

# *Managing Multiple Supply Chains*

a practical guide to  
Supply Chain Development

From

The **LOGISTICS**  
Business

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*"So much of what we call management consists of making it difficult for people to work"*

**Peter Drucker**

## SUMMARY

*"Supply chain, value chain, demand chain, added value, lean, agile" – these are some of the many buzz words of recent years. There's lots of good thinking behind them but what really matters to managers is how they can translate this thinking into practical ways of developing their business. Many aspects of Supply Chain Management are now being handled much better than just a few years ago but one is still causing problems - businesses are thinking about single supply chains not networks made up from many supply chains.*

*The idea of a complex, modern business trying to manage as though it had one supply chain is as barmy as asking it to manage with one telephone line.*

*The sooner organisations get to grips with the idea of managing supply networks rather than a supply chain, then the sooner they will understand how they can maximise customer service and improve margins.*

## Introduction or 'What's so difficult about supply chain management?'

There has been much hype over the last few years about the importance of managing supply chains efficiently and effectively. Because of (or perhaps in spite of) this hype, it is now widely accepted that excellence in the management of supply chains is a way (for some the most important way) to competitive advantage and is much more than a passing fad. However, there is still a very long way to go for many organisations.

It does not take too much analysis of the fundamentals to realise that the principles of good supply chain management are based on what would generally be accepted as good management practice. In many respects it might be expected that any reasonable manager would see that supply chain management is mostly common sense.

*"Everybody gets so much information all day long that they loose their common sense"*

**Gertrude Stein (1874 – 1946)**

So why is it that 'sense' is not as 'common' as it should be ?

Firstly, there have been so many buzz words flying around and so many "solutions" to the supply chain that many organisations have been confused into introducing company wide, topical solutions, rather than looking at what's right for each element of the business. Some of this has arisen from IT strategies and the drive to accept standard solutions to what may not be standard problems. Most managers have many pressures and simply do not have the luxury of time to stand back and see the whole picture.

Secondly, conflicts are still being created by traditional, hierarchical, functionally arranged organisational structures. These get in the way of supply chain development, where a cross functional, process approach is one of the fundamental requirements. It is essential to get businesses to operate with 'joined up' thinking; initially within the internal organisation and then with suppliers and customers. This problem is now pretty well understood but that does not mean that there has been much action to correct it.

Thirdly, although the fundamentals are quite simple, most businesses get confused by the network of interacting activities. It takes some clear analytical thinking to separate the “wood from the trees”. It is difficult to manage day to day and undertake significant restructuring of the supply chain at the same time. Figure 1 illustrates the point. In this example there are clearly several different supply chains in

Some customers only receive product from the factory or only from the depot whilst others may receive from both. These are clearly multiple supply chains.

This may seem complex and yet this example is relatively simple compared to what many organisations have to manage.

