.000	1.000	28808	6.75	4.42	2606	76.5
NCR-AMD-MAA	0.169	3.000	4.000	31245	6.75	4.63	2732	80.1	MAA-NAG-NCR	0.169	1.000	1.465	27870	6.75	4.13	2436	71.6
NCR-BOM-MAA	0.169	4.000	1.000	31222	6.75	4.63	2730	80.0	MAA-PCY-AMC-NCR	0.170	1.000	4.000	33978	6.75	5.03	2963	88.7
NCR-BDQ-MAA	0.169	4.000	4.000	31222	6.75	4.63	2730	80.0	MAA-NAG-AMC-NCR	0.170	4.000	4.000	33613	6.75	4.98	2931	87.7
NCR-PNG-MAA	0.169	4.000	4.000	30093	6.75	4.46	2631	77.2	MAA-AMD-BDQ-NCR	0.170	4.000	4.000	33442	6.75	4.95	2916	87.3
NCR-PCY-MAA	0.169	4.000	4.000	29808	6.75	4.42	2606	76.5									

Expected Advantages of the Hub and Spoke Route Optimization Model

- 1) Model provides the user the option to select between numerous alternatives depending on Cost, Service & feasibility parameters
- 2) The model gives the “Best” onward & return routes between two touch points along with the Cost, Vehicle Capacity, Cost per Kg, Transit hours and transit schedule

Route Optimization Model Output 2: Optimal onward and return route options, including existing optimal routes

Onward	C/QKM	Coeff-1	Coeff-2	Cost	Veh CaP.	C/Kg	Dist	T.Hrs	Return	C/QKM	Coeff-1	Coeff-2	Cost	Veh Cap.	C/Kg	Dist	T.Hrs
BOM-NCR	0.169	1.00	1.00	16473	6.75	2.44	1445	51.3	NCR-BOM	0.169	1.00	1.00	16473	6.75	2.44	1445	51.3
NCR-PNQ	0.169	1.00	1.00	15914	6.75	2.36	1396	49.9	PNQ-NCR	0.169	1.00	1.00	15914	6.75	2.36	1396	49.9
JAI-NCR	0.169	1.00	1.00	2896	6.75	0.43	254	17.3	NCR-JAI	0.169	1.00	1.00	2896	6.75	0.43	254	17.3
PNQ-AMC	0.169	1.00	1.00	18742	6.75	2.78	1644	57.0	AMC-PNQ	0.169	1.00	1.00	18742	6.75	2.78	1644	57.0
AMC-NCR	0.169	1.00	1.00	2907	6.75	0.43	255	17.3	NCR-AMC	0.169	1.00	1.00	2907	6.75	0.43	255	17.3
SLM-BLR	0.169	1.00	1.00	2611	6.75	0.39	229	16.5	BLR-SLM	0.169	1.00	1.00	2611	6.75	0.39	229	16.5

- 3) The model validates if existing routes are optimal and suggests changes for the remaining routes

Potential Benefits

- Tangible reduction in service cost
- Improved capacity utilization of vehicle by placing optimum vehicle type
- Identify sub-optimal routes and propose alternate options
- Centralized control of the routes being operated with inputs from the operations team
- Clear accountability of route performance



Milk Run and Line Haul Route Optimization for Road Transportation



In India, 62 percent of the freight is carried on roads.⁴ Some of the specific problems of road transportation are the huge number of truck owners with small fleet, lack of road infrastructure, increasing the time of travel and resulting in service delivery issues and the disparate taxation regimes across state boundaries. Logistics service providers operating in this market would need to introduce a lot of efficiencies in their operations in order to remain profitable despite these issues. This case explores such opportunities.

The Company

XYZ Logistics is a part of a multi billion dollar group, handling cargo worth several billion dollars annually and controlling several million square feet of warehouse space.

The Operations

The operations are explained below by taking an example of one particular customer:

XYZ Logistics is currently managing the inbound logistics for LMN Ltd. One factory of LMN is located in Neverland and the other two located in Hereland.

