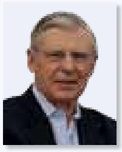
According to supply chain expert John Gattorna, the key to future success will be how well you focus on ***how*** customers buy your products and services, not just ***what*** they buy. If you follow this principle, you will gain much greater clarity when designing and managing your enterprise supply chains. In this article, Gattorna presents his thoughts about the need for new supply chain models to cope with the volatility of the modern world.

FOTO: STOCKXCHNG

Building supply chains that resolve complexity and satisfy customers in an increasingly volatile world



BY DR JOHN GATTORNA, GLOBAL SUPPLY CHAIN 'THOUGHT LEADER' AND AUTHOR

Wake-up call

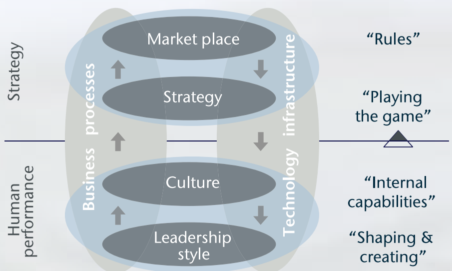
The 'new normal' operating environment for global companies is now characterized by volatility, and in extreme cases, sudden and unpredictable severe disruptions. If we accept this proposition, then we have to accept that the conventional ways of designing and operating enterprise supply chains from the 'inside-out' is seriously flawed; we simply have to find a better way to survive over the next decade, soon.

Indeed, what is urgently needed at this point in our commercial history is a new supply chain business model – one that will help us survive the shocks and uncertainties that now pervade the operating environment in many industries, and allow us to achieve profitable growth where the appropriate conditions exist, unimpeded by the distraction of continual crises.

To be of any use at all, future business models must have embedded 'dynamic' properties, designed to cope with increasingly demanding and changeable customers who themselves are under pressure from their own customers. In addition, on the supply side, the Japanese tsunami in 2011 has demonstrated that you have to know your suppliers, back at least three tiers in the chain. So the conventional 'set-and-forget' design methods of yesteryear, which focused on perfecting a 'one-size-fits-all' configuration, is dead and buried forever. There is no going back. Indeed who would wish to go back to the bad old days? The story is told in Greek mythology about the highway bandit, Procrustes, who upon capturing his prey would lie them on what became known as the 'Procrustes Bed'. Those who measured too long for the bed, had their legs cut off; and those who were too short, he put them on the rack and stretched them. Very few made it out of there alive. This is perhaps the earliest example of why 'one-size-fits-all' wasn't such a good idea!

However, the transition won't be easy. We will need strong and decisive corporate leadership with an innovative mindset, propensity for taking measured risks, and vision enough to truly transform our enterprises, always with a firm focus on

ELEMENTS OF THE 'DYNAMIC ALIGNMENT' FRAMEWORK



Underlying logic
An organisation must be aligned with its operating environment

Usefulness
Shows the interaction between customers' needs, the formulation of appropriate strategic responses, and the successful execution of these strategies by shaping the necessary internal capabilities and corresponding leadership styles

Prerequisite
Understanding of the customers' fundamental needs and buying behaviours that ultimately drive sales, revenues, and profit

Figure 1. *Source: Adapted from Figure I.2 in Gattorna (2003), p. xiii; also Gattorna (1998), p. 5; and Gattorna (2006), p.16.*

customers rather than the usual fixation with competitors. Let me assure you, customers can do comparatively little damage to us, and certainly nothing like we can do to ourselves. The real forces of darkness holding back change are predominantly found inside the enterprise itself! What we badly need is at this point in our history are leaders who lead and take on internal resistance. After that, let the competitors follow if they dare.

What we badly need is at this point in our history are leaders who lead and take on internal resistance. After that, let the competitors follow if they dare.

It's people, stupid

Although many company executives remain in denial, it is a fact that supply chains are actually driven by people and their behaviour. People are arrayed along enterprise supply chain in various forms, for example: customers, consumers/users, suppliers, and of course company staff/managements.

Processes, technology, and infrastructure assets are the inanimate enablers that people use to drive products and services through multiple supply chains towards customers, every day. But these enablers cannot on their own propel enterprise supply chains. But what do company executives really know about the people in different parts of the supply chain? Very little I dare say, and therein lies the crux of the problem. We can't take enterprise supply chains to the next level of operational and financial performance unless and until we get on top of this serious flaw in our knowledge about how things actually work in the real world where people in commerce and industry interact.

Back in 1989, about the time the Bee Gees album, 'One', was released, I and some co-workers started looking for a fundamentally new business model, something that would see all the functions/disciplines in the business involved in driving the firm's supply chains that serve customers' disparate needs. We already had a feeling that supply chains taken in aggregate summed to the overall business, just like the central nervous system in the human body. Therefore we started our search with the B2B conceptual model depicted in figure 1. It was no accident that three of the four levels in this model involved people; the other was strategy, which though inanimate in nature could also be described in behavioural terms using a behavioural metric that we had developed.