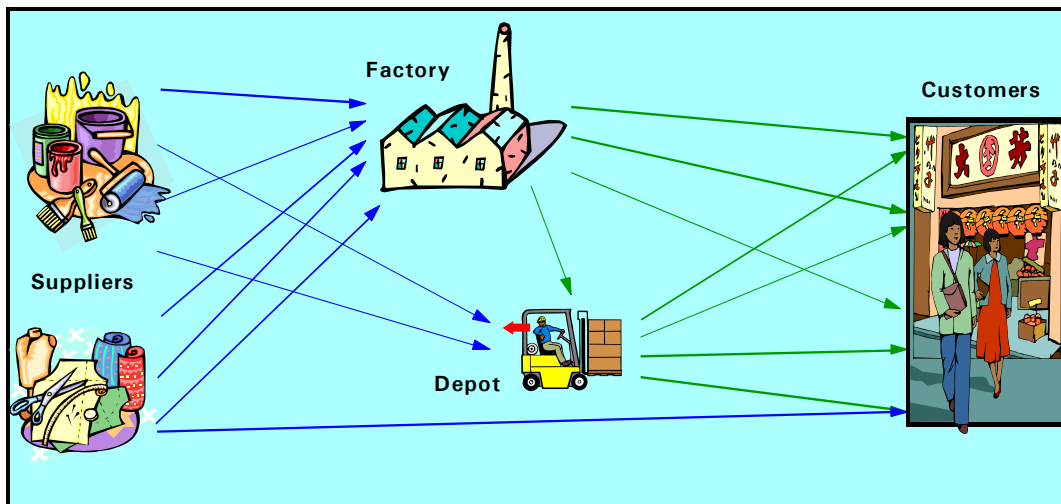


Figure 1 – Simple supply network

operation. Some products flow from suppliers in component form through the factory and out direct to customer whilst others cannot be made to order and are supplied from the depot. Yet others require no factory input and this group are supplied direct from supplier to end user.

It is this third issue of managing multiple supply chains which we believe needs urgent attention and is the focus of this paper.

## Lean or Agile?

Part of the reason for lack of progress comes from that going on around what a good supply chain should look like. This is particularly true with the debate between lean and agile. Different members of the academic community argue strongly for one or the other, whilst managers in industry and commerce demand both at once. Everyone uses examples to illustrate their point of view but of course each example is from a different industry or market place. What this really illustrates is that the supply chain characteristics which suit one particular market/product/customer combination are not necessarily right for another.

What is even less well understood is that those differences in supply chain characteristics exist across the product range of individual organisations.

Many organisations, as they try to optimise their operation, fail to realise that they are dealing not with one or a few supply chains but with several; or even many. Some may need to be lean (typically commoditised products),

others agile (typically higher value, premium products) with the rest falling somewhere in between. Even considering just one product, a business may benefit from a more agile supply chain for one customer and a leaner one for another.

The following diagram shows some supply chain characteristics. Many organisations when considering each product and customer could end up putting ticks in every box.

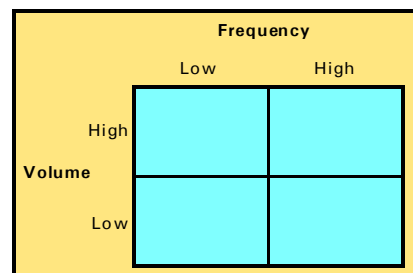


Fig 2 – Volume / Frequency Matrix

The same could easily be true for this diagram as well.

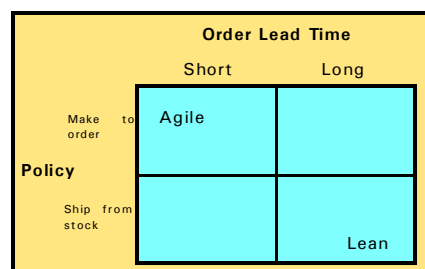


Fig 3 – Lead Time / Inventory Policy Matrix

Agile supply chains can often command a higher price for a product on the basis that the agility results in more responsive service and reduced cost or risk for the customer's supply chain. Consequently, it might be assumed that many companies will want to migrate their businesses in that direction; but this is easier said than done. Furthermore, products requiring a lean supply chain are more likely to be high volume and reasonably predictable and so although lower in margin may be an important 'cash cow'.

Most organisations have many products and many customers. Even with no planning, this will inevitably create many different supply chains within the business. However it is unlikely that these will span the full range between agile and lean. Indeed, however desirable a mix of lean and agile may be, the greater the range, the harder the business will be to manage.

## How many supply chains does a business need?

From a purely operational point of view, a business with just one supply chain will be the easiest to manage. However, if all commercial factors are taken into account, one supply chain for all products and customers will not lead to best customer service and there will inevitably be considerable management effort expended in trying to deal with customer service problems.

