TVS LOGISTICS SERVICES LTD.
DISCOVER INSOURCING SCM

Supply Chain Model – Changing Landscape

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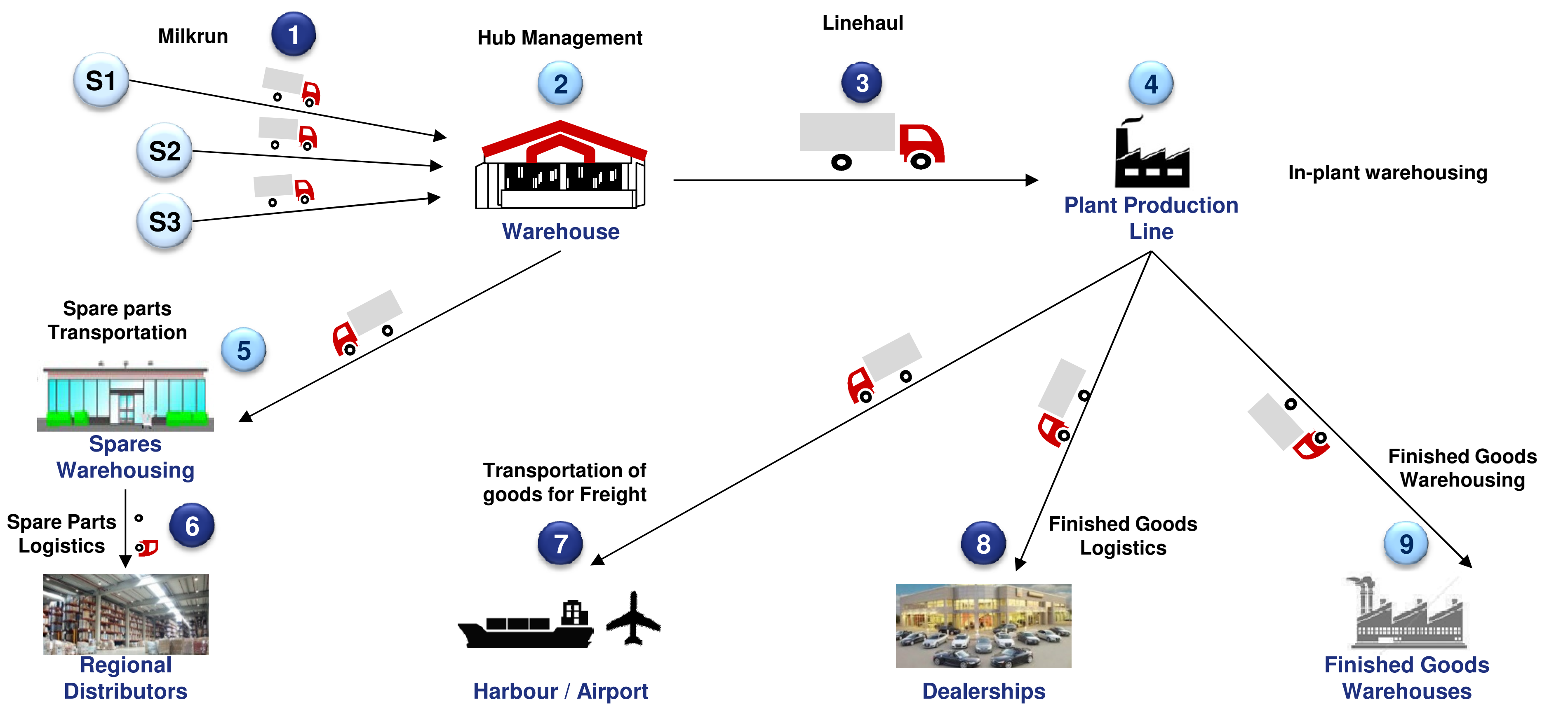
End-to-End Supply Chain Management



Transportation Management Solutions

1 Sourcing of parts (Milkrun)

3 Outbound Logistics

6 Spare Parts Logistics

8 Finished Goods Logistics

7 Delivery of goods for Freight Forwarding

Warehouse Management Solutions

2 Hub Management

4 In-plant warehousing

5 Warehouse Management

Factors Influencing the Supply Chain Models

1. In-bound & Outbound Logistics

- Network design and cross dock selection
- Fleet Selection, Vehicle Planning, Utilization
- Owned/Dedicated Fleet (vendor 3PL development)
- Number of Supplier/Delivery locations
- Model – Inter-plant, Out-bound, with or without storage. Pricing model – PFEP, Trip or per KG based
- Kanban Implementation
- Co-ordination for the replenishment stock
- Sourcing
- IT Solutions - Complete parts visibility
- Packaging & Returnable Management
- Asset Utilization

2. Warehousing

- Warehouse Design & WMS – Infrastructure cost
- Inventory levels & throughput
- Response time, part/product availability
- Inventory Planning, forecasting and VMI
- KPI Adherence, Line stop norm adherence
- Packaging Solutions
- Productivity
- Manpower Solutions

3. Distribution

- Hubs at strategic location
- Demand Forecasting
- Order Processing
- Response time, part/product availability
- IT track and trace solutions
- Returns Management
- Packaging Solutions

GST roll out would have an impact across ALL functions of the business and not just tax : We will focus on Supply Chain …..

- System changes – ERP, EI tools, other technology tools
- Compliance – with GSTN requirements
- Getting systems ready for audit
- Automation

- Rate of tax
- Time & place of supply
- Treatment of current incentives
- Valuations

- Indirect tax impact assessment (GST *Navigator*) for:
- Revenue stream
- Procurement stream
- Costing, pricing and working capital
- Availability of credit of GST (incl. transitional credits)

- GST registrations
- Tax credit transitions
- Return reporting
- Other statutory compliances
- Managed/ Shared Services

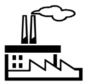
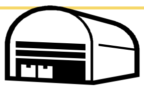
- **Operating model**
- **Sourcing**
- **Distribution, logistics, warehousing etc.**
- **In-house v/s outsource**
- **Supply chain processes**
- **Working capital**
- **Contracting**

- Program planning
- Governance forums
- Deliver communications
- Drive project delivery
- Program integration
- Budget management
- Change Management
- Facilitating business readiness

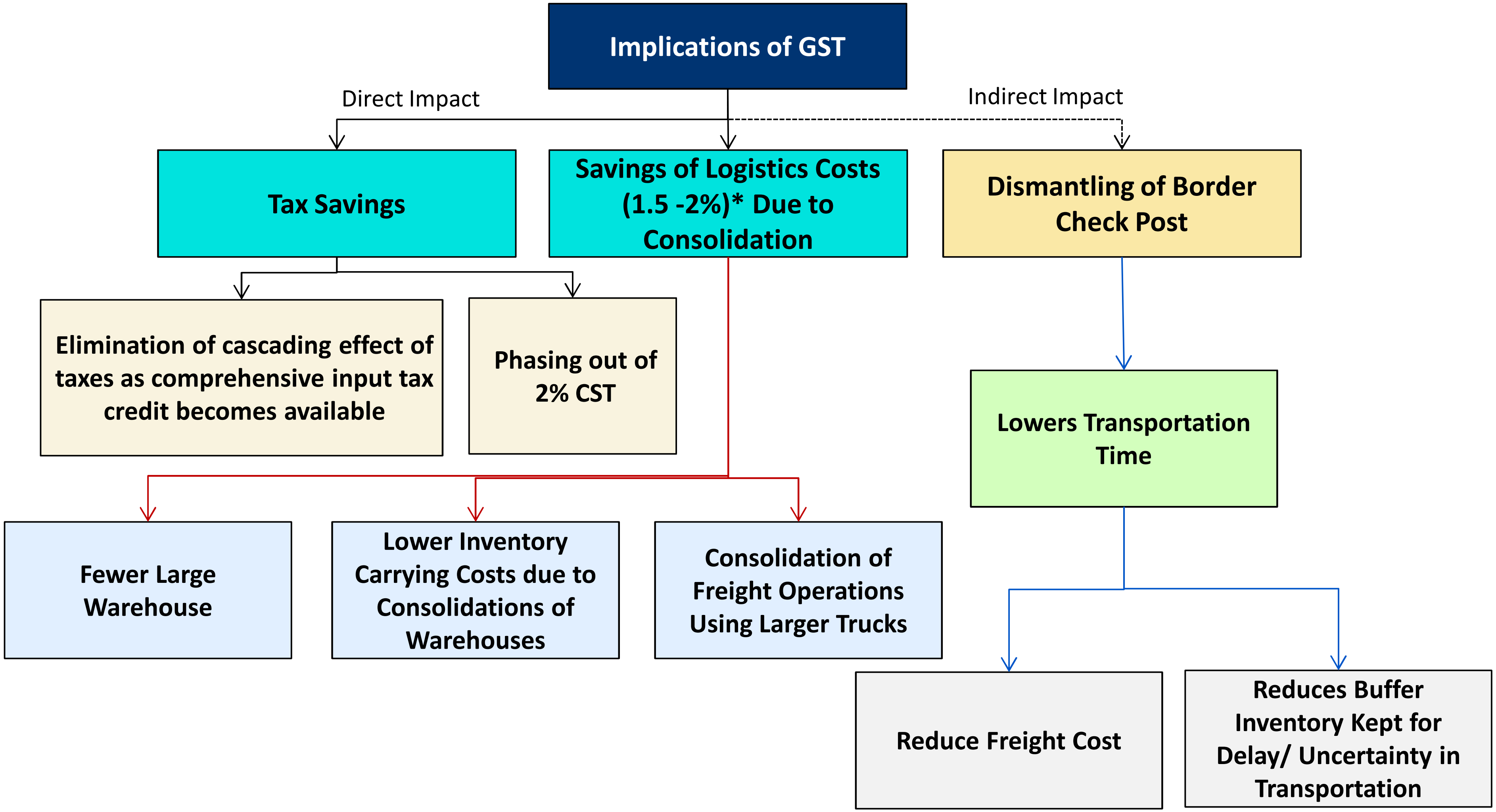
- Tax credits, payments and accounting
- Change assessment in accounting entries (incl. revised chart of accounts, compliance with Indian Accounting standards etc.)
- Risks & controls

Snapshot of Supply Chain Opportunities and the impact areas

Impacting inbound & outbound supply chain, warehousing operations etc.