This conceptual model, for the first time, attempted to link customers on the outside with the main body of the firm represented by employees, management, and leadership on the inside. Linking the two is operational strategy. We called this concept 'strategic alignment' later renamed 'dynamic alignment' to account for the increasing dynamism in the marketplace.

Over the subsequent two decades we have worked inside hundreds of companies across the world, representing just about every possible product/service category you can think of, and the work goes on as we speak. There was no other way, because no one had gone there before. The objective of our work is as always to look for patterns and make our understanding of the alignment between customers and the enterprise increasingly granular. In other words, to set out to go from 'concept' to 'practice' through experimentation and empirical observation. And we succeeded beyond our wildest dreams, mainly because we were prepared to take an eclectic approach, and cut across subject matter boundaries.

THE FOUR MOST COMMONLY OBSERVED DOMINANT BUYING BEHAVIOURS

Collaborative	Efficient	Dynamic	Innovative solutions
Close working relationships for mutual gain	Consistent low cost response to largely predictable demands	Rapid response to unpredictable supply and demand conditions	Supplier-led development and delivery of new ideas
Mostly predictable	Predictable demand within contract	Unpredictable demand	Very unpredictable demand
Regular delivery	Regular delivery	Commodity relationship	Higher risk
Mature or augmented products	Efficiency low cost focus	Time priority/urgency	Flexible delivery response
Primary source of supply	Multiple sources of supply	Opportunity focus	Innovation focus
Trusting relationship	Little sharing of information	Ad hoc source of supply	Rapid change
Teamwork/partnership	More adversarial	Low loyalty, impersonal	Individual decision making
Information sharing	Standard processes	Fewer processes	Solutions oriented
Joint development	Power imposed	Outcome oriented	Management of IP
Forgiving	Transactional	Commercial deals based on pragmatism	Incentives/ego
Price not an issue	Very price sensitive	Price aware	No price sensitivity

Figure 2. *Source: Adapted from Table 1.3.1 in Gattorna (2003), p. 32; see also Gattorna (2006), p.41.*

MULTIPLE SUPPLY CHAIN ALIGNMENT ON THE CUSTOMER SIDE

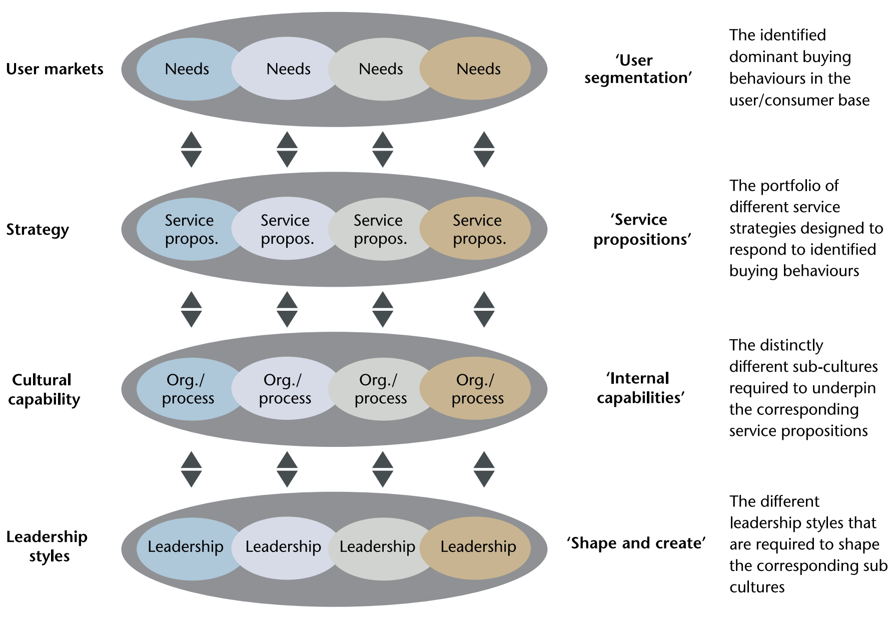


Figure 3. *Source: Adapted from Figure 4.3.2 in Gattorna (2003), p. 459; see also Gattorna (2006) Figure 2.1, p.40.*

DR. JOHN GATTORNA ER TALER PÅ PLANLÆGNING 2011

DILF har været så heldige at få John Gattorna til København for at tale på den årlige planlægningskonference. Konferencen afholdes onsdag den 2. november 2011 i København, og vil byde på spændende virksomhedscases med bud på, hvorledes planlægningsopgaven kan optimeres. Dagen efter konferencen er der desuden en enestående mulighed for at deltage på en workshop med John Gattorna.