XYZ Logistics' responsibility is to collect materials from suppliers of LMN located in Neverland and Hereland and deliver them to the factories. There are several hundred suppliers from whom material needs to be collected on a daily basis and deliver to the respective factories within 24 hrs. The processes followed for consolidation and dispatching of cargo are as follows:

Milk runs

XYZ Logistics uses vehicles, owned and operated by transporters, to collect material from various suppliers in the vicinity and either deposit them at the Central Warehouse, or directly supply them to factories in case the supplier and factory are located in the same city/town. Every morning, the schedule arrives at the Central Warehouse from LMN containing the suppliers and how much material would be collected from each one of them.

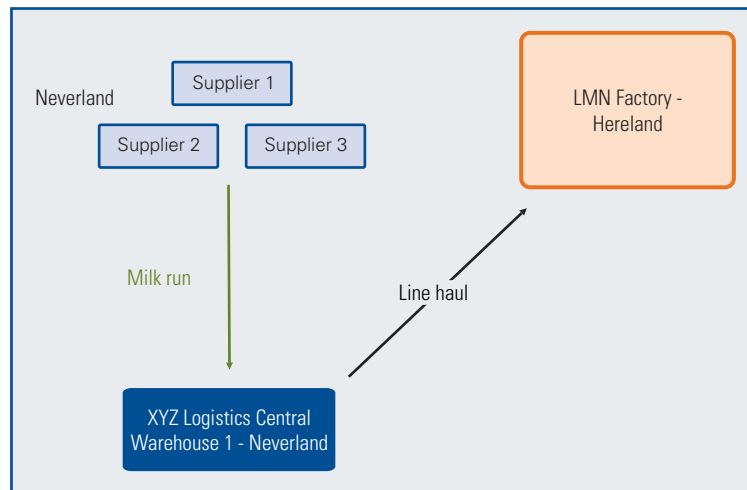
The milk runs use vehicles of various capacities to collect materials. For collecting materials from suppliers located in Neverland for the LMN Factory located in Hereland, milk run vehicles leave the Central Warehouse early each morning. Each truck has a specific route that it follows and each route has specific suppliers which the vehicle will have to visit. The vehicles return to the Central Warehouse with the collected materials by close of business on the same day.

⁴ CRISIL research on Indian Roads July 2009

Line Hauls

Once the milk run vehicles reach the Central Warehouse in the evening, the materials are unloaded in the Central Warehouse and then consolidated and sent to Hereland through a high tonnage vehicle. These vehicles directly visit the Factory of LMN in Hereland and deposit the collected materials. In order to better utilize the vehicle, the empty line haul vehicle will now visit the Hereland Central Warehouse of XYZ Logistics and collect materials collected from the Hereland suppliers and deliver them to the LMN factory in Neverland.

The above mentioned process has been explained diagrammatically below:



Source: KPMG in India's Competitiveness through Efficient Logistics 2009

The vehicle placement for both line hauls as well as milk run happens through a central team. Similar processes exist for the various customers located across the country.

Objectives

XYZ Logistics wishes to improve margins through improved collections and reduce cost of their operations and improve quality of service delivery (eg. Transit Adherence).