	Opportunities	Trigger Points	Impact
 Plants	▶ Changes to manufacturing footprints ▶ Changes to make/buy decisions ▶ Changes to contract manufacturing	▶ Change in taxation basis from 'MRP at origin' to 'valuation at consumption' ▶ Applicability of incentives/exemptions ▶ Changed transportation costs	▶ ***Manufacturing Costs*** ▶ ***Lead Time*** ▶ ***Cost to serve*** ▶ ***Speed to serve***
 Distribution	▶ Network optimization: Relocation/ optimization of godowns ▶ Change in source-mode-destination mix ▶ New Lanes / Tariffs to be defined ▶ Freight rate negotiation ▶ Route planning & optimization: Inbound as well as Outbound ▶ Inventory norms reassessment	▶ Changed landed costs (changed tax structure, procurement costs and freight) ▶ Creditable taxes for interstate movements ▶ Feasibility & ease of interstate movements ▶ Reduce lead time due to seamless borders ▶ Change in taxation basis from 'MRP at origin' to 'valuation at consumption'	▶ ***Cost to Serve*** ▶ ***Speed to serve*** ▶ ***Asset costs*** ▶ ***Cash Flow***
 Warehousing/ Depots	▶ Sales territory realignment ▶ Optimum number of Warehouses, locations & linkages ▶ Pricing model reassessment ▶ Working Capital reassessment	▶ Feasibility & ease of interstate movements ▶ Changed landed costs (changed tax structure, procurement costs and freight) ▶ Change in taxation basis from 'MRP at origin' to 'valuation at consumption ▶ Timing of GST payout	▶ ***Revenue*** ▶ ***Contribution*** ▶ ***Salesforce productivity*** ▶ ***Cash flow***

Implications of GST



* Over 3-4 year period

Impact on Key Sectors

The rollout of GST will mainly impact the supply chains of ‘non-bulk (High-value goods) sectors, which have a relatively larger network of warehouses.

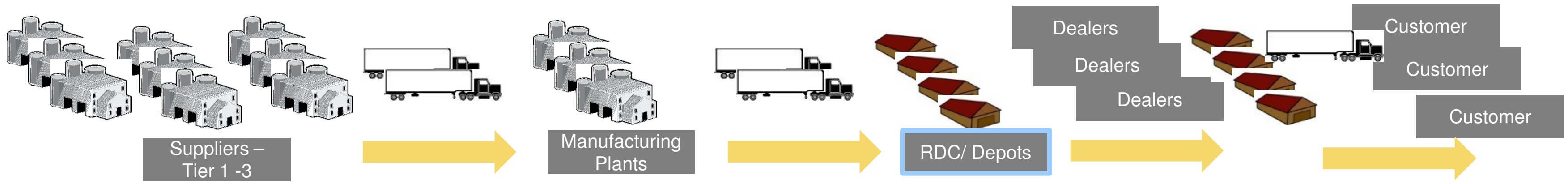
	FMCG	FMCD	Pharma	Auto
Current Logistics Cost	8-9%	7-8%	5.5-6.5%	5-6%
Potential savings in logistics costs	1.4-1.8%	2.1-2.5%	1.0-1.4%	0.7-1.1%
Typical no. of warehouses for leading companies	50-60	25-30	25-30	20-25
No of warehouses post likely consolidation	35-45	10-12	17-27	15-20
Purpose of setting warehouses	Save CST and be closer to retailers	Mainly to save CST	Save CST and be closer to retailers	Setup for logistical reasons
Opportunity for consolidation	Medium	High	Slow & gradual	Low
Limiting Factors For consolidation	• Low average purchase size by retailers • High need for proximity to retailers	• High need to retain warehouses for increasing geographical penetration	• High need for proximity to retailers • Need for last-mile retail deliveries discourage the use of larger CVs • High dependence on CFAs	• Fewer warehouses • Low proportion of logistics costs to revenue • Low scope for transition to larger vehicles

Impact on Key Sectors

The rollout of GST will mainly impact the supply chains of 'non-bulk (High-value goods) sectors, which have a relatively larger network of warehouses.

	FMCG	FMCD	Pharma	Auto
Impact Assessment	• Timely delivery requirements and availability of substitutes make the case for a relatively decentralised supply chain • The degree of consolidation would be restricted by the need for faster replenishment of products on the shelf • Personal care and household products may see more consolidation as compared to food & beverages	• Large number of warehouses set up just to avoid paying the CST. • Offers the maximum scope for consolidation • Have a higher brand recall and longer shelf life, product cannot be easily substituted • Shift is expected towards large warehouses	• Consolidation will be slow and gradual, as players shift from dealing with multiple CFAs to smaller nos. • Key hurdles faced will be timely deliveries to retailers, substitutability and storage of products under regulated conditions	• OEMs directly ship their goods to dealers • Consolidation opportunity exists only in state-wise' stockyards • OEMs will continue shipping directly to dealers until 'dedicated rail freight corridors' are commissioned by 2018-19, with this they will also adopt hub and spoke model

Differential impact on Automotive supply chain based on sub segment considerations

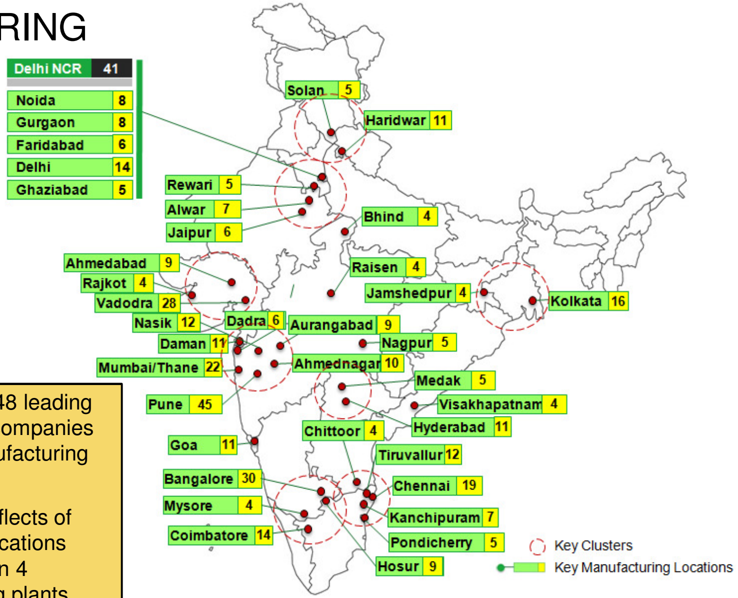


Key impact areas	Auto – CV	Auto - PV	Auto – 2W	Auto Component	After Market spares
Tax rate : Current Tax rate : Post GST	26 18/22	26 18/22	26 18/22	26 18/22	26 18/22
Unlocking credit from supplier value chain	✓	✓	✓	✓	
Optimize supplier source and manufacturing locations				✓	
Vendor rationalization and Manage small Vendor compliance	✓	✓	✓	✓	
Demand for 3PL services for CFAs, secondary logistics				✓	✓
Network optimization of depots / dealers	✓	✓	✓	✓	✓
Improved servicing of depots / dealers	✓	✓	✓	✓	✓
Inventory optimization across the value chain	✓	✓	✓	✓	✓
Consolidation of transportation lanes, increased vehicle tonnages, reduced transit times	✓	✓	✓	✓	✓

GST Influencing Hub Network

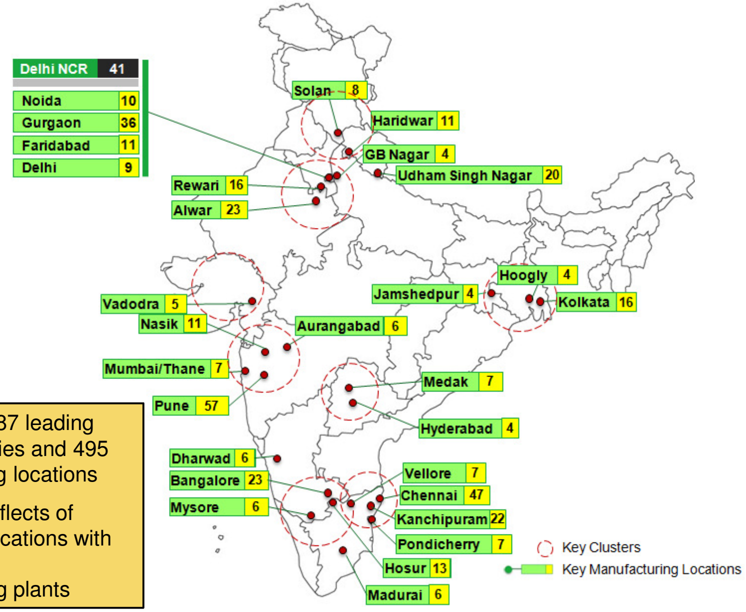
Mapping of Production Centres

ENGINEERING



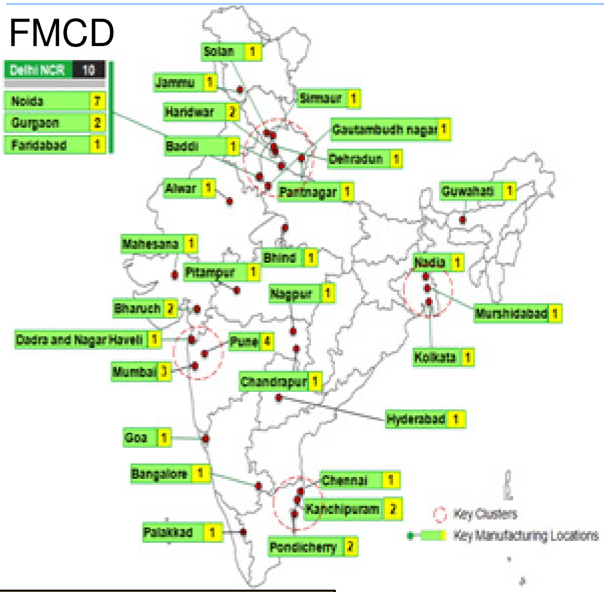
- Mapping of 148 leading Engineering companies and 529 Manufacturing locations
- Given map reflects of mapping of locations with more than 4 manufacturing plants

