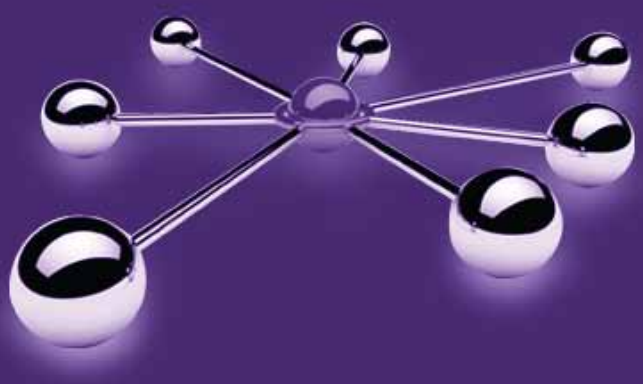
Looking Ahead – The Big Opportunity for Network Design - GST Introduction in India



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Business-friendly Solutions

Executive Summary

The supply chain network of a company is seldom optimal. Reasons for the same can often be associated with the major changes happening in internal and external environments such as demand pattern, tax policies, introduction of new products, suppliers and competitors actions, etc. which are inherently dynamic in nature. When one or more of these factors change, the network is often rendered sub-optimal. Since re-designing the network involves significant effort and cost for the company, it cannot be done for every small change which occurs. But it is imperative to carry out this activity when a major change occurs in any of the factors.

One such change is the proposed introduction of Goods and Services Tax (GST) in India which would rationalize the current, complex tax structure. Though a final agreement on GST is yet to be reached, two aspects of GST hold special significance from supply chain perspective:

1. Elimination of Central Sales Tax (CST) for interstate movement of goods
2. Uniform taxes in most parts of the country

In this paper we present ITC Infotech's understanding of the changes that will happen once GST is implemented in India and its impact on the supply chain. Further, we analyse the emergent scenarios and provide an insight on potential action points for a company in a post-GST scenario. The paper also provides a suggested methodology for optimizing your supply chain network, post the implementation of GST in India.

Post GST – Need for Network Design

The proposed implementation of GST will be one of the biggest tax reforms happening in India since independence. The current tax structure is very complex and differs from state to state. The evolution of GST can be seen as a gradual transformation of a disparate, complex and cascading tax structure into a largely unified value added system of taxation.

The current tax structure can be classified into three categories:

- Central indirect tax: Custom duty, Central excise duty, Central service tax etc
- State indirect tax: Value added tax (VAT), entry tax, luxury tax, entertainment tax etc
- Local tax: Octroi and other entry tax

Highlights of the proposed GST tax structure are:

- Dual GST for centre and states, Integrated GST (IGST) on interstate transactions
- Free credit flow-No cross credit for Central GST (CGST) & State GST (SGST)
- Refund of unutilized accumulated ITC (income tax credit)
- Between 12% to 20% in year 1, 12% to 18% in year 2, 16% in third year

The impact of current fiscal policies has been such that most companies had to give priority to tax benefits over operational efficiency. As an example, many companies have established warehouses in all states where they have a significant market size and transact on "stock transfer" as a way to nullify CST which is paid during interstate sales. Post GST the very existence of many of these facilities will come into question. We provide an illustration to better understand the impact of GST on your supply chain:

Illustration

Assumptions:

- Excise rate 10%, VAT 12.5%, CST 2%, GST 16%
- Some sort of manufacturing at Vendor, Manufacturing location and Warehouses
- Stock movements from manufacturing location to warehouses is treated as a stock transfer (ownership doesn't change)
- From warehouses to WDs (wholesale dealer) ownership changes
- Vendor is in Karnataka state, Manufacturing unit in Karnataka state, WD (wholesale dealer in Tamil Nadu state)
- There are two warehouses-one in Karnataka & one in Tamil Nadu
- Value wise margins for different echelons are kept same

Scenarios:

- Scenario 1-Pre GST & Interstate sale happens during ownership change
- Scenario 2-Pre GST & Interstate stock transfer and then sales happening
- Scenario 3-Post GST & Interstate sale happens during ownership change
- Scenario 4-Post GST & Interstate stock transfer and then sales happening