Challenges to be addressed

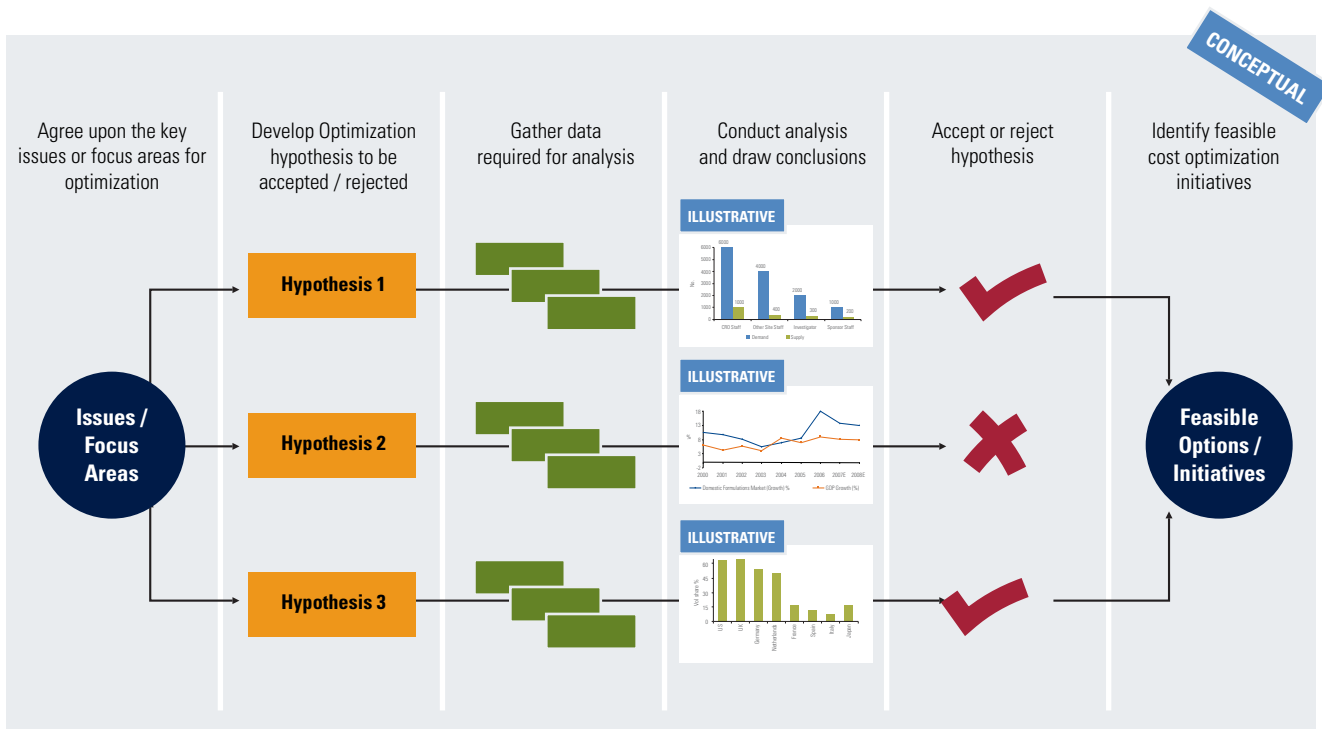
Milk runs:

- The efficiency of milk runs in terms of space and weight utilization is suboptimal. There is an urgent need to improve efficiency by looking into the milk run labour, weight & space utilization for XYZ Logistics.
- Adherence to the contracted price

Line hauls:

- Adherence to the contracted price
- Lack of monitoring systems to trace vehicles
- Reduce adhoc vehicle placement

Initiative 1: Route Optimization



Source: KPMG in India's Competitiveness through Efficient Logistics 2009

1. Hypotheses development to identify potential areas of improvement

Example: Sub-optimal routes traversed by the milk run vehicles

2. Data Collection to prove or disprove the hypothesis, on the existing milk run operations.

Example: For above hypothesis, existing routes traveled need to be mapped, with distances.

3. Key issues that need to be addressed are to be listed for further analysis:

Example: Are there multiple vehicles visiting the same supplier (possibly for different customer collections)?