AUTO



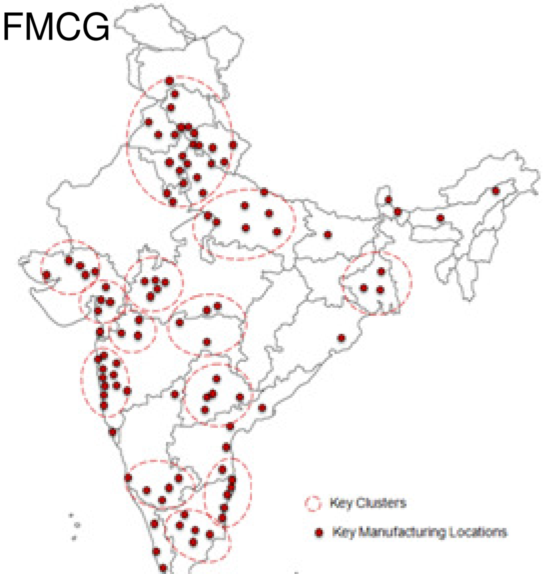
- Mapping of 187 leading Auto companies and 495 Manufacturing locations
- Given map reflects of mapping of locations with more than 4 manufacturing plants

FMCD



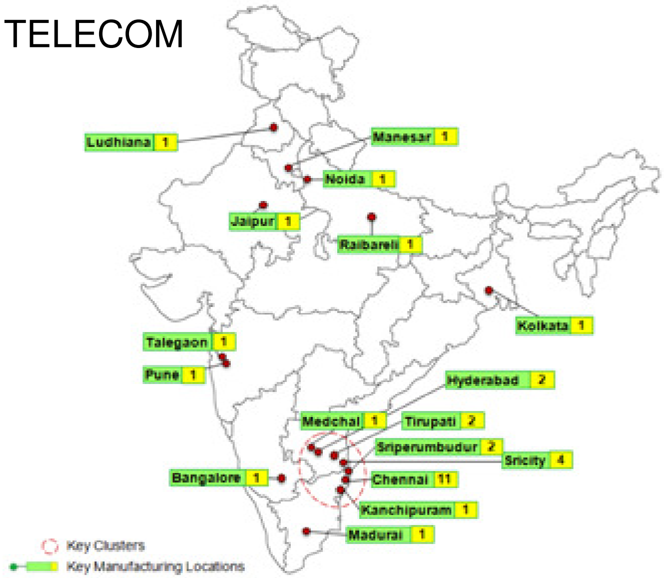
- Mapping of 48 manufacturing locations of 16 leading FMCD companies

FMCG



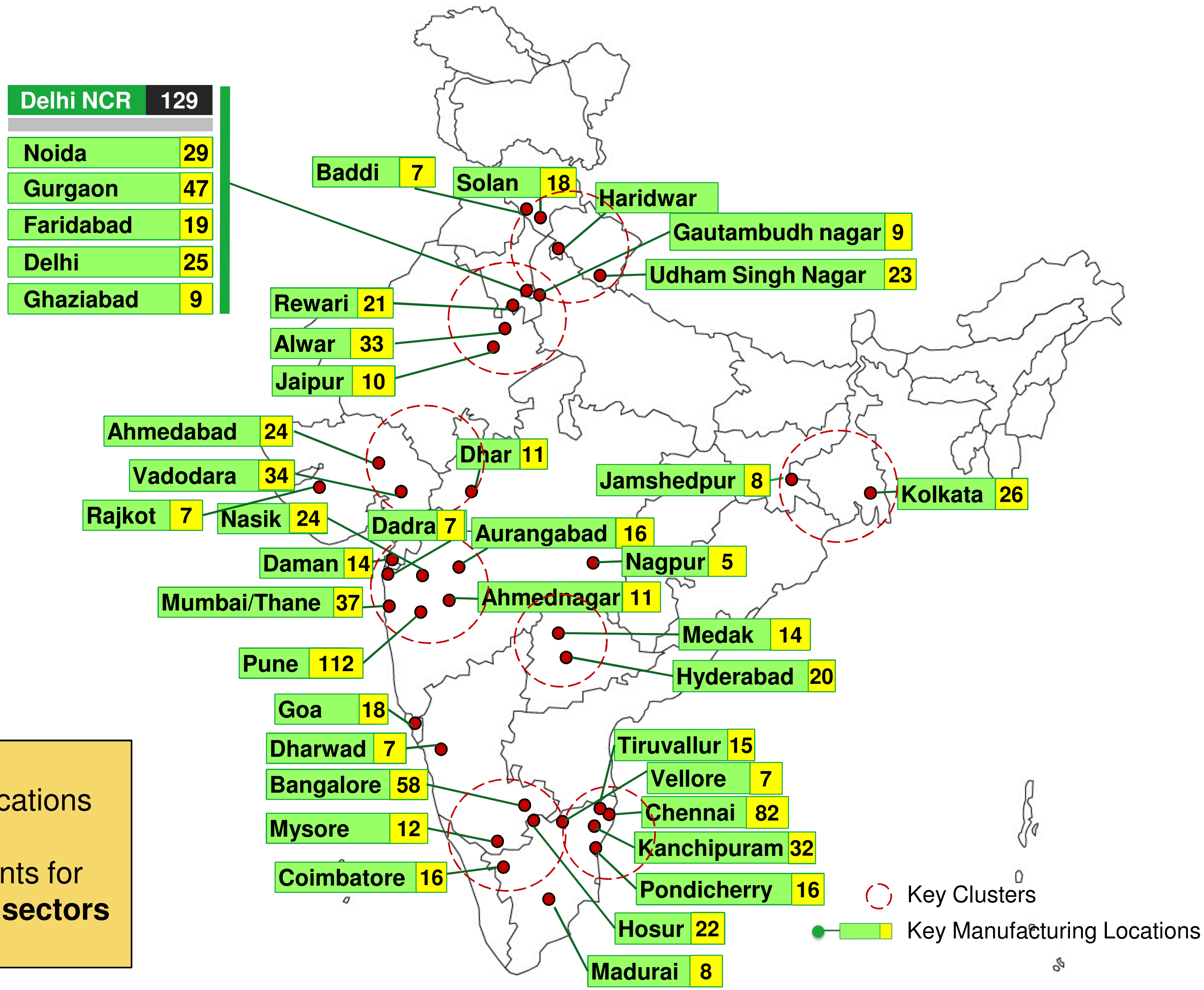
- Mapping of 159 manufacturing locations of 20 leading FMCG companies

TELECOM



- Mapping production centre's of 29 leading telecom companies.