John Gattorna har brugt sit liv på at arbejde med forsyningskæder som bl.a. forsker, rådgiver, underviser og forfatter. Undervejs har han skrevet flere bøger om emnet, heriblandt bogen: "Dynamic Supply Chains: Delivering value through people" som bliver anmeldt i dette nummer af DILForientering.

The starting point

We found from our field work that the critical 'frame-of-reference' essential to start the design process was to correctly segment customers in the target marketplace. Coincidentally, we discovered that by starting with customers on the outside and resolving complexity there, it automatically helped to resolve the complexity that had built up over time inside the business.

So, by attacking and reducing complexity in the market, and then reverse engineering everything back from there, into the inner depths of our own enterprise ('outside-in' thinking), we found a completely new lever to drive performance. A few leading companies get this connection, and if you want to know who they are, just look at the top 10 companies in the 2011 AMR-Gartner Top 25 global supply chains, supplemented by a few not so well known firms who are lead by inspirational leaders.

Of course, segmentation has many traps for the uninitiated, because there are seemingly endless ways of segmenting markets, for example: by product; by institutional type; by geography; by industry sector; by size; by profitability; and the list goes on. All are valid methods of segmenting (or grouping) customers for different purposes, but unfortunately none of this list inform the way that supply chains should be designed and operated. We have been looking in the wrong places if we were seeking to lift operational and financial performance of the firm and its constituent supply chains.

Indeed, there is only one method that is able to inform supply chain design, and that is known as 'behavioural segmentation' where we seek to understand the preferences that influence the way customers and consumers buy products/services. To succeed in the future, you will simply have to look at the supply of products and services through the eyes of our customers and at times the end user/consumer, which in effect is a 180 degree turn around, and most uncomfortable.

Put bluntly, behavioural segmentation of our target marketplace is the crucial 'missing link' that is so critical to guiding our supply chain designs, and subsequently, the day-to-day management of operations. It is the fundamental starting point for dynamically aligning the enterprise with its customers. It has been there and available all along, hiding in full sight (what I call the 'Bin Laden effect'), but we have failed to grasp its significance; surely another casualty of conventional functional organisation designs, where Marketing do their own segmentation, but rarely communicate the results in a meaningful format to back-office operations in the firm. Then everyone starts second guessing each other!

The reality is that we continue to manage our enterprises vertically, driven by departmental/functional budgets, when actually, our customers are buying horizontally, taking some resources from each department, culminating in a finished product or service, delivered in a way that suits their particular preferen-ce(s). This being the case, it follows that we are 90 degrees out of phase with our customers before we even start our work day! More about this conundrum later.

Behavioural segmentation of customers can be undertaken using conjoint analysis research techniques, but much the same result can be achieved by using shorter 'trade-off' techniques, or analysing the 'coefficient of variance' of true demand, by product/service category, or by using other data mining techniques to understand the underlying patterns. It is patterns we are looking for, because only then can we configure matching supply chain configurations that are relatively few in number and built from standard components to avoid the other major problem in business – the 'over-customisation trap'.

The good news is that the more we study the world of customers the more we see similarities rather than differences in the way they behave. It is true that people the world over are more similar than first thought, and that holds true for people from country to country, as studies in National cultures have found.

The outcome of our work in the field over two decades is that we were able to discern, describe, and code up to 16 different buying behaviours, across all product/service categories. This correlates well with the MBTI which also identified 16 preferences in the way individual people prefer to operate. No surprise there – our work and the MBTI have common roots in Jungian psychology.

But clearly, 16 segments is too many for the enterprise to manage in practice. To this end we continued our field work and eventually found the key. Of the 16 possible buying behaviours, we found that there were never more than 3 or 4 dominant buying behaviours present in any product/market situation, giving approximately an 80 percent coverage or 'fit' to that market.

This was a break-through finding because it in effect means that we can get 80 percent coverage with the equivalent number of supply chain configurations, reverse engineered back from the newly identified segments. At last we had found a way to escape from the 'single supply chain' syndrome which has pervaded supply chain thinking for decades. Coincidently we redefined and solved the vexed issue of 'flexibility'; more about that later.

The most prevalent combination of dominant buying behaviours that we observed across numerous product/service categories and geographies are depicted in figure 2.

The trick is to establish, in any given market, the particular mix of these 4 dominant buying behaviours in aggregate, and then apply internal resources to configure a corresponding combination of supply chains that will achieve the much sought after 'alignment' between the enterprise and its target market.

However, before we get too excited, there is one final complication. Customers do, under certain conditions, change their buying behaviour for short periods of time. So a customer who might have exhibited a 'collaborative' buying behaviour for some time, might, given the onslaught of difficult trading conditions, move to an 'efficiency' buying behaviour, and begin to behave quite differently. Their values haven't changed, but their behaviour has, and we better recognise that shift early and apply a correspondingly different response. Very often, when the crisis is over, such customers return to their old buying behaviour, but on occasions, because of a change in personnel in the decision-making unit (DMU), they do not.