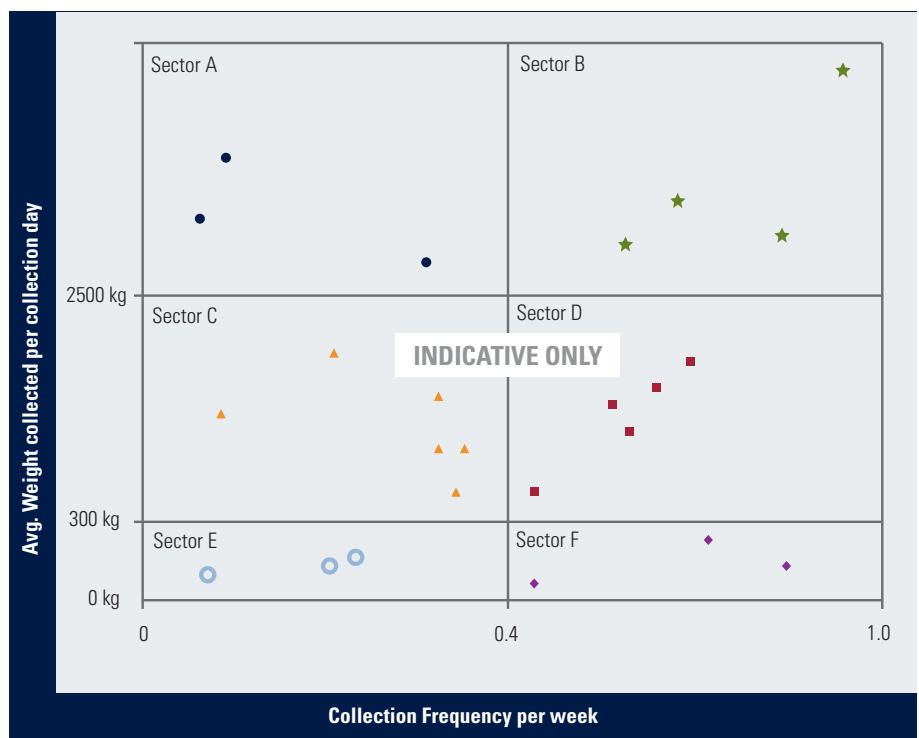
4. Corrective action

Inefficiencies in the routes could be rectified by a multitude of measures.

Example: Re-routing vehicles to ply in a more circular route than the existing criss-cross routes

5. Setup New Process

In order to sustain the benefits permanent processes need to be designed, implemented and monitored. A Weight-Frequency framework analysis aids the team on the ground to take a decision on collecting material from different types of suppliers based on the average tonnage provided and the frequency of collection from that supplier.



Source: KPMG in India's Competitiveness through Efficient Logistics 2009



Each of the six mentioned sectors requires a different approach. This needs to be setup as a continuous process of evaluating a route and suppliers based on their tonnage and collection frequency:

Sectors	Type	Solution
Sector A	Rare Collections - High Tonnage	Possible case for removal from actual vehicle route plan. Instead go in for a higher tonnage vehicle only on a pre-planned collection date
Sector B	Frequent Collections - High Tonnage	Possible case of direct Line haul vehicle placement at the Supplier's end instead of a milk run, thereby eliminating a milk run
Sector C	Rare Collections - Medium Tonnage	For highly irregular collections, separate 1.5T vehicle can be explored For others, frequency can be reduced to predict & operate correct vehicle tonnage
Sector D	Frequent Collections – Medium Tonnage	Leave these suppliers undisturbed
Sector E	Rare Collections - Low Tonnage	Possible push required to convert them to office collections Another possibility is to reduce frequency of collections
Sector F	Frequent Collections - Low Tonnage	Maximum possibility to reduce frequency of collections

Source: KPMG in India's Competitiveness through Efficient Logistics 2009

Mathematical tools can be developed and deployed to aid the operations staff to efficiently plan each milk run route, despite having a small window for planning. The tool would also enable monitoring of cost. Using such a tool, a process which would take around 2 to 3 hours could be done in 15 minutes once data is ready.

Potential Benefits

Implementation of the above methodology can achieve substantial milk-run cost reduction.