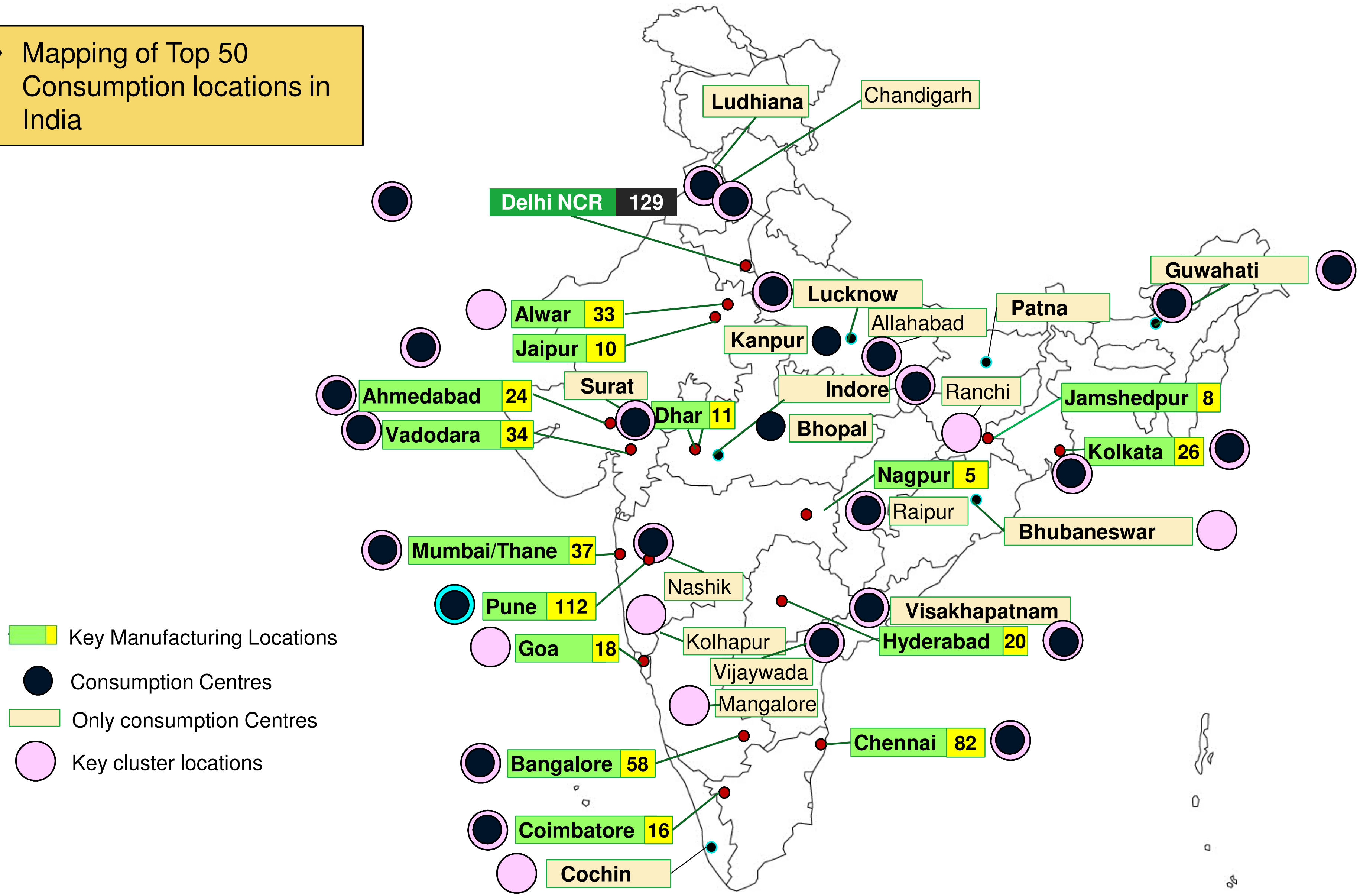
Major Industrial Clusters



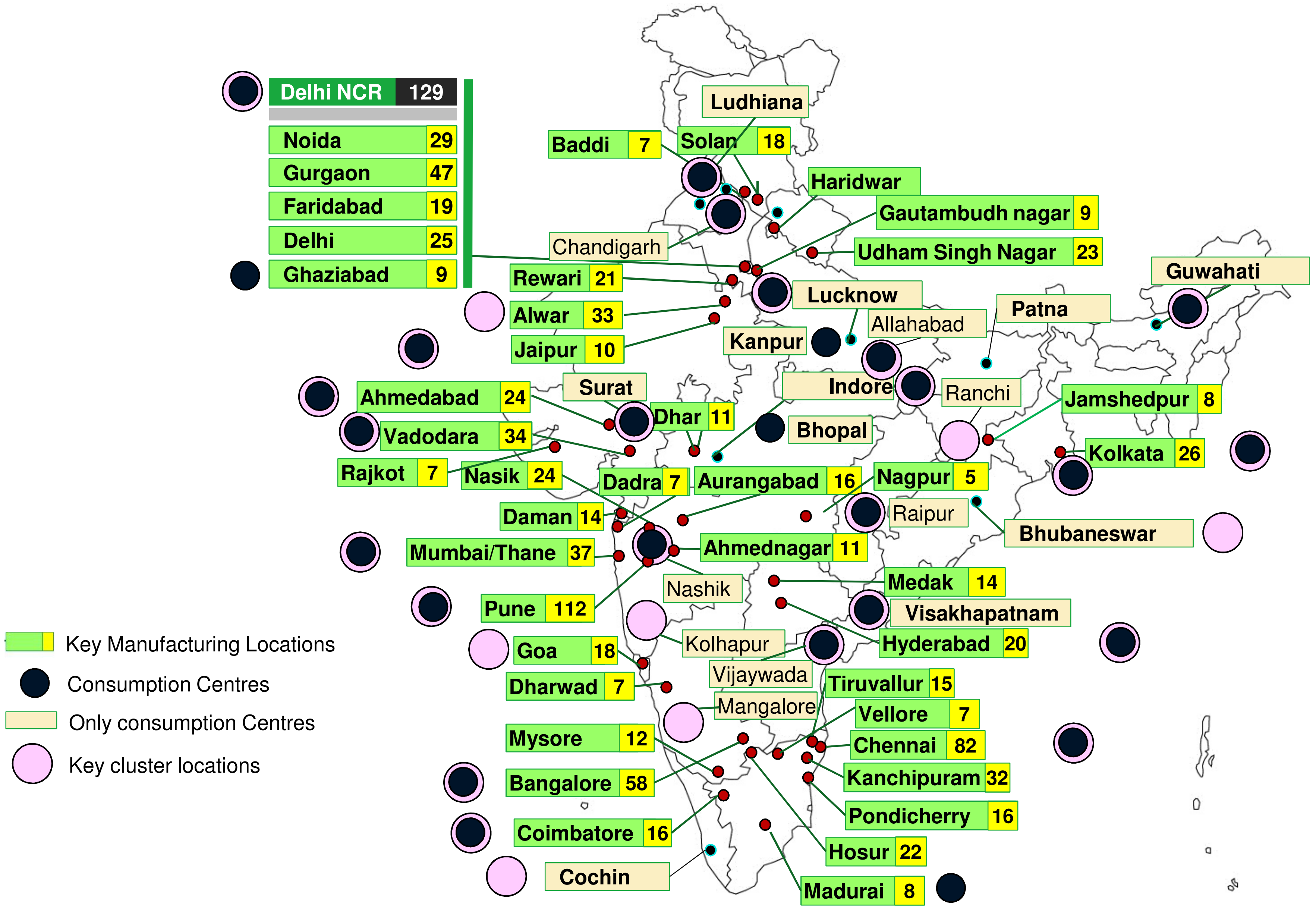
- Mapping of key locations with **more than 7** manufacturing plants for all the **5 selected sectors**

Major Consumption Centers

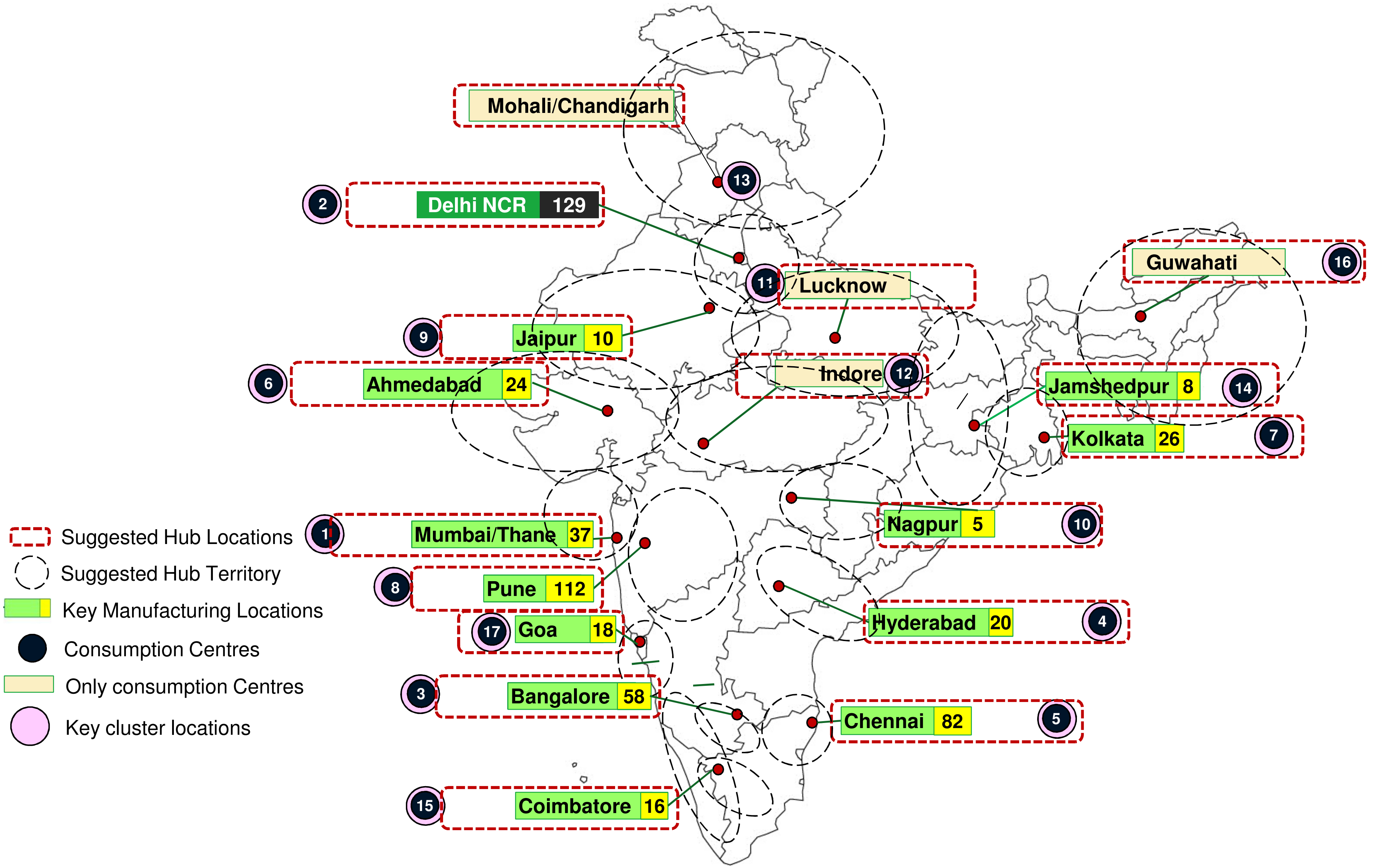
- Mapping of Top 50 Consumption locations in India