		Pre GST	Net Tax	Post GST	Net Tax
Vendor	Cost of manufacturing	100		100	
	Excise	10	10		
	VAT	13.8	13.8		
	GST			16	16
	Final Price	123.8		116	
	Total Tax Paid		23.8		16
Manufacturing Unit	Value addition (Mfg Unit)	50		50	
	BasicPrice	173.8		166	
	Excise				
	VAT				
	GST			26.6	10.6
	Final Price	173.8		176.6	
	Total Tax Paid				26.6
Warehouse(Karnataka) to Tamilnadu WD	Value addition	50		50	
	BasicPrice	223.8		226.6	
	Excise	22.4	12.4		
	VAT	30.8	30.8		
	GST			36.2	25.7
	CST	5.5	5.5		
	Final Price	272.4		252.2	
	Total Tax Paid		72.4		52.2
Warehouse(Tamilnadu) to Tamilnadu WD	Value addition	50		50	
	BasicPrice	223.8		226.6	
	Excise	22.4	12.4		
	VAT	30.8	30.8		
	GST			36.2	25.7
	CST				
	Final Price	266.9		252.2	
	Total Tax Paid		66.9		52.2

Scenario 1

Scenario 3

Scenario 2

Scenario 4

A way to move

Summary:

Pre/Post GST	Scenario	Final Price	Net Tax Paid
Pre GST	Scenario 1	272.4	72.4
Pre GST	Scenario 2	266.9	66.9
Post GST	Scenario 3	252.2	52.2

As per the above analysis one can understand the reason for establishing the warehouses in most of the states and using stock transfer (to prevent CST impact) as a preferred mode of transaction. Post-GST scenario the net tax paid will be less which reduces the price of the products. It also questions the need for two warehouses in both states.

The above analysis leads to further scenarios which also need to be analysed:

- Warehouse only at Karnataka
- Warehouse only at Tamil Nadu
- Warehouses in both states (one each in Tamil Nadu and Karnataka)

The three scenarios should be analysed with other costs added such as inventory cost, primary and secondary freight cost. The decision should also be based upon the degree of service levels achieved and responsiveness. A quick summary of analysis done on a CPG major in India (post GST) is given below:

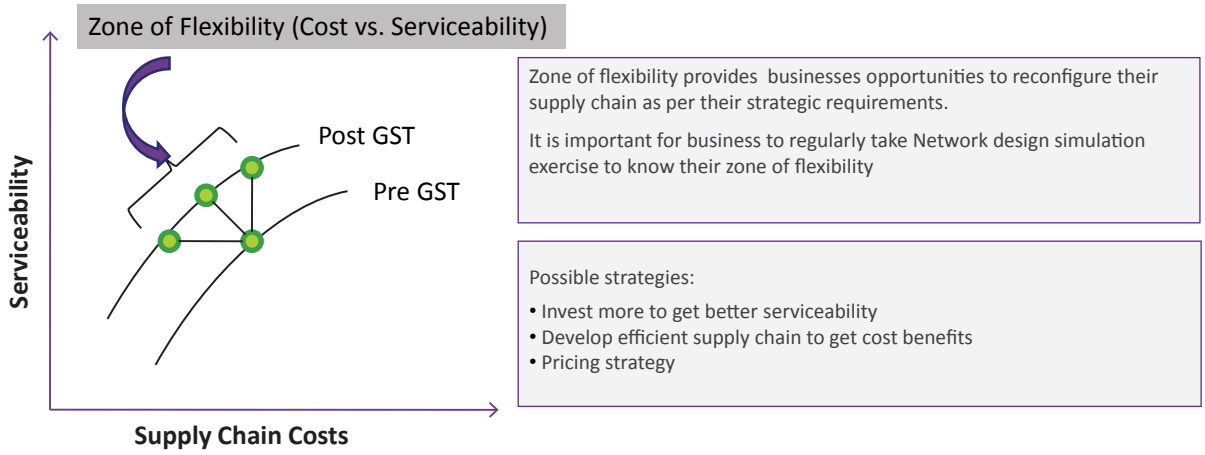
- The number of warehouses has reduced to 36 from (current) 45. Many existing warehouses closed and new warehouses opened.
- Days of inventory reduced by 20%
- Primary freight cost reduced and secondary freight cost increased slightly

There are many positives and some negatives associated with this reduction in supply chain complexity.