Put bluntly, behavioural segmentation of our target marketplace is the crucial 'missing link' that is so critical to guiding our supply chain designs, and subsequently, the day-to-day management of operations.

In our experience, customers generally move from left to right if they move at all, and in extreme conditions of severe disruption they embrace the 'innovative solutions' buying behaviour on the far right, desparate for solutions from their suppliers. This is the one exception in which suppliers lead their customers in the marketplace. Most of the time it is the customers wishes that dictate how they are served by suppliers.

Enter the brave new world of multiple supply chains

We always had multiple supply chains running through our respective businesses, without realizing it. Indeed, some companies had hundreds of discrete 'pathways' (or supply chains) running through them in a congested mix, and the situation only got worse as companies went further afield for suppliers and customers in the last decade of global sourcing and marketing.

And as the number of supply chains criss-crossing through our businesses increased exponentially, so did the complexity, and corresponding cost. Firms reacted by trying to cut cost through standardization of processes, embracing lean and Six Sigma concepts, and installing ERP-systems to replace their legacy systems, all of which very often made things worse as the marketplace went its own way and largely remained a mystery to these companies.

So, to recap at this point in the article, every enterprise on planet Earth has multiple supply chains running through them, but through careful observation to your marketplace this can be reduced to 3-4 discrete supply chains with known properties, much as depicted in figures 3 and 4. This 'rule of thumb' is the next best thing to the 80/20 rule!

How should the enterprise respond?

Once we understand the characteristics of each behavioural segment, it is relatively easy to develop an equivalent range

THE FOUR GENERIC SUPPLY CHAIN TYPES

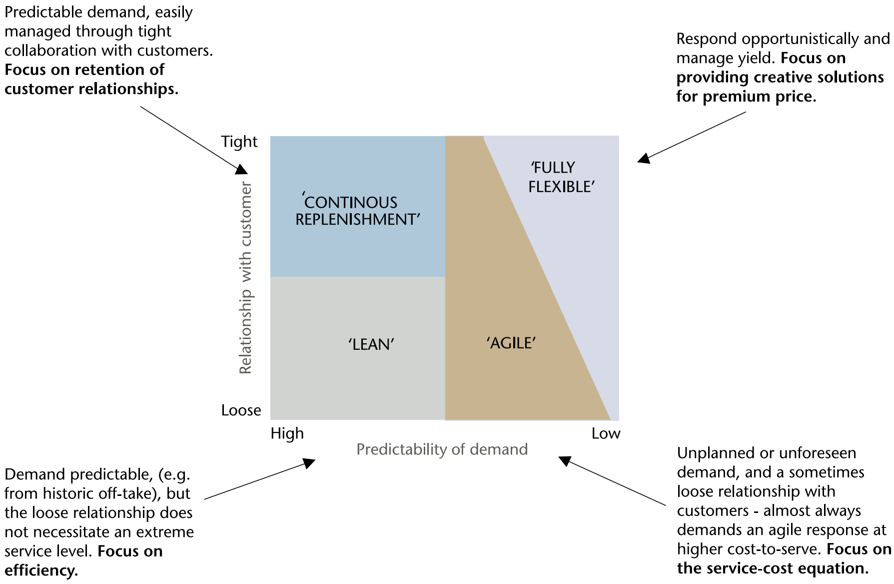


Figure 4. *Source: Adapted from Figure 2.3 in Gattorna (2006), p.43, Supplemented by idea from Mark Van der Veen, Dou Corning.*

STRATEGIC DIMENSIONS FOR FORMULATING SUPPLY CHAIN STRATEGIES

1. Product mix
2. Innovation emphasis
3. Marketing emphasis
4. Channels of distribution
5. Pricing regime
6. Promotional activity
7. Service emphasis
8. Procurement/sourcing approach
9. Production
10. Capacity considerations
11. Fulfilment emphasis
12. Relationship intensity
13. Systems/IT support
14. Resource allocation priorities
15. Strategic risk profile

Figure 5.