Summary Map – Mapping Key Manufacturing Clusters and Consumption Centres

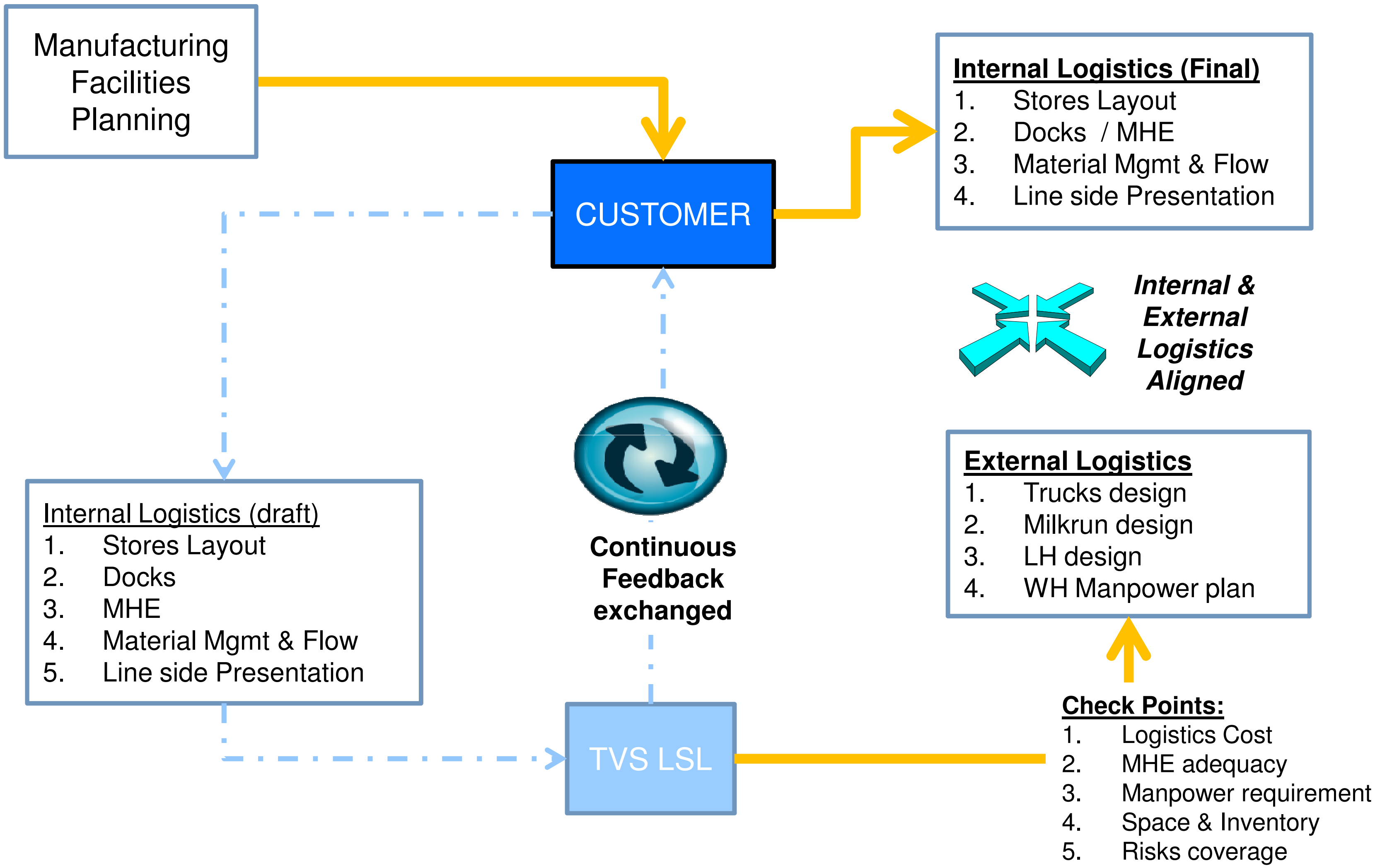


Summary of Suggested Primary GST Hubs and Mapping Hub Territory

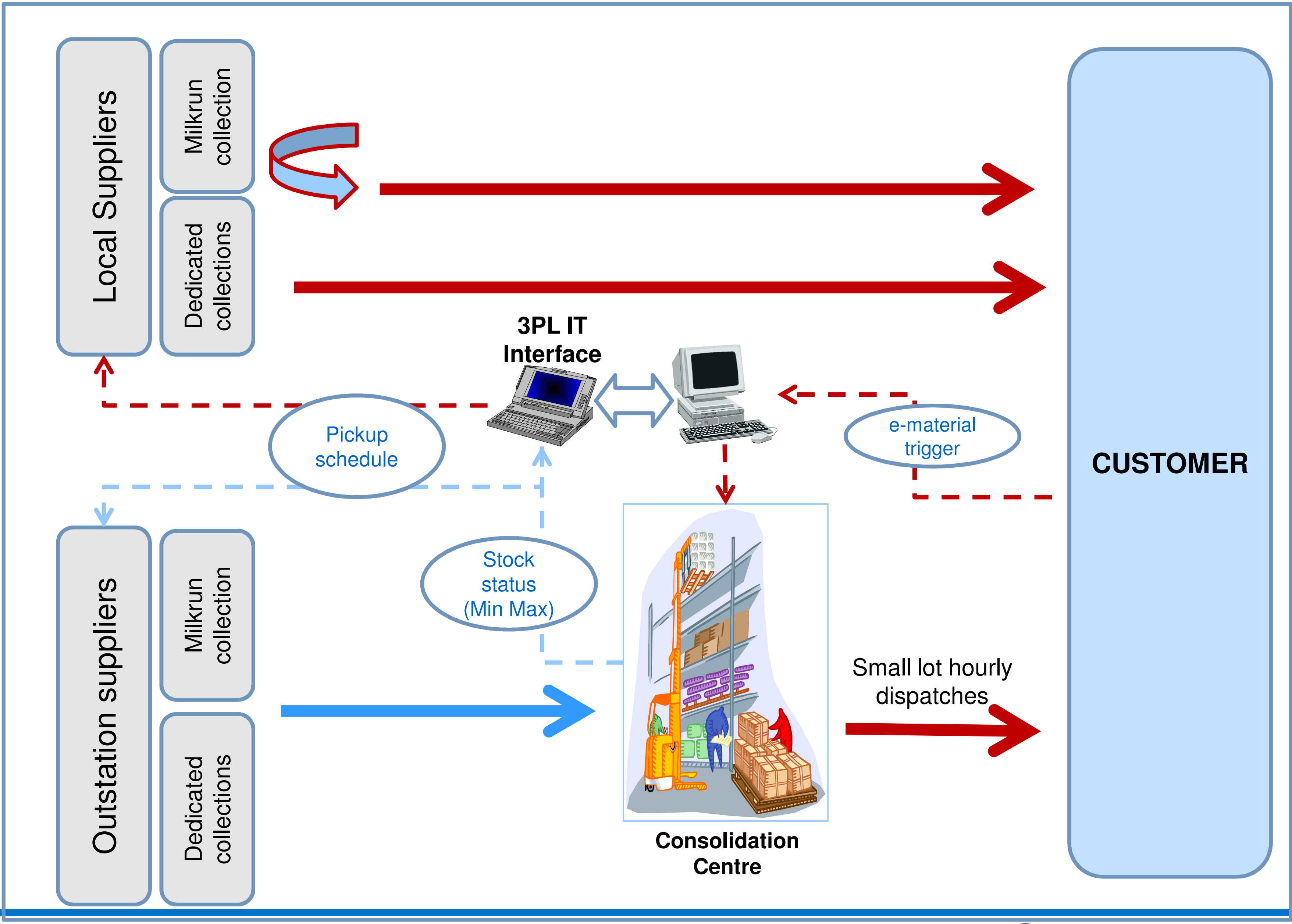


Showcase Case-studies

Supply Chain and Network Design for major Two Wheeler Manufacturer

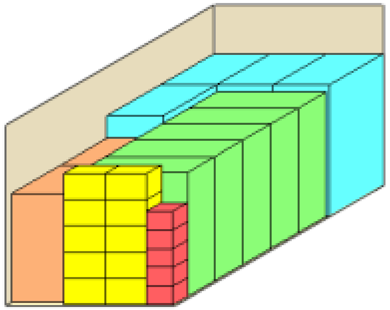


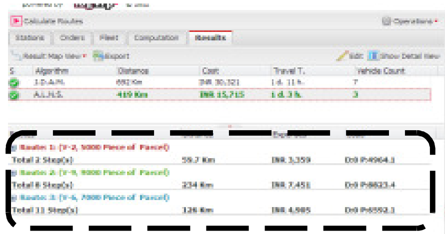
Supply Chain design – High level Material Flow