Initiative 2: Optimization through Line haul introduction and Milk run Elimination

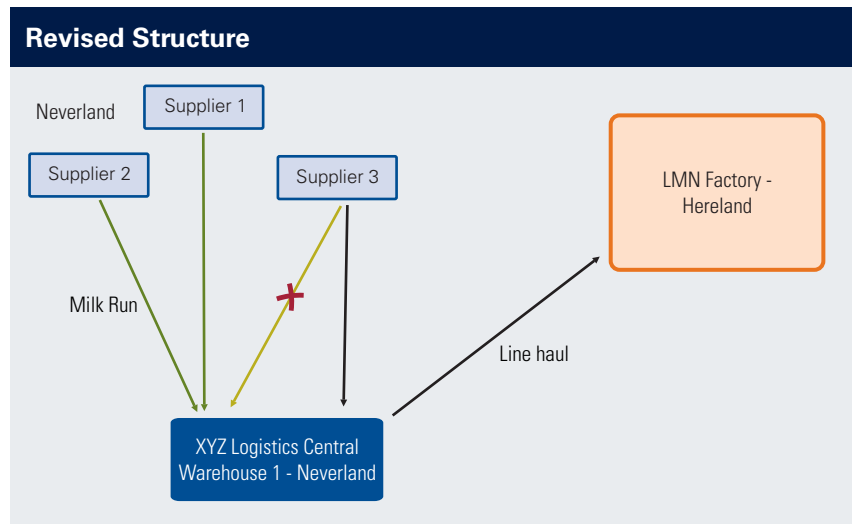
Context

Line haul costs which constitute majority of the total operations cost of a logistics firm.

In most cases, like in XYZ Logistics, there were a large number of long distance routes operated and service providers dealt with, in each sector. Since vehicle rental costs are fixed, it is imperative that their utilization is maximized. One option that could be considered in special cases, to help maximize utilization and minimize material handling is elimination of milk run, by introducing line haul. In such cases, it is required to be mindful of the effects of eliminating consolidation benefits, if any.

Strategy: Line haul introduction and Milk run elimination

A revised structure arrived at after line haul introduction and milk run elimination is pictorially represented below:



Essentially, the milk run is eliminated and the collection from say a particular supplier is carried out by the line haul vehicle itself. The line haul vehicle after picking up the material from the supplier would arrive at the Central Warehouse for further consolidation and leaves the Central Warehouse for its destination.

Advantages

Benefits			
S.No.	Benefit Area	Benefit Description	Impact
1	Loading / Unloading	Multiple loading and unloading of material is eliminated	Higher manpower utilization. Lower manpower cost
2	Storage Space & Time	Material collected by the Line haul vehicle need not be unloaded into the Central Warehouse	Savings on storage space within the Central Warehouse
3	Milk run Vehicle	A complete milk run to a particular supplier is eliminated	Reduction in milk run cost

Since the additional cost of the line haul vehicle collecting from a supplier and then reporting to the central warehouse is marginal compared to running a complete milk run, the benefits could outweigh the extra cost once the minimum tonnage for a direct line haul vehicle placement is fixed.



Process Implementation:

The sustainability of this solution depends on the implementation of a standardized, data-based process and effective monitoring of the same. A tool, which is a part of a standard process implemented specifically for this initiative, help ensure that the decision making is data based.

DIRECT VEHICLE PLACEMENT						
Supplier	Tonnage to Pick Up (Tons)	Destination Sector	Existing Stock at Hub (Tons)	Expected Stock Arrival - Others (Tons)	Total Tonnage for Destination (Tons)	Decision
SUPPLIER X	2	DEST 1	1	5	8	PLACE DIRECT
SUPPLIER Y	1.4	DEST 3	1.2	3	5.6	DO NOT PLACE
SUPPLIER Z	1	DEST 4	2		3	PLACE DIRECT
SUPPLIER J	1	DEST 2	2	1	4	DO NOT PLACE
SUPPLIER K	2.5				2.5	DO NOT PLACE

Indicative Only

Min Direct Veh. Tonnage 1			
Destination Sectors	Allowable Vehicle Tonnages		
DEST 1	6	9	
DEST 2	16	23	
DEST 3	6	9	
DEST 4	3	6	9
DEST 5	9	16	

REFRESH DATA

CLEAR INPUT DATA

Potential Benefits

- A reduction in the number of milk-run collections per route
- Substantial reduction in the deployment of milk-run vehicles due to the use of line-haul vehicles



Efficient Benchmarking and helping achieve Optimal Resource Deployment in Logistics Operations

Logistics being a manpower intensive sector, this section explores the opportunities that may be available with logistics service providers to effect cost efficiencies and improve service delivery.