SUPPLY CHAIN CLUSTERS AND CUSTOMER SEGMENTS – OVERALL VIEW

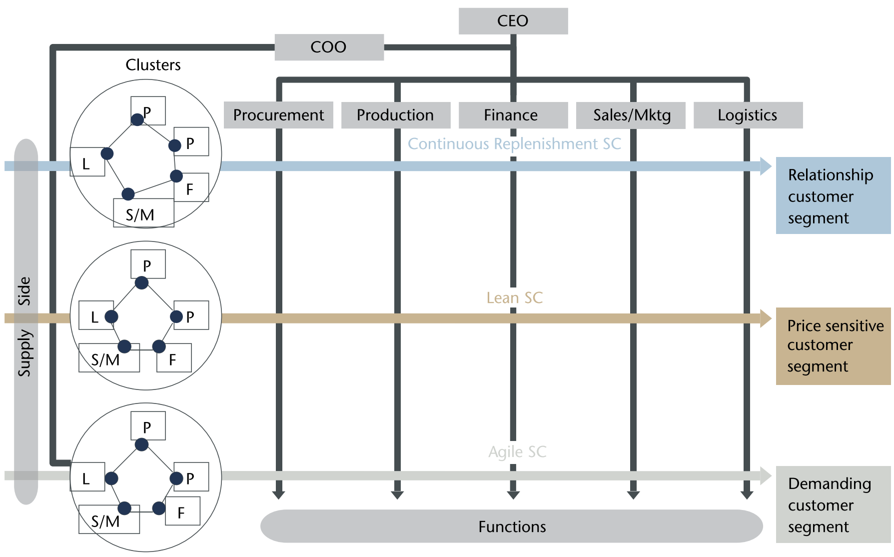


Figure 6. *Note 1: Account teams/clusters configured with a particular mindset/bias. Note 2: Individual team members regularly return to their respective functions for specialist training.*

of responses by way of operational strategies. The trick here is to build discrete strategy 'recipes' from different combinations of standard components.

The other thing we have learned is that because of the way customers buy, we can't offer them solutions, function by function. They want the outcome of the way we combine all aspects of the final package, ie., the product itself; and the way it is packaged and priced, and delivered. This is why the firm must find ways to combine all the required elements that are listed in figure 5.

But achieving these combinations smoothly and seamlessly brings us right back to the organisation design issue. For example, you often hear customers who are buying either from a single firm, or a conglomerate with several BUs, that they want to buy from the 'One Company', not negotiate with several entities! It is one of their major frustrations. So, let's attack this problem head on.

MAIN CHARACTERISTICS OF THE FOUR GENERIC SUPPLY CHAIN CONFIGURATIONS

OPERATIONAL	SUPPLY CHAIN CONFIGURATION			
Parameter	**Continuous Replenishment**	**Lean**	**Agile**	**Fully Flexible (business event)**
Segmentation	Behavioural	Behavioural	Behavioural	Behavioural
Process	Customer account management	Design processes to reduce costs	Re-engineer and reduce number of processes	No standard process. Decisions made on the run
Technology	CRM vital. Also use VMI and CPFR	Replace legacy systems with ERP	Need software with algorithms and modelling capabilities	Apply event management applications
S+OP	Standard S+OP process. Shared forecasts with customers	Standart S+OP process based on own forecasts	Focus discussions on estimating aggregate capacity	Focus on aggregate capacity planning in very short term
Org. design	'Relationship' cluster	Clusters designed around key processes	'Speed' clusters	Small multi-disciplinary team capable of multitasking
KPIs	Emphasis on loyalty and retention	DIFOTEF; and various productivity rations	Absolute speed of response	Number of creative solutions delivered
Production	Lower volumes; collaborate to reducing costs	High volume – low costs	Shorter runs; MTO	Introduce prototypes
Capacity considerations	High utilisation of current capacity	Maximum utilisation	Lower utilisation built-in 'buffers'	Hedge and deploy resources
Fulfilment	Reliable/scheduled delivery	Reliable/scheduled delivery	Aim for shorter lead-times; use 'postponement'	Speed
Procurement approach	Select suppliers for partnerships relationship	Outsource standard components to reduce costs	Look for suppliers with additional capacity	Look for suppliers with capacity and creative solutions

Figure 7.