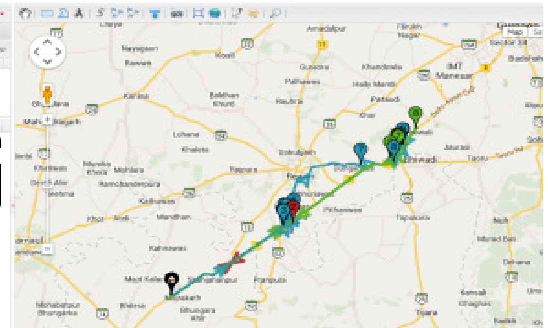


Step by Step Planning Methodology

PFEP Based Loading Simulation

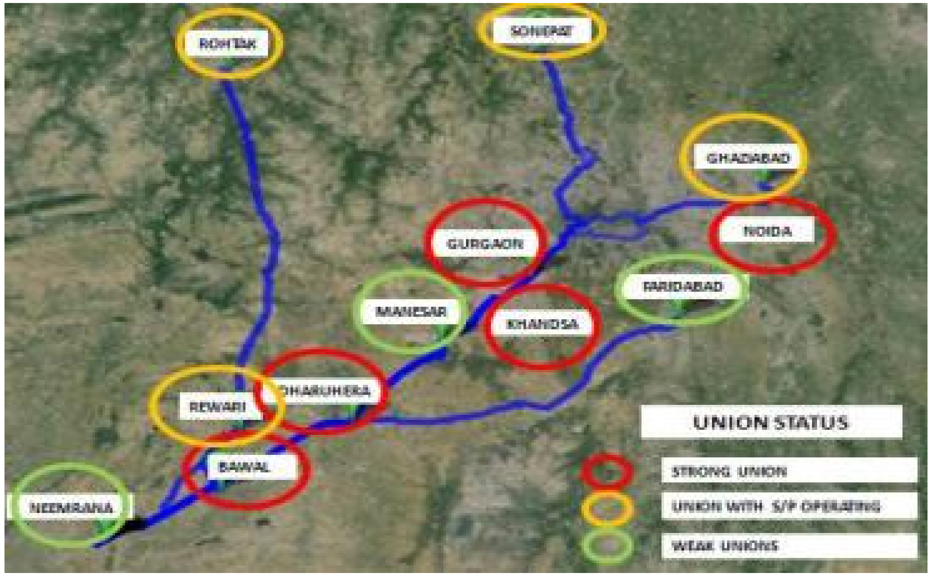




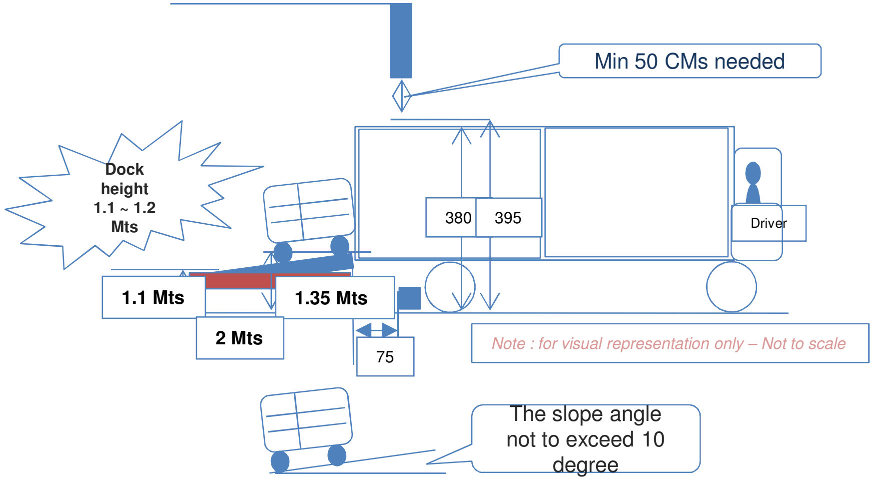


Vehicle Routing Planning Tool

Effective handling of Local Transport issues & IR issues



Facility alignment for logistics



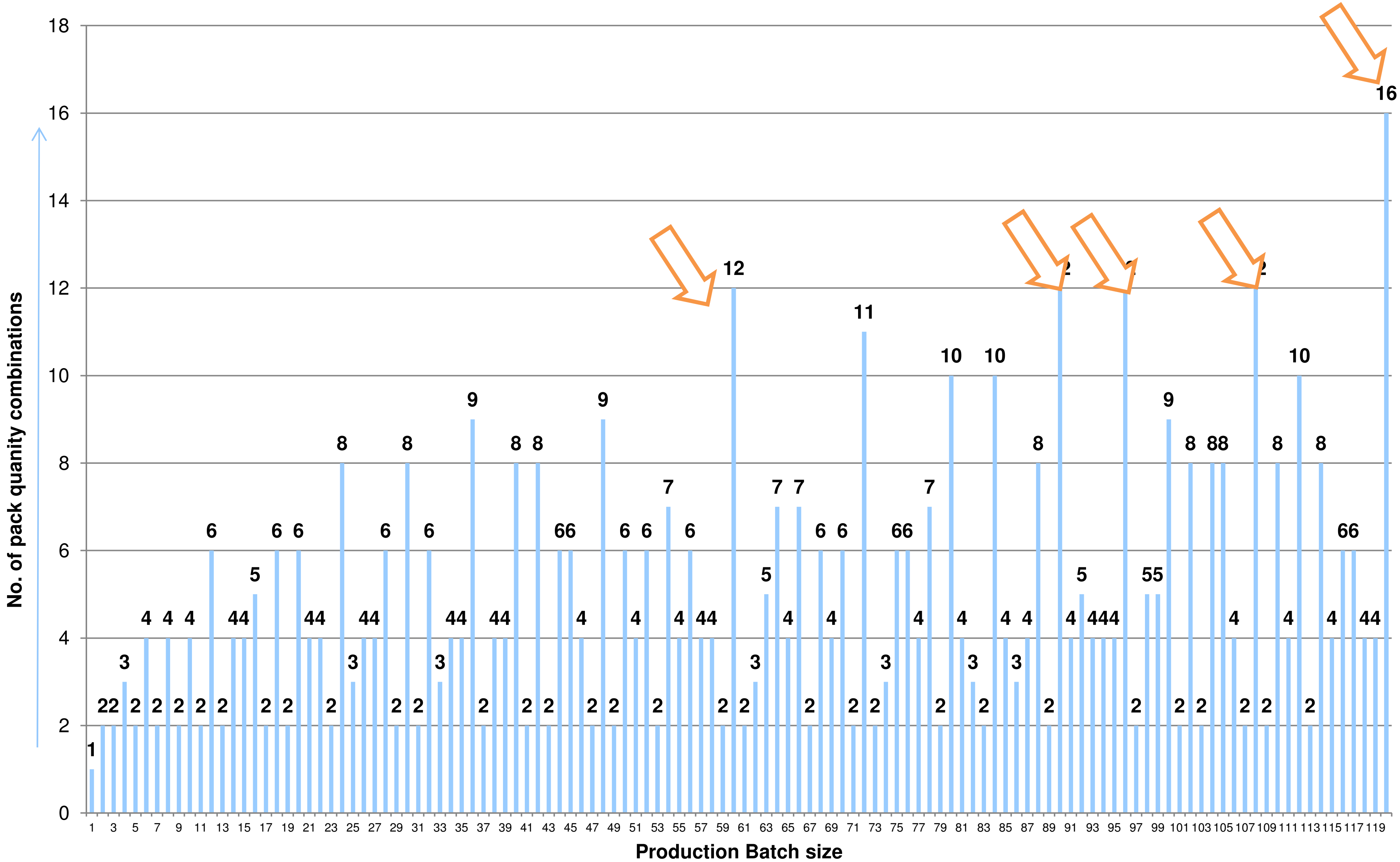
Supplier Facility Mapping for Network Design

Supplier Name	No entry restriction	Trucks upto 4m height	Type of trucks			No: Docks			Type of dock				FL
			Upto MCV	Upto EXEMCV	Upto 32 feet	1	2	3	SL	concrete	Dock leveller	Non dock Operation	1
SUPPLIER 1													
SUPPLIER 2													
SUPPLIER 3													
SUPPLIER 4													
SUPPLIER 5													
SUPPLIER 6													
SUPPLIER 6													
SUPPLIER 7													
SUPPLIER 8													
SUPPLIER 9													
SUPPLIER 10													
SUPPLIER 11													
SUPPLIER 12													
SUPPLIER 13													
SUPPLIER 14													