At the other extreme, too many supply chains will also be difficult to manage and for any given business there will be an optimum number of supply chains and a network of these which makes best use of assets and resources. There are many examples of where this balance has been lost, where an organisation has developed their range and expanded the customers base into new areas with very different supply chain requirements and run into problems. If it were not for this problem there would be no role in the marketplace for wholesalers.

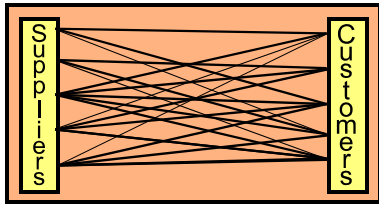


Fig 4 - Typical Customer Supplier

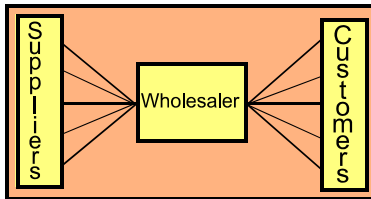


Fig 5 - The effect of the wholesaler

Clearly the wholesaler adds cost which many organisations in recent times have felt can be removed by reverting to direct delivery. Even more recently this has extended to the increase in direct imports by many retailers. Both approaches have a cost but those in the direct model are not always as well understood.

The task for any organisation is to optimise its network to maximise service, minimise cost and provide an appropriate level of response.

These are the primary drivers of supply chain effectiveness - service, cost and time.

## Multiple Supply Chains and Supply Networks

Almost all organisations have multiple supply chains. However, if they are not managed it is certain that they will not be optimised to deliver best customer service and best return for the business. The fact is that many organisations have failed to identify all their supply chains, let alone manage them.

The configuration of a supply chain is not only dependent on product, market and customer, it can also be dependent on time. Christmas peaks in retail, for example, will very often require some products to be supplied differently than they would be at quieter times of year. This time dependency is just another way of describing a change in the market, which, as we have said, requires a change in the supply chain.

Another example is promotional activity. It is common in retail to run a promotional activity which will begin with an initial fixed allocation of stock to each store in time for the start of the promotion and then follow this up as required with sales replenishment.

Allocation push and sales replenishment pull have very different supply chain characteristics and need very different management.

Few of the many supply chains within one organisation will be totally independent from the others. They will share resources at some place or time; warehouse facilities, for example, or transport. The result is then a supply chain network. It is the strategy for this network that a modern business has to get right.

*Being prepared -*

*"I always keep a supply of stimulant handy in case I see a snake .... which I also keep handy."*

**W.C. Fields**

## Developing a supply network strategy

This can be summarised in five key steps

- ∞ Understand what supply chains you have
- ∞ Define what drives customer service – aligning with customers and suppliers
- ∞ Understand the cost drivers of each supply chain and the total cost/reward impact
- ∞ Minimise the number of different supply chains that are required to deliver the required level of service and to respond appropriately to the dynamics of the market place
- ∞ Develop the network that allows these supply chains to make best use of resources and assets

Let's take each of these steps in turn :-

## Understanding what supply chains you have

Process mapping is one of the best techniques for developing an understanding of the supply chains an organisation has. The process map will include a flow chart for the processes involved in moving goods through each supply chain. It will include performance metrics and process timings. It should extend well beyond your organisation to your suppliers and customers, probably to their suppliers and customers and maybe even beyond. It is certainly important to see the impact the end customer has on each supply chain.

In drawing maps for this purpose judgement will be required to determine when a product, service, customer, type of demand, etc. is different to another and when it can reasonably be regarded as the same. If this is the first time that such a process has been followed it is probably best to place greater emphasis on the differences. Processes or metrics can easily be re-combined later.

## Defining what drives customer service

### *Customer Alignment Mapping*

Customer Alignment Mapping is the process of mapping your organisation's supply chain processes onto each of your customer's supply chain processes and seeing how well matched they are. In some cases the customer may be internal, in others external. Out of this process should come a list that are closely aligned and a list that are not. The task then is to bring the second list into line without disturbing the first. This is not as straight forward as it might seem. In some cases the misalignment may be due to your organisation not meeting your customer's demands or needs and these must be addressed. In others it may be that you could offer a better service if, for example, you could have better access to your customer's stock or demand data or that in order to align with your customer you are going to have to incur considerable extra cost.