The Company

A logistics service provider, KLM Logistics, has extensive networks across the world and intensive presence in the Indian market. They deal with shipment of cargo across different locations.

Objective

Identify opportunities to optimize resource utilization and related policies across all areas of operation to increase cost and service delivery efficiencies.

Approach

Cost-reduction in the above-mentioned areas would need to be addressed at a pan-India level. The following approach could be adopted to identify opportunities for cost efficiencies:

- Formulate hypotheses to identify potential areas for cost reduction across various cost heads
- Study existing cost-structure needs to be studied and processes and norms analyzed, using internal and external benchmarks
- The areas of potential cost reduction are to be identified based on these benchmarks, and quantified. The selection criteria could range from overall significance and relevance, ability to control costs to data availability
- An organization-wide contact program to be launched to understand sensitivities and remove road blocks for the proposed cost reduction initiatives and policy recommendations
- Implementation of the initiatives and monitoring of results

Increasing Efficiency of Pick-up / Delivery Operations

- Major cost elements and cost drivers are to be identified
- Resources to be benchmarked across the operating locations and productivity norms re-defined based on historic data, geographic spread, product mix etc.
- Cost of manpower to be benchmarked against market costs and aligned to government policy norms
- Reimbursement norms for activities undertaken by employees on behalf of the organization to be redefined based on adjustments for prevailing costs and
- Introduce data based moving margin structures e.g.: slab-based structures
- Establish internal benchmarks for consistent cost structure and norms
- Disseminate new plan for organization-wide buy-in

Increasing Efficiency of Material Handling and Clearing Operations

- Identify key cost drivers effecting material handling costs and their drivers
- Develop material handling model that determines the optimal level of infrastructure and manpower required for a given size of cargo
- Disseminate details of new material handling model across the organization
- Institute monitoring systems to validate results

A mathematical tool for efficient handling and clearing operations could be designed that uses specific input parameters (for instance peak load, shift timings, etc.) to define norms/ benchmarks that are to be set up (for example productivity, number of shifts, distance, cargo size, etc.) Based on input data and norm, the tool would calculate the load handled by the hub on hour to hour basis and the maximum load handled throughout out the day. Such a model can provide an output defining levels for manpower, space and equipment requirements for the given hub.

Potential Benefits

- Maximum utilization of resources
- Substantial cost efficiencies introduced in the system

Conclusion

In their efforts to derive maximum benefit from the policy and infrastructure developments taking place in the public domain, logistics service providers need to enhance their capabilities to become flexible enough to absorb the advantages that these policies and facilities offer.

The methodologies described in this document, and many others that are available for use by logistics service providers can help ensure that they are competitive by building efficiencies.

Efficient and competitive service providers are the need of the hour for the logistics sector, given the growth in manufacturing, retail and trade. Such service providers can play a key role in helping ensure that India is home to global best practices in the logistics sector.

- These service providers can run cost-efficient operations, providing significant value to shareholders
- They can provide value to their customers by offering value-added services at competitive prices
- Their processes include norms that are benchmarked
- Their operations are keenly monitored and can be controlled uniformly across locations
- They can make the best use of available information systems and implement consistent data-based decision making
- They can effect vendor management policies and processes to help ensure mutually beneficial relationships that could act as a competitive advantage
- Their operations are streamlined to help reap the benefits of better public and shared/common logistics infrastructure

In addition, they can participate in the great Indian growth story!





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