Not suitable / Favorable

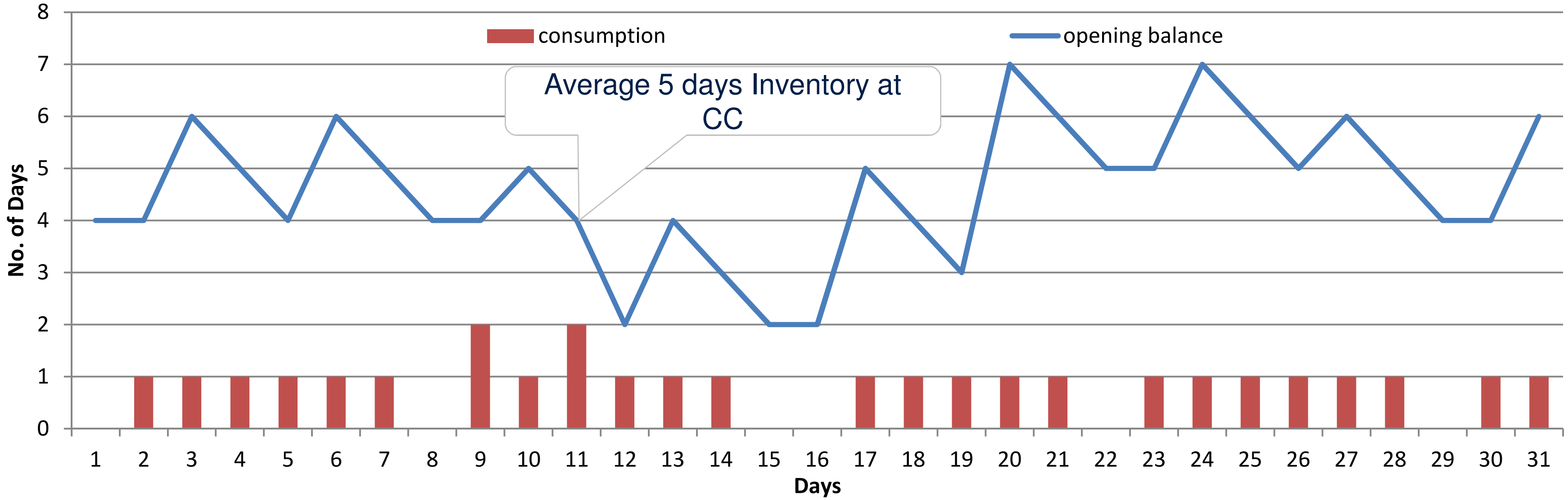
Suitable / Favourable

Aligning - Production Batch Size



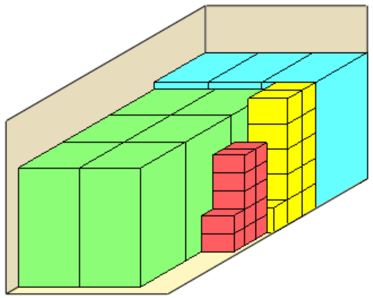
Inventory & Replenishment Cycle Planning

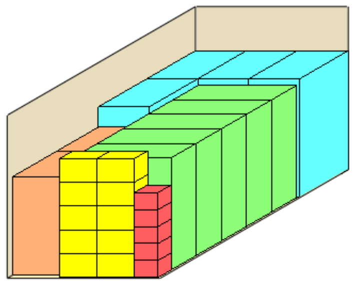
OUTSTATION PARTS COLLECTION VS DELIVERY & IMPACT ON INVENTORY HOLDING - KANBAN																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
opening b	4	4	6	5	4	6	5	4	4	5	4	2	4	3	2	2	5	4	3	7	6	5	5	7	6	5	6	5	4	4	6
consumption		1	1	1	1	1	1		2	1	2	1	1	1			1	1	1	1	1		1	1	1	1	1	1		1	1
colln		3			3				3			5				3			2				3			3				3	
delivery		3			3				3			3				3			5				3			2				3	
closing ba	4	6	5	4	6	5	4	4	5	4	2	4	3	2	2	5	4	3	7	6	5	5	7	6	5	6	5	4	4	6	5



Loading Simulation Through Design Tools

Vendor Name	Pack Type	Pack Qty	Pack Length (mm)	Pack width (mm)	Pack Height (mm)	Part Usage / Day	No. of Package reqd / Day	07:30	08:15	09:00	09:45	10:30	Lunch	12:00	12:45	13:00	13:45	14:30	15:15	16:00	16:45	18:00	18:45	Dinner	19:30	20:15	21:00	21:45	22:30	23:15		Pack Code	Trip 2
VENDOR 1	BOX	20	400	300	215	1200	60	6.0	6.0	6.0	6.0	6.0	0.0	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0	6.0		C-006	**12**
VENDOR 2	BOX	22	400	500	300	2040	93	5.5	5.5	5.5	5.5	5.5	0.0	5.5	5.5	0.0	5.5	5.5	5.5	5.5	5.5	5.5	5.5	0.0	0.0	0.0	0.0	5.5	5.5	5.5		C-009	**11**
VENDOR 3	TROLLEY	40	1524	889	1676	1200	30	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0		T-018	**6**
VENDOR 4	TROLLEY	140	1500	650	1500	1200	9	0.9	0.9	0.9	0.9	0.9	0.0	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9		T-017	**2**
VENDOR 5	TROLLEY	240	1520	1000	1720	1200	5	0.5	0.5	0.5	0.5	0.5	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5		T-019	**1**
VENDOR 6	TROLLEY	160	1700	710	1780	1200	8	0.8	0.8	0.8	0.8	0.8	0.0	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8		T-020	**2**
VENDOR 7	TROLLEY	160	1700	710	1780	1200	8	0.8	0.8	0.8	0.8	0.8	0.0	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8		T-020	**2**





Packing Improvement for Transport Cost Reduction

Before Stacking:

Therefore Trips / week = 6

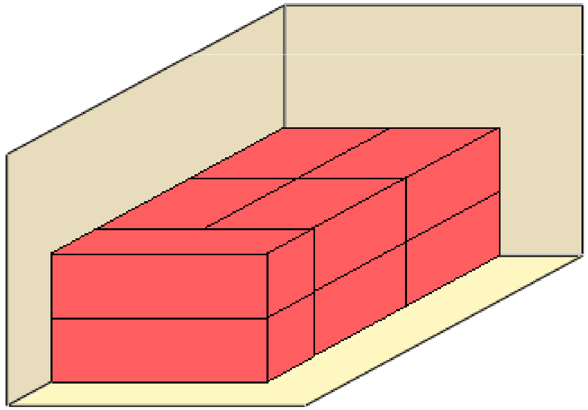
Part : Muffler

After Stacking:

Therefore Trips / week = 3

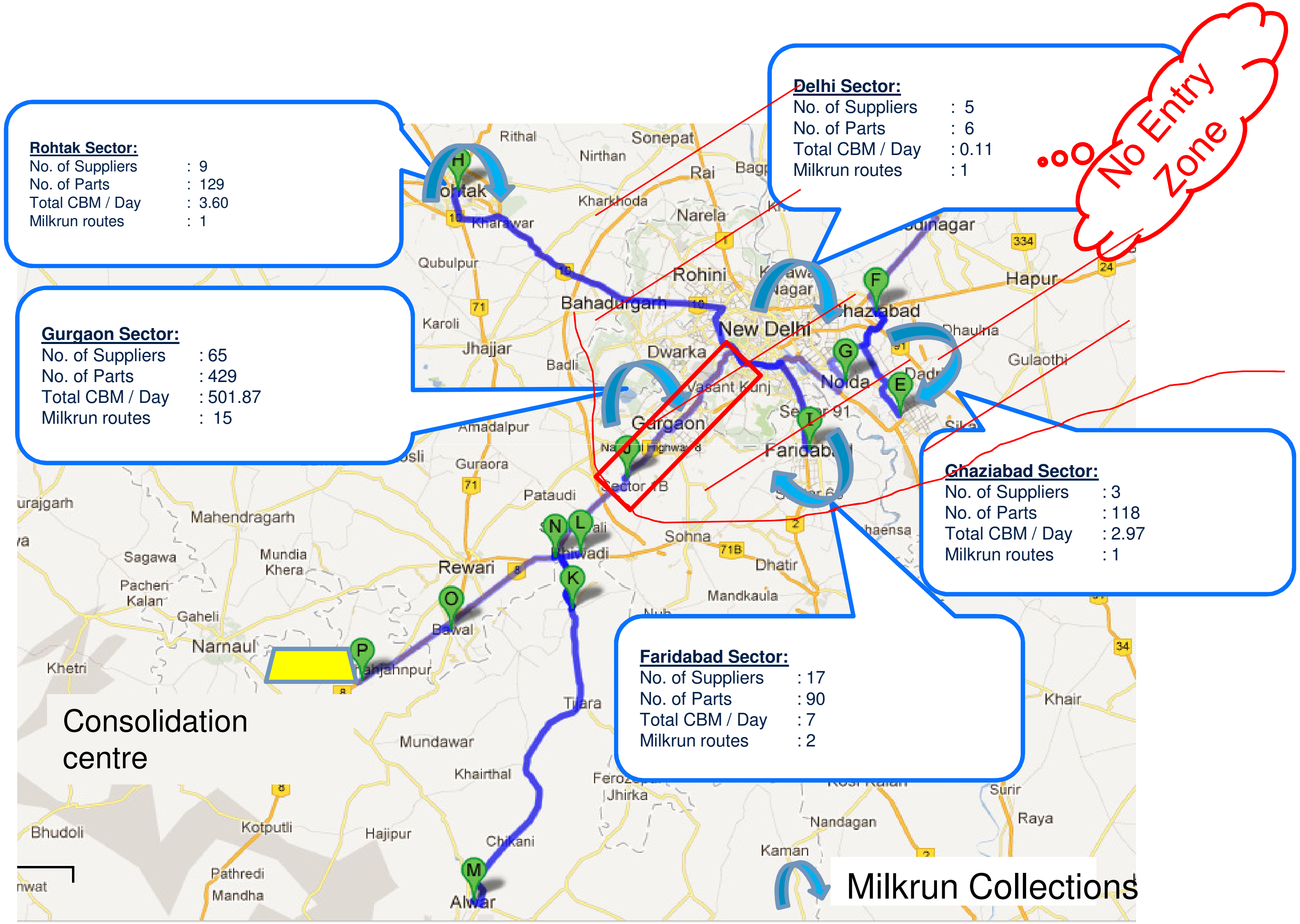
Part : Muffler

Cargowiz simulation



50% reduction in number of weekly trips for this route

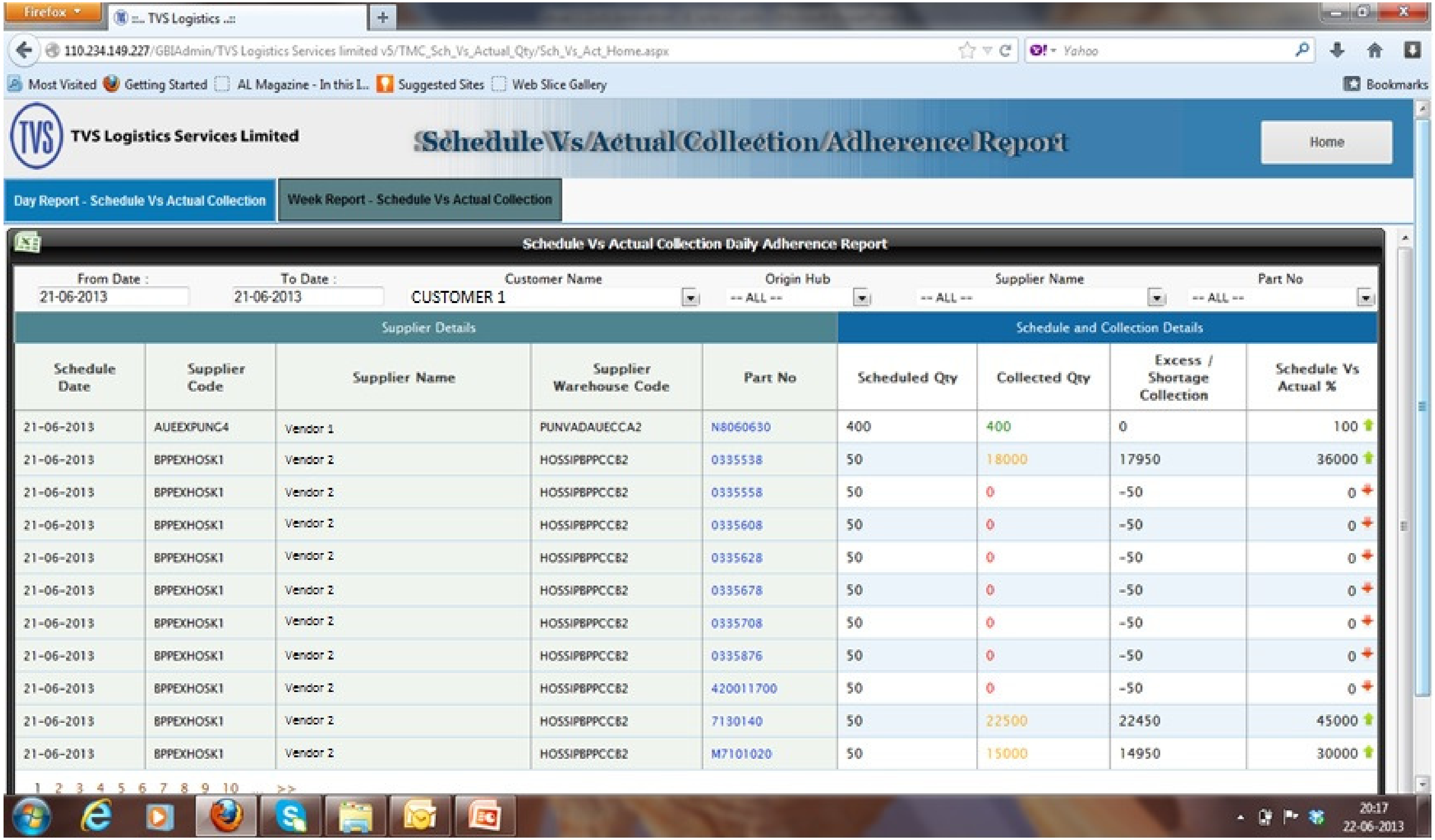
Factoring In the Traffic Restrictions or Challenges



Truck customization for Weight / Volume Enhancement

Truck Customization

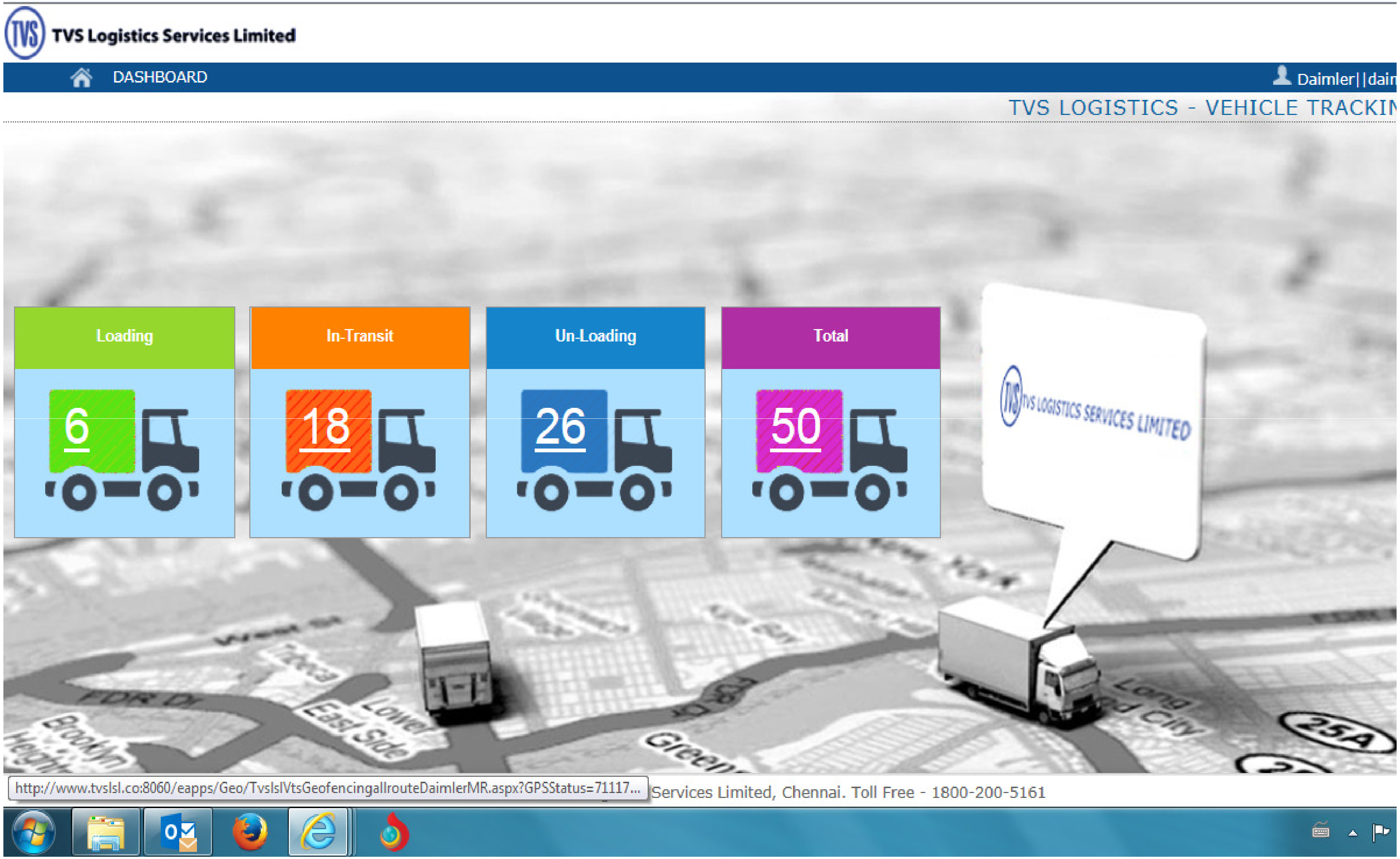
Supply Chain Visibility through IT – Schedule vs. Collection



Supplier Details					Schedule and Collection Details			
Schedule Date	Supplier Code	Supplier Name	Supplier Warehouse Code	Part No	Scheduled Qty	Collected Qty	Excess / Shortage Collection	Schedule Vs Actual %
21-06-2013	AUEEXPUNC4	Vendor 1	PUNVADAUECCA2	N8060630	400	400	0	100
21-06-2013	BPPEXHOSK1	Vendor 2	HOSSIPBPPCCB2	0335538	50	18000	17950	36000
21-06-2013	BPPEXHOSK1	Vendor 2	HOSSIPBPPCCB2	0335558	50	0	-50	0
21-06-2013	BPPEXHOSK1	Vendor 2	HOSSIPBPPCCB2	0335608	50	0	-50	0
21-06-2013	BPPEXHOSK1	Vendor 2	HOSSIPBPPCCB2	0335628	50	0	-50	0
21-06-2013	BPPEXHOSK1	Vendor 2	HOSSIPBPPCCB2	0335678	50	0	-50	0
21-06-2013	BPPEXHOSK1	Vendor 2	HOSSIPBPPCCB2	0335708	50	0	-50	0
21-06-2013	BPPEXHOSK1	Vendor 2	HOSSIPBPPCCB2	0335876	50	0	-50	0
21-06-2013	BPPEXHOSK1	Vendor 2	HOSSIPBPPCCB2	420011700	50	0	-50	0
21-06-2013	BPPEXHOSK1	Vendor 2	HOSSIPBPPCCB2	7130140	50	22500	22450	45000
21-06-2013	BPPEXHOSK1	Vendor 2	HOSSIPBPPCCB2	M7101020	50	15000	14950	30000

1 2 3 4 5 6 7 8 9 10 ... >>

Supply Chain Visibility Through IT – Vehicle Tracking



Key Achievements

CRITERIA	BEFORE	AFTER
No of Trucks In Loop	80	65
Total No of Trips	140	110
Inventory Holding Value(Cr)	18.75	7.5
Capacity Utilization(CBM)	~55%	70%
Eliminated Decanting MPWR	10	0
Type of trucks used	Open/Tarpaulin	Fully Closed, container with sealing facility

THANK YOU