A particularly important requirement is to judge where your organisation needs to be with each product and customer between lean and agile. Often this will also need to take into account each product life cycle.

### **Supplier Alignment Mapping**

This is very similar to customer alignment mapping except that this time we are looking up the chain. Usually you will have more influence here although not always. Again the objective is to see how closely aligned you are and then to agree what needs to be done either to your processes or your suppliers in order to become aligned. A key question to be asked here is "are we making the most of our suppliers' capabilities?" This exercise may also extend further up the supply chain to suppliers' suppliers and beyond. An initial investigation to check whether each tier is still impacting your own processes will indicate how far it is worth going.

During this exercise it will also be important to check if what we *need* from our suppliers and what our processes are asking for are one and the same.

## **Understanding Cost Drivers**

The costs of operating a supply chain are rarely well understood. Where an organisation has multiple supply chains then it is even more unlikely that the costs of each chain will be understood. Some may be profitable, some may not.

An activity based costing approach is an appropriate way forward. The starting point is to select those processes which are the key drivers of cost and then to apportion costs, both direct and overhead, to them. Many organisations shy away from doing this due to the complexity involved but it is not always necessary to go into the amount of detail suggested by some. This is definitely an area where the law of diminishing returns applies and great benefit can be gained without going into too much detail.

Bringing all of the cost threads together can be greatly simplified through the use of software tools such as *i-cost* developed by THE LOGISTICS BUSINESS.

## i-cost Model

The screen dump in Figure 6 is a simple example of the type of output that *i-cost* can be configured to produce. It shows the main results screen where the

A further feature of this model is that the Central facility can be added and removed by ticking a box and re-running the model. This illustrates the likely total distribution costs with and without the Central facility.

