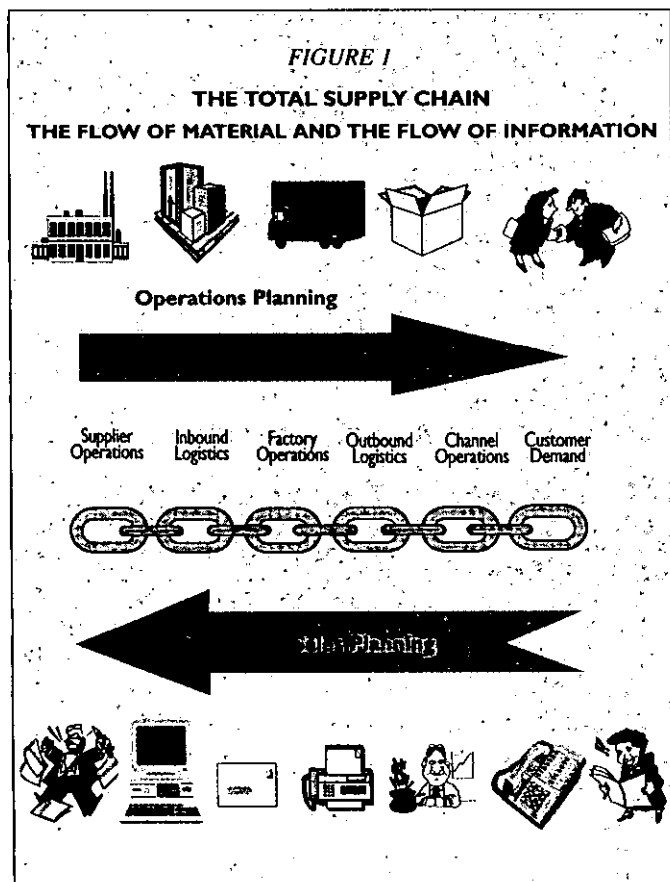


PLANNING TO MEET THE CUSTOMER DEMAND

Geoff Relph, MIOM, IBM

Do you consider Sales and Operations Planning to be a Value Add process or a necessary evil?

In truth, the Sales and Operations Planning must be a value add process, as they mastermind the total supply chain. Sales planning involves the flow of information, from the taking of the customer's orders to translating them into the appropriate manufacturing and supplier's orders. Operations planning involves the flow of materials from raw materials through to the finished product arriving at the customer. These processes flow in opposite directions in the supply chain. Therefore, sales planning, flow of information up the supply chain, is about getting close to the customers, whilst operations planning, flow of materials down the supply chain, is about getting close to the suppliers.



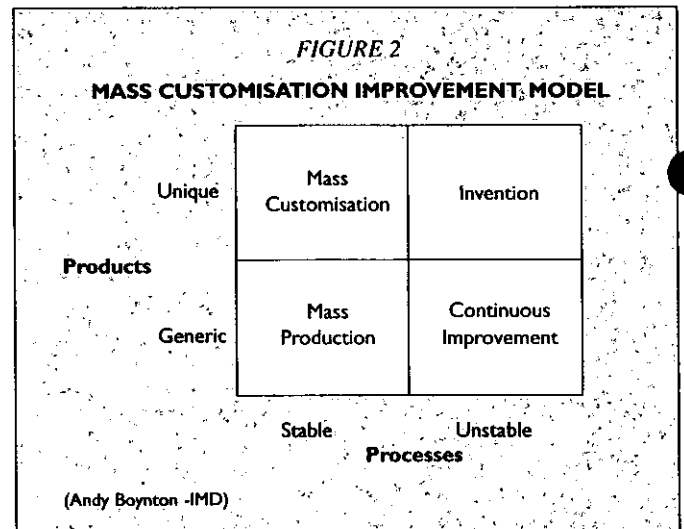
During the 80's the focus was on the flow of materials, using techniques such as Lean Production, Kanban, Tightly Coupled Logistics etc., ad nauseum. This achieved an efficient flow *down* the supply chain and consequently *down* our motorways (not a quick flow if you were on the M25!). The 90's and 00's will be about using the emerging information technologies to get the same efficiency in the flow of information up the supply chain on the information 'super highway' ie. the Web or WWW (World Wide Wait, the M25 of the Internet!).