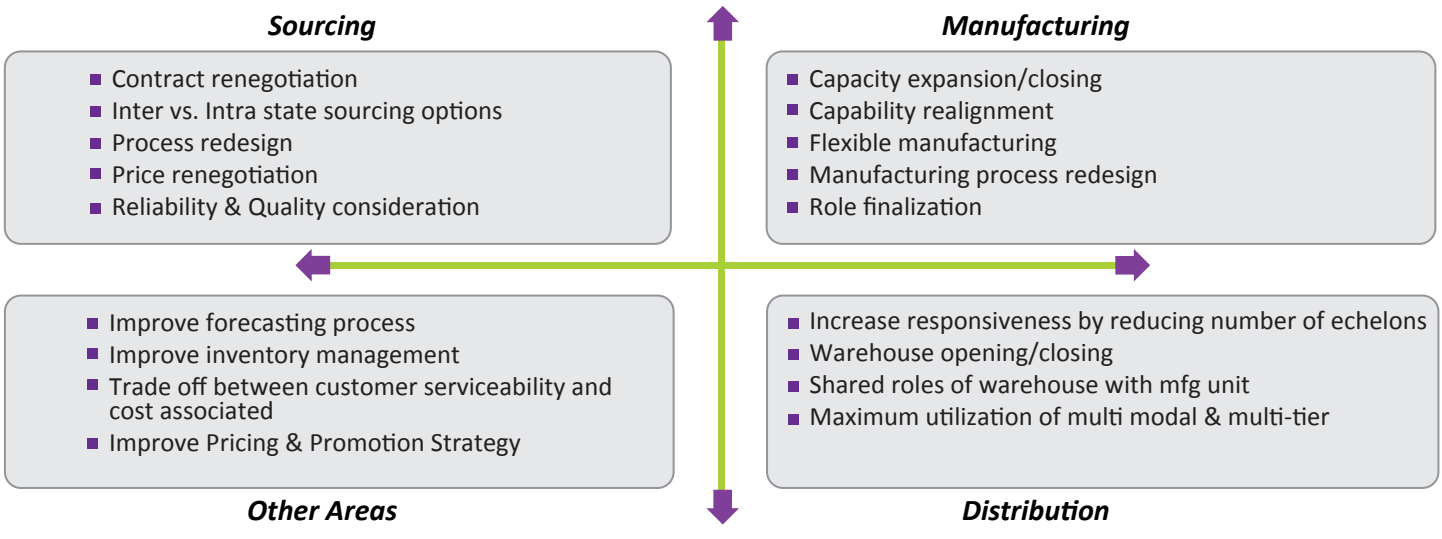
Positives	Negatives
Bigger consolidation of demand at warehouses	Route planning becomes a challenge as warehouses have to deal with dealers in a bigger geography
Reduced variation in demand at warehouses	Secondary freight cost will increase
Improved inventory management	Truck load utilization will reduce in secondary distribution

Improved demand planning	In lower lead times the service level will experience a little impact.
Reduced production complexity (less changeovers)	
Reduction in number of echelons in supply chain	
Increase in truck load utilization (especially in primary freighting)	
Reduced cost for improving service level	

The figure below gives a comparison between supply chain cost and serviceability achieved. Zone of flexibility is a zone which provides businesses with a delta of supply chain cost to improve serviceability in post-GST scenario when compared with pre-GST scenario. Businesses get the flexibility to adopt the best possible strategies which align with their business objectives.