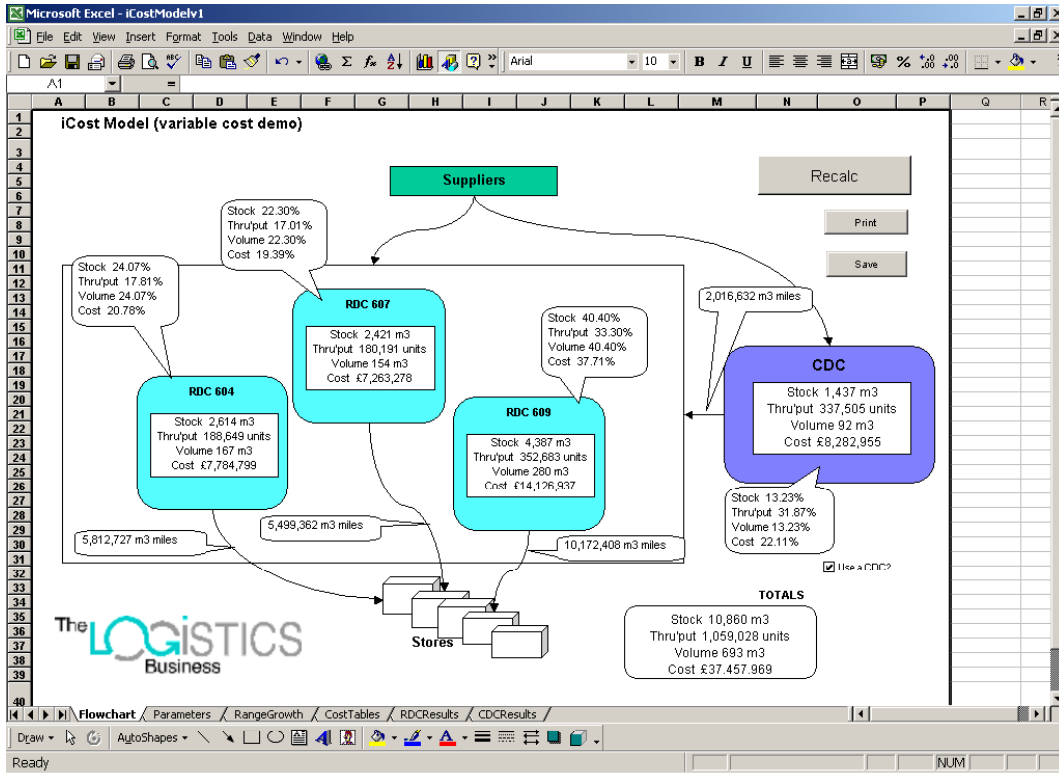


Fig. 6 *i-cost* model

distribution costs based on the data entered and parameters set are presented.

It shows a network of three Regional Distribution Centres and one Central Distribution Centre. Key activity metrics for each centre are displayed together with the forecast operating cost for each. These metrics and costs are also totalled separately.

If required further output can be produced in report format.

By adding and removing products or customers or experimenting with different supply routes a good indication can be gained of the costs of operating different supply network configurations. From this a view can be taken on the relative costs and benefits of the various options.

## Minimising supply chains

What makes one supply chain different to another is its dynamics which can be expressed in terms of :-

- ↳ Customer demands (which may not be the same as needs) – driver for throughput, stock and service
- ↳ Product characteristics – driver for volume, weight and fragility etc.
- ↳ Supplier capability – driver for stock holding and service

Where all these dynamics are the same or similar we can regard the supply chains as the same. Where they are different (some judgement and common sense is required to determine how different they need to be) then the chains should be treated as different. Bringing these chains together results in supply networks.

## Developing the network strategy

Having mapped your customers, your suppliers and your own processes, and understood the cost drivers it should now be possible to start working on a network strategy.

Firstly there are some big questions to ask :-

- ↳ Now I understand the cost of supplying each product to each customer are they all profitable and are there some that I no longer wish to be involved with?
- ↳ Are the other supply network metrics acceptable or are changes required ?
- ↳ Are needs and demands one and the same in all parts of the supply network ?
- ↳ Are there mismatches between the processes I offer and those my customers need and request ?
- ↳ Do my processes optimise my Suppliers' ability to meet my needs?

In answering these questions it is useful to consider a number of factors which may help to develop the new processes needed to compete, but always remembering that these are merely means to an end rather than the end itself :-

- ↳ Plan by category – categorise product according to demand (throughput), unit load, size, shape, fragility, packaging shelf life etc. Plan the supply chain for each category to suit its characters.

- ↪ Agile v Lean – What costs can we remove without detriment to customer service? What are the costs of increasing responsiveness? What are the costs of reducing lead times?
- ↪ Added Value – Are each of the activities in the supply chain necessary for the fulfilment of customer service? If it is not necessary can the step be removed? Added value processes can be hugely important to improving margin but if not managed carefully can erode it instead.
- ↪ Customers – How are costs influenced by customer demands? Can customer needs be met in a way that reduces our costs?
- ↪ Assess supplier value – what more can suppliers do for us that help us serve our customers at lower cost?

## Conclusion

In this paper we have sought to show that success in supply chain management will come more from the application of common sense than from the slavish adoption of fads and buzzwords. Many improvements have been made in recent years in the management of supply chains but there is still a long way to go. In our view the most overlooked area is the notion that an organisation has just one supply chain. Once it has a strategy for a supply network it will have made a significant step forward.

*"If A is success in life, then A equals x plus y plus z. Work is x; y is play; and z is keeping your mouth shut."*

**Albert Einstein**

“Organisations exist to enable ordinary people to do extraordinary things.”

**Ted Levitt** (Former Editor, Harvard Business Review)

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