According to Bob Dean, Global Supply Chain Competency Leader for IBM, those masterminding the supply chain must 'Achieve a sustainable competitive position and maximise stake holder value by optimising the relationship of process, information and physical goods between trading partners'. So, how will the flow of material and flow of information processes evolve to ensure that these trading partnerships remain competitive in the new century?

THE FLOW OF MATERIAL

In this area there are still an enormous number of changes which could be made. *Mass Customisation* is now perceived as the best practice improvement model for the development of the flow of material process. The flow of materials within enterprises can be classified as being either Invention, Mass Production, Continuous Improvement or Mass Customisation.

Mass Customisation is only achieved when the enterprise has matured through these four development phases.



Invention

Invention was the principal method of production before the Industrial Revolution. This involved the creation of every product from scratch, with infinite craft skills being used to meet each customer's unique demand.

Mass Production

The production methods introduced by Henry Ford illustrate the changes brought about by Mass Production. In order to be a mass producer, stable processes were required even if it meant limiting the variety of the product. Therefore the Model T was available in any colour as long as it was black! The cycle time achieved by Ford is still a benchmark for today's industries. Mass Production centralised the production of the product and thus created the need for a supply chain. This was the case because centralised production was based on large batch production, relying on finished goods inventory which led to the need for a process of 'Mass' distribution.

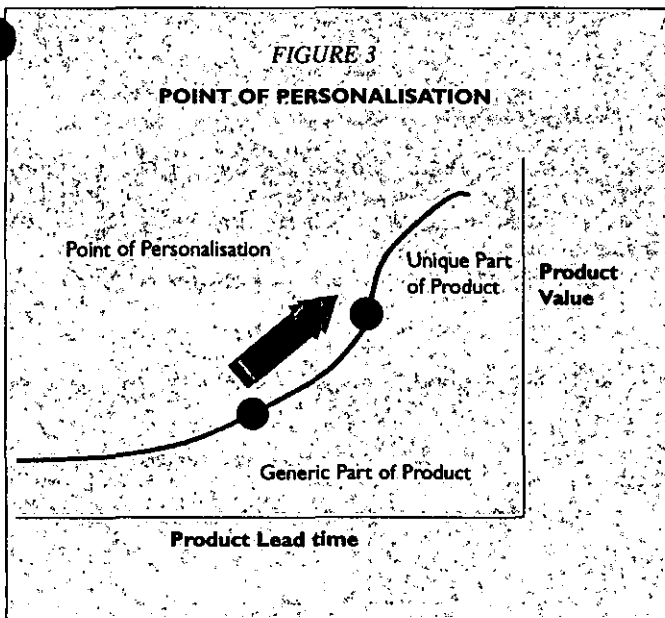
Continuous Improvement

The baby boomer generation had an insatiable appetite for new products and as the demand exceeded the available supply, the Mass Production enterprises were driven to their absolute limit. These enterprises found themselves in a situation where they could charge anything for a product on the shelf. It was only when this capacity exceeded the demand that the need for cost reduction and thus the need for continuous improvement really kicked in - competitive forces do not respect stable processes. Therefore, processes had to change to make the products even cheaper in order to retain the increasingly sophisticated customers who had been quick to realise their new position of consumer power.

Mass Customisation

The final phase, which is now in progress, will provide the customer with the same degree of personalisation as the village blacksmith of the invention phase. However, this personalisation will be provided by a highly flexible production process and an efficient supply chain which will deliver personalised products from these Mass Customising enterprises. Henry Ford would no doubt be spinning in his grave at the prospect of a personalised Model T in Red or Blue etc. which shared a common chassis with a VW!