SUPPLY-SIDE ALIGNMENT - THE MIRROR IMAGE OF THE DEMAND-SIDE

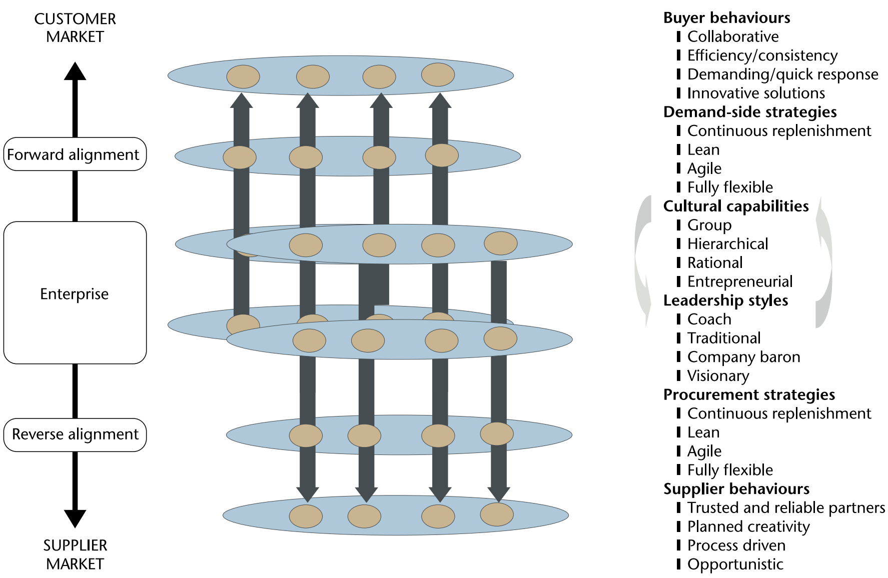


Figure 8. *Source: Adapted from Figure 3.5.2 in Gattorna (2003), p.346.*

Now for the internal world

Once we have 're-interpreted' the marketplace by 'listening' carefully to customers, we must then turn our attention to the internal world of our own enterprises, where very often the 'forces of darkness' are arrayed in force to frustrate and block change. In particular, we must review how to configure our own internal organisation structure if we want to achieve a finer alignment with customers on the outside. In my view, after segmentation, organisation design is the great weakness in business today; it is the choker on performance even if we get the segmentation right.

Unfortunately, current designs, which are predominantly 'functional' in format, are fundamentally flawed because they are 90 degrees out of phase with the way customers want to be served. Functional designs see the business managed vertically around departmental budgets, while customers buy horizontally, aggregating elements of procurement, finance, operations, logistics, and sales and marketing into a finally delivered product or service.

We have lived with this discrepancy in orientations for several decades post-Industrial Revolution, but it all came to an end in the early 1990s with the advent of the Internet, which has empowered the customers and made them increasingly difficult to deal with. On top of that, external events has increased the volatility in many markets, so here again we need something new and innovative on the inside of the firm to manage the increasing turbulence on the outside.

The answer is to develop a dual organisation structure that works in synch with elements of the vertical functions remaining, supplemented by the formation of multi-disciplinary clusters to manage the customer interface. The two formats are designed to co-exist and remain in synch. See figure 6 for a pictorial representation.

The clusters are complied by looking at the particular behavioural segments that are to be served. Personnel are seconded to the various clusters on the basis of their technical skills and experience, and also their mindset. So, for instance, in the cluster serving the 'Relationship' segment via the continuous replenishment supply chain configuration, the net bias of all the personnel must be 'relationship'. This doesn't mean everyone has to have this mindset, just the majority. We still need to worry about cost, results, growth, and innovation!