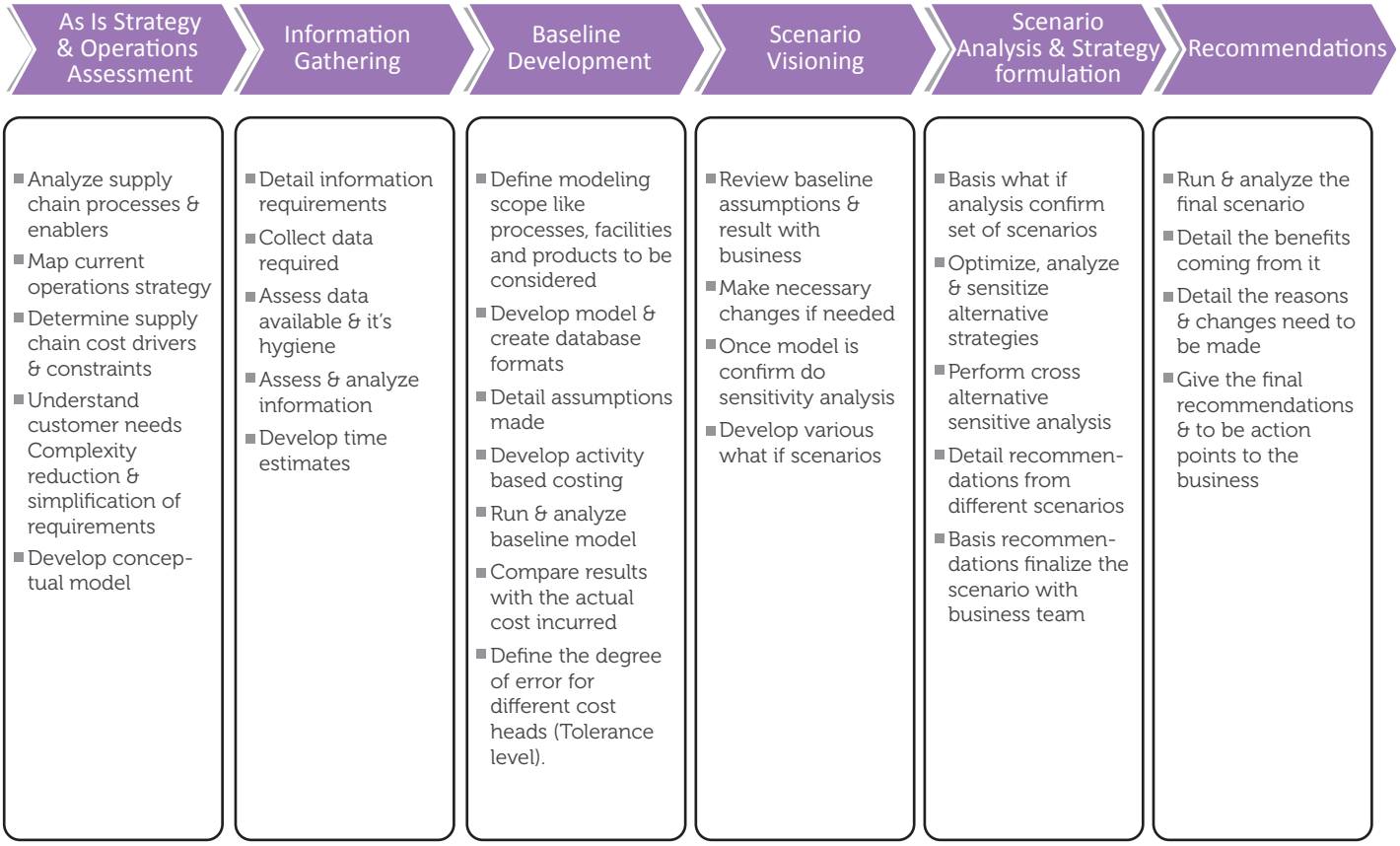


Post-GST companies will look forward to enjoy the benefits of economies of scale and align their objectives to take advantage of operational efficiency. The figure below gives the list of future action points in different areas.



Methodology for Supply Chain Network Design – Post GST in India (Our approach)

Network design exercise provides platform to analyse all the things explained above. It is a powerful modelling approach to suggest timely changes in the network in a pre- and post-GST scenario. The feature for sensitivity analysis provides platform to analyse various "what if" scenarios. Our approach for doing network design exercise is as follows:



Post GST – Network redesign approach

Network design exercise provides platform to analyse all the things explained above. It is a powerful modelling approach to suggest timely changes in the network in a pre- and post-GST scenario. The feature for sensitivity analysis provides platform to analyse various "what if" scenarios. Our approach for doing network design exercise is as follows:

	PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7
Activity	Understand-ing strategic Objectives	Data collection & aggregation	Baseline Modelling (Pre GST scenario)	Include forecasted values	Impose GST	Optimize network	Post optimization analysis
Outcome	Existing network analysis, forecast for next 5 years	SKU wise costs involved. Customer, product & geographical clustering	Variable based model for cost estimation & validation	Logistics cost of existing network without taxes	Logistics cost of existing network with GST	Zone of flexibility & analysis of alternatives within it	Selection of best possible network

Summary:

GST introduction will be one of the strong compelling factors for companies to revisit their supply chain network. The envisaged changes would be large-scale and bring into question the roles of many existing facilities (sourcing/manufacturing/distribution). The optimum network post-GST may result in realignment/closing/opening of facilities. Such transitions are seen to have long lead times, three months to three-four years, depending on the type of industry and type of transition. Companies must revisit their network considering next two to five year horizon so as to be proactive enough to respond to big ticket changes like GST.

References:

- CII paper: Gearing for GST
- ICAI paper on Goods & Services Tax in India

About the Author(s)

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About the ITC Infotech Business Consulting group

ITC Infotech's Business Consulting Group provides rich business consulting capabilities across key business functions such as product design & development, manufacturing & supply chain management, sales & service, loyalty & customer relationship management, etc. The group has expert practices around Enterprise Performance Management, CRM and Loyalty, SCM and Operational Excellence, Auto ID Solutions and Corporate Sustainability. Our domain experts and management consultants bring in expertise of addressing customer needs and problem statements in these areas across verticals such as CPG, Retail, Process & Discrete Manufacturing, Travel & Hospitality, Banking & Financial Services and Logistics & Transportation.

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