These are phases on a voyage of improvement that many enterprises have come close to completing. In the future we will see enterprises that have pinpointed and developed their core technologies, (the main manufacturing processes) whilst decentralising their finishing processes so they are as close to the point of sale as possible. The processes that are core to the business will be jealously guarded whilst non-core manufacturing processes will be out-sourced along with any support processes that do not add value. The aim will be to move the Point of Personalisation, the point at which the products become 'unique' rather than 'customisable or generic', as close to the customer as possible.



Only when this is done will the Customisation be available to the Masses. The production and distribution elements of the flow of material in the supply chain will merge into an effective delivery vehicle, both figuratively and physically. There are many often quoted case studies of successful Mass Customising suppliers. An example of which is Levi's Jean Manufacture [1], who electronically transmit, via the internet, the customer's five body measurements and personal preferences to the factory in Mountain City Tennessee. The jeans are then manufactured to the customer's unique specification and finally couriered by Federal Express to the customer. In this example the personalisation is at the point of sale, as the manufacture of the jeans remains the same irrespective of size and cut.

FLOW OF INFORMATION

As this Mass Customisable Supply Chain develops it will place heavier demands on the second key element of the supply chain, the flow of information. This flow of information will mature significantly faster than the flow of material, the pace of change being dictated by the emerging technologies around e-Business. The key components of e-Business are the Internet, Secure Electronic Transactions (e-Commerce), Multi-Media, Central Order Desks (single contact points) and Digital Mock Up design processes.

THE INTERNET

The Internet will be to the youth of today what the telephone was to the baby boomers. Today the mobile telephone is always in reach and can provide immediate global voice communications. (provided that the 'VoiceMail' is not switched on!) As the Internet matures it will provide the necessary infrastructure which will enable all the other elements of the flow of information, like the formal communications and financial transactions needed between the customer, trading partner and suppliers, to operate successfully.

SECURE ELECTRONIC TRANSACTIONS

In contrast to the insecure environment that exists today on the Internet, Secure Electronic Transactions will allow businesses to de-centralise and 'go global', placing work in the most cost effective location. Confidential design and development information will be able to be passed with confidence between work centres. Routine inter-company business data, like inventory, sales and promotion information and pricing structures will also be managed in a secure and confidential process. This information is the intellectual capital of the enterprise and must be protected at all costs.

If you ever stopped to consider how insecure some of your business and personal data is today, eg. how often do you give your credit card number over the phone? You would worry a lot less about the insecurity of the Internet. Secure Electronic Transactions will provide the security necessary for e-Commerce work on a global scale.

MULTI MEDIA

In the near future, as all these communication routes converge into a single data stream it will be possible to conduct a 'Telesales' conversation via a video link. This video link will be able to:

- connect the customer's terminal to the supplier's terminal
- display catalogue items on screen
- locate stock or delivery information
- place the order and complete the financial transactions in one single conversation. For example, Kosher Foods have a secure on-line catalogue and order system already in place that allows people to purchase Kosher products from anywhere in the world.

CENTRAL ORDER DESKS

Today Central Order Desks may be monolithic buildings, but in the future it is just as likely that they will be de-centralised into the spare bedroom of the 'Telesales operatives'. This will be the case because if you have the communication links and access to information, why would you need to be in centralised offices. The contact process will not necessarily be triggered by a conventional voice phone call, customers will be able to browse the web and be able to initiate a 'Telesales' conversation at the web site.

DIGITAL MOCK UP (DMU)

In order to feed the 'Mass Customised' manufacturing process of the future, time, money and resources cannot be wasted 'cutting' metal in the design process. DMU will allow companies to design and 'build' a product in a virtual environment and even engage in on-line customisation. This virtual customisation will involve the construction of products before metal is cut to ensure the specification is correct. DMU is already established as routine in large aircraft and automotive

manufacturers decimating the cost of design and the time it takes to bring a new design to the market place.