These clusters can run both the sup-

THE 16 POSSIBLE COMBINATIONS OF HYBRID SUPPLY CHAINS – INCLUDING THE FOUR MAIN GENERIC TYPES

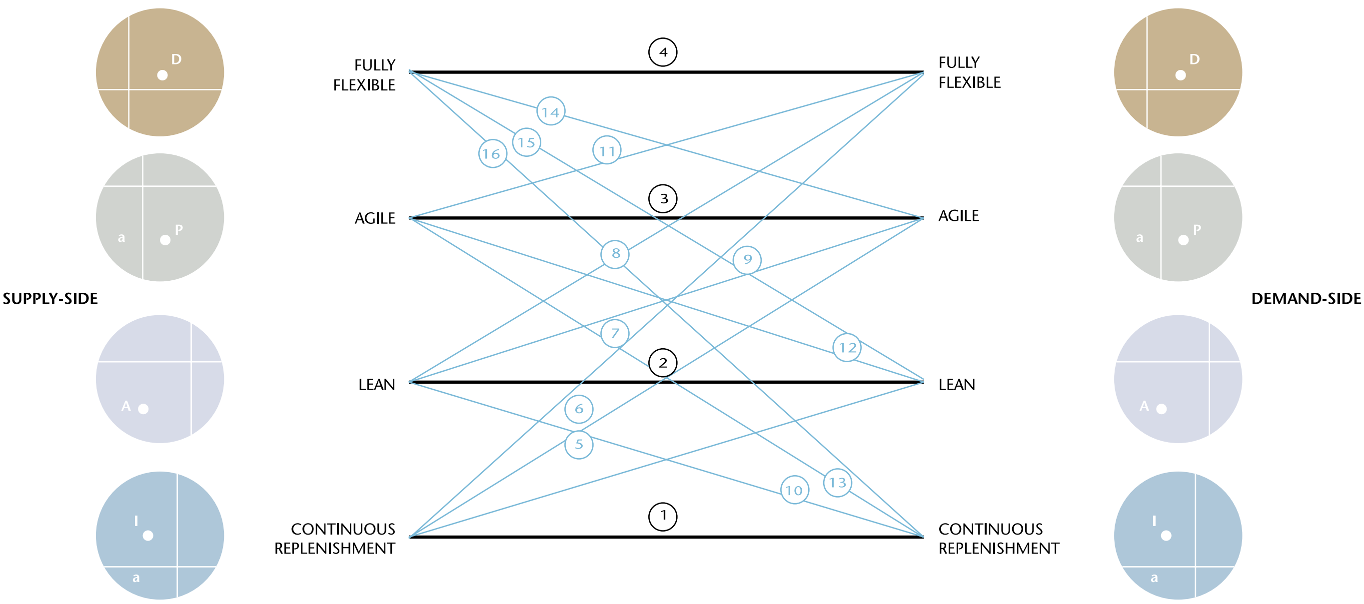
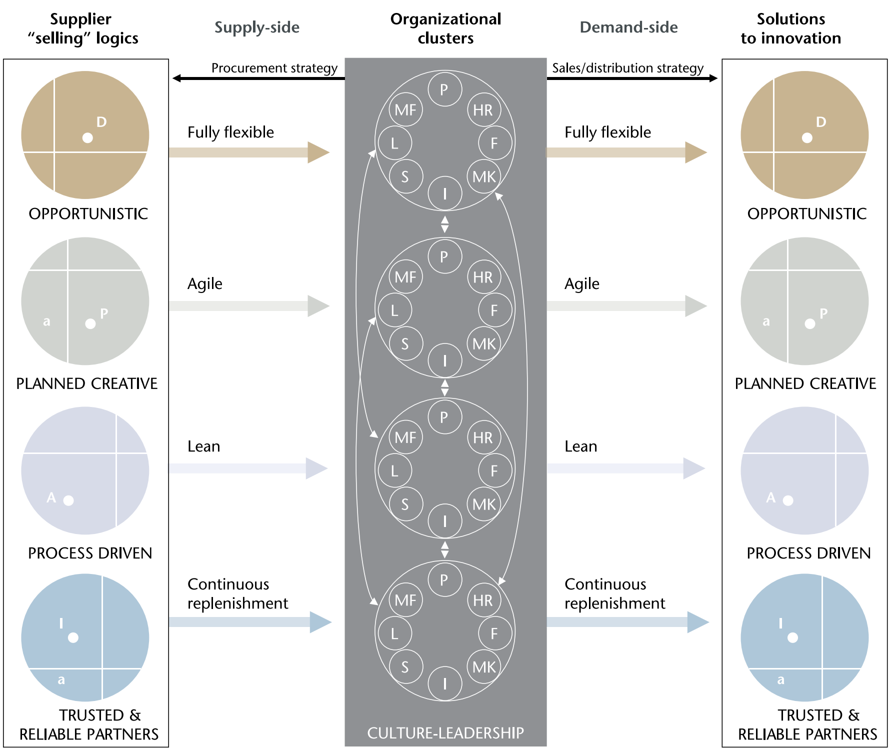


Figure 9. **See text for description of each combination.*

A NEW DYNAMIC BUSINESS MODEL FOR SUPPLY CHAINS OF THE FUTURE



Key: P = Procurement, MF = Manufacturing, L = Logistics, S = Sales, MK = Marketing, F = Finance, HR = Human Resources, I = IT

Figure 10.

ply-side and demand-side elements of the enterprise supply chains, and collaborate when there are requirements for hybrids, for example, 'lean' on the supply side, and agile on the demand-side, much as Zara operates.

Joining all the dots

The internal capabilities of the enterprise involve bringing together a clever mix of operational strategies, underpinned by subcultures that power the different supply chain configurations, under the leadership of nominated members of the top team at C-level.

If we choose some of these parameters by way of demonstrating what we mean, the different supply chain configurations, operating side-by-side, would look something like that depicted in figure 7.

Turning to the supply-side

In my book (Gattorna, 2010), I devote an entire chapter to the task of re-establishing the link between the demand-side of the business, the supply-side procurement of inputs to the manufacturing operation and beyond. Procurement simply cannot function without that linkage, although a lot of companies don't seem to understand this – and they pay the price somewhere along their supply chains. Conceptually, figure 8 depicts how this linkage works. Signals from the demand-side travel back through the organisation (preferably clusters), and informs Procurement personnel what buying behaviours are appropriate.

Expressed another way, if we undertake a behavioural segmentation of our supply base, we will find that the 'selling expectations' and corresponding behaviours of suppliers in the source markets will be a mirror image of the front-end customer markets, although the mix may well be different. So, I am suggesting you to look at your supply base in a whole new light, and work out which suppliers have collaborative values; which are very transactionally driven, which have the capacity to respond in an agile way as needed, and which have innovation capabilities.

If you put the two sides together you have 16 possible combinations of demand- and supply side supply chains; I called these 'hybrids'. The point is, once you identify which combinations are prevalent in your marketplace you can set out to work them to an optimal degree. The 'clusters' mentioned above then manage both demand- and supply side components in the same configurations, and work together when hybrids are evident. Zara does this to perfection, linking demand-side 'agile' supply chains that service their stores and consumers with the inbound supply of raw materials to production that are essentially managed along 'lean' lines. The whole picture looks as depicted in figure 9.