SUMMARY

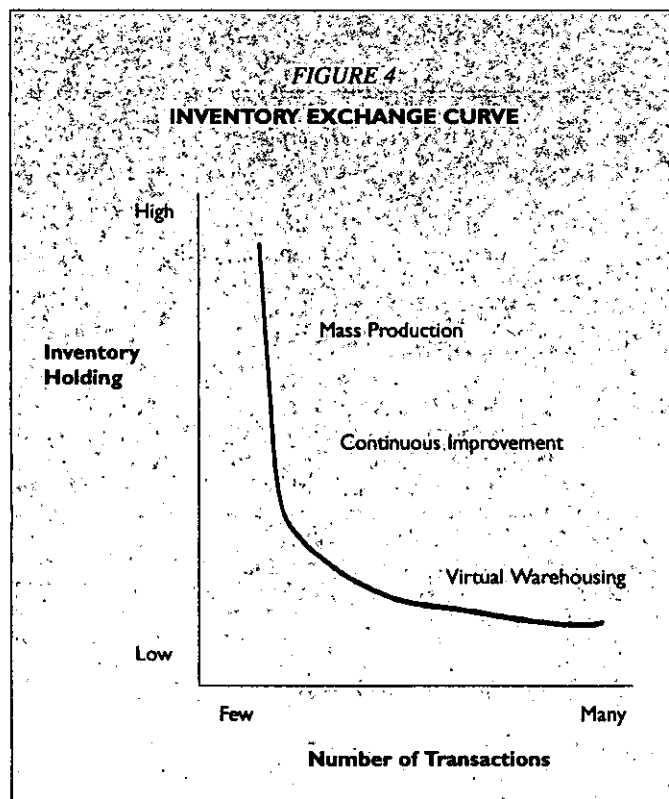
To conclude, in the very near future, in fact today, effective operations planning in large corporations will use Mass Customisation to further improve the flow of material down the supply chain. At the same time a paradigm shift in sales planning in all manufacturing and service enterprises will be brought about by e-Business as it radically changes the way information flows up the supply chain.

Enterprises using e-Business will be able to operate globally utilising 24 hours a day, using the different time zones to further compress cycle times. Mass Customisation will make satisfying the sophisticated customer's unique demand possible by only moving the product and services to the customer on demand and to the point of use.

For example eToys [2] in the USA, operate a virtual toy superstore using a variety of inventory techniques:

- drop shipment
- direct shipment from the supplier
- JIT inventory techniques
- cross-docking and some 'from stock' products.

These inventory management techniques are combined with an hourly consolidation of Web transaction to keep the inventory down to its bare minimum. eToys focus on high service levels from low inventory even though it means a higher number of material movement transactions. The customer's demand is transmitted down the supply chain instantly with little or no intervention, therefore there are no misleading 'adjustments'. The now well known 'Beer' game shows how dramatically the demand is affected when communicated directly and not via intermediaries.



Finally 'Disintermerisation' (cutting out the middle man) will focus all suppliers in the supply chain on their value add. This will be because any enterprise that steps between the customer and the supplier must add *extra* value to both customer and

supplier if it is to retain its] position in the chain. If enterprises do not change, then as it becomes easier for the customer to communicate directly with the supplier, they will be removed from the supply chain as they are non-value add. This is exactly what happened within enterprises in the 80's as the flow of material was improved by removing non-value add processes.

This means that the new differentiator in sales planning will be ability to process information up the supply chain and the differentiator in operations planning will be the delivery of customised products and services down the supply chain. Sales planning will have to focus on effective processing of information from customer to supplier to ensure value add, whilst operations planning will have to ensure that any commitments made during the sales process are realistic and that **PLANNING MEET THE CUSTOMER DEMAND**.

REFERENCES

- [1] Case Study quote from 'Making it for you - Personally' - A joint report of the Foundation of Manufacturing Industry, The Department of Trade and Industry and IBM.
- [2] John Evan Froom, 'Missing Link Emerges - Inventory Management' - *Internet Weekly* March 1998.

About the author

Geoff Relph is Senior Consultant with IBM Consulting Group working for the Manufacturing Industries Business. He is a specialist in Supply Chain, Inventory and MRP Management.

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