When we take out some of the noise in figure 9, the complete picture looks as depicted in figure 10, which shows both demand-side and supply-side components as well as the internal clusters in the enterprise. All 16 potential combinations are possible, and in Chapter 13 of my book (Gattorna, 2010), I give current examples of each. In effect this represents a taxanomy of possible supply chain configurations, and once you identify which are the most prevalent in your world, it is much easier to manage them.

The net effect

The net effect of this finely-tuned alignment between customers and the internal organisation structure is to eliminate under- and over-servicing. This in turn leads to higher revenue off the back of improved customer satisfaction, and at the same time drives down the cost-to-serve. Margins improve, and everyone inside and outside the company are happier, as are the shareholders when they see the positive impact on the bottom-line.

A final word on behalf of third party logistics providers (3PLs)

Another way to achieve alignment with customers and suppliers is with clever outsourcing, predominantly to third party logistics (3PL) service providers. If you choose carefully, it is possible to get access to capabilities that you might otherwise struggle with inside the company. But there must be a strong cultural alignment between the parties involved, your company and the 3PL(s), otherwise there is no value-add in such arrangements.

The problem to date is that shippers have in recent years become overly dominated by the Procurement function in-house, and this has led to distortions in the way contracts are let to 3PLs, and hence unrealized value in the markets served. To overcome these distortions, it is essential that procurement becomes an integral part of the overall supply chain effort in the firm, and closely aligned with what is going on at the front-end. This can easily be achieved if you adopt the cluster organisation structure introduced earlier in this article. Then all the distortions just disappear as teams work together under a joint KPI regime.

The other initiative that global companies in particular can take is to more closely align the structure of their contracts with market conditions when working with 3PLs. This makes good sense for both parties. By identifying the different layers of demand in the marketplace, a shipper can request a 3PL to quote differential rates for each layer. This is especially important where there is clearly a lot of turbulence, and additional flexibility is going to be required. But this flexibility doesn't just happen – it has to be planned for in terms of capacity.

So, the overall scheme might look something like that depicted in figure 11. At the end of the fiscal year, both parties can sit down and review performance and compare exactly what happened versus the assumptions made when layering the market at the start of the year.

3PL CONTRACT ALIGNMENT

Can only be achieved with contracts that more fully reflect demand patterns

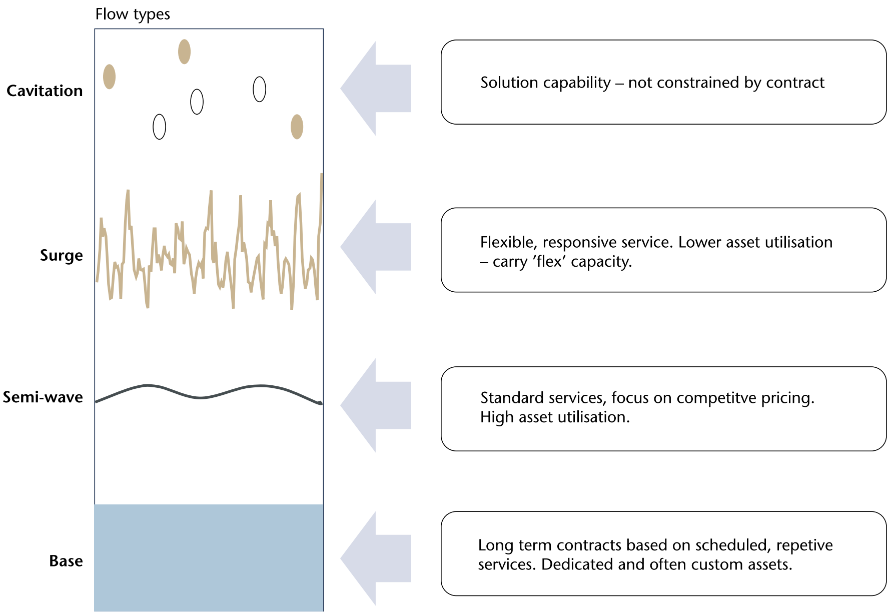


Figure 11.

To recap

The key to future success will be how well you focus on how customers buy your products and services, not just what they buy. If you follow this principle, you will gain much greater clarity when designing and managing your enterprise supply chains.

Once you have established what your most appropriate portfolio of supply chain configurations are for the market being served, then you can align the rest of the business behind these individual configurations, and thereby achieve the much sought after alignment and flexibility that future operating conditions will require. This won't be easy, because there will be a lot of resistance to making such a change, as logical as it is. But, the rewards will be great for those companies that hang in there and see the distance out. And at last we will have the firm working as a complete unit, including the human component, rather that relying for ever more on process and technology alone to get the job done. /

Notes

1 John Gattorna, Dynamic Supply Chains, FT Prentice Hall, Harlow, 2010.