

## **THE 3 Ts OF HIGHLY EFFECTIVE SUPPLY CHAINS**

**Dr. Richard Wilding**

### **INTRODUCTION**

In recent years the recognition that the supply chain, is a source of competitive advantage has driven organisations to pursue the dual goals of achieving both value advantage and operational excellence.

Customer responsiveness is generally the key differentiator in markets today. Globalisation is resulting in many organisations experiencing market pressures that are forcing a fundamental rethink of the way business is conducted. Trade-offs between for example labour costs, transportation costs, inventory costs and response time to customer are becoming increasingly complex. It is no longer seen as possible only to focus on one's individual organisation to gain competitive advantage. It has been recognised that the success of the individual organisation is dependent on the performance and reliability of its suppliers and also customers.

Professor Martin Christopher Professor of Marketing and Logistics emphasises this by stating:

“Competition in the future will not be between individual organisations but between competing supply chains”

It is critical that the supply chain is aligned on the customer perceived benefits of products and services and it can be argued that activities that do not contribute to benefiting a customer should not be undertaken at all.

A supply chain has been defined as:

“A supply chain is a system whose constituent parts include material suppliers, production facilities, distribution services and customers linked together via a feedforward flow of materials and the feedback flow of information.”

This definition emphasises the linkage between organisations and the movement of material and information between them.

The term supply chain is a simplification of reality. A complex network of organisations is generally present, organisations are frequently part of many different supply chains or channels. Complex interactions occur within this supply network. Supply chains exhibit many complex interactions between organisations and ultimately the end customer and market that customer represents.

The Institute of Logistics & Transport, U.K. summarises this relationship as follows [Institute of Logistics, 1997]:

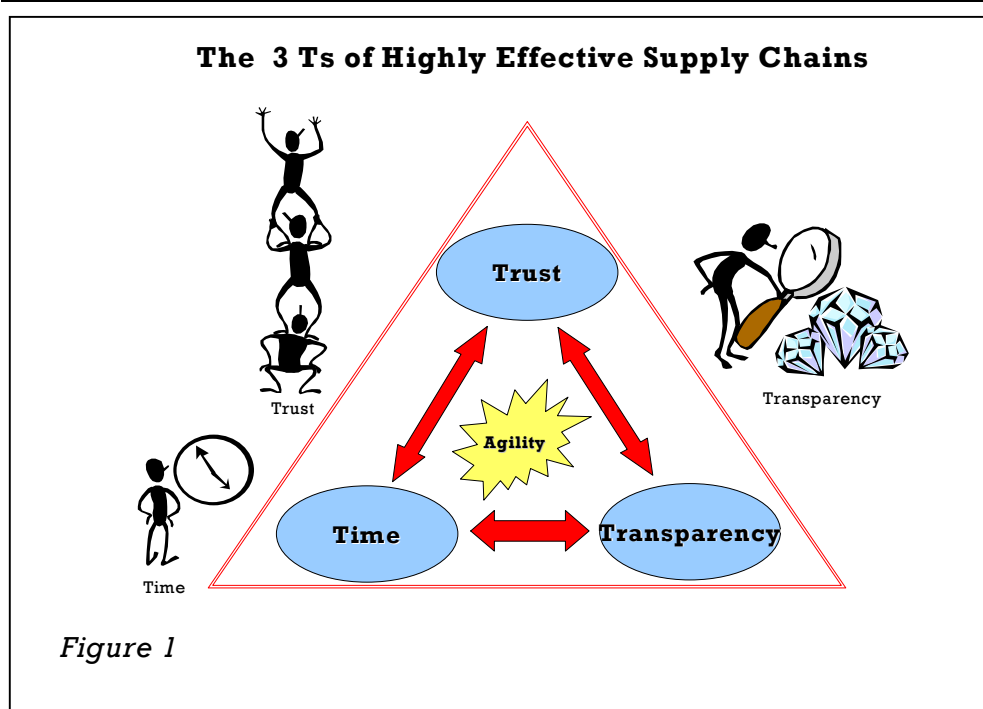
Supply chain management differs from traditional material control in a number of key areas.

- Recognising end customer service level requirements.
- Defining where to position inventories along the supply chain, and how much to stock at each point.
- Developing the appropriate policies and procedures for managing the supply chain as a single entity.

In summary, supply chain management is characterised by an emphasis on the end customer, the integration of systems, policies and inventory within the supply chain, thus achieving a “synergy” where all organisations gain competitive advantage and subsequently prosper.

In order to compete the effective management of the supply chain is critical. Supply chain management has been defined as “the management of upstream and downstream relationships with suppliers, distributors and customers to achieve greater customer value-added at less total cost.” The key factors that need to be focused on are building relationships and creating value. When this is achieved organisations become more agile and responsive, however for many organisations this is an illusive goal.

## The 3 Ts of Highly Effective Supply Chains



Understanding the 3 Ts of highly effective supply chains provides a simple yet powerful framework that organisations can use to start building robust supply chain processes and structures. The 3 Ts are time, transparency and trust. Each is interrelated and dependent on the other. Understanding the *time* dimension of the supply chain enables organisations to gain *transparency* of what is happening within the supply chain system, when everyone knows what is going to happen and confidence is built because of transparency, *trust* develops between all the players in the supply chain. This, in turn, results in greater understanding to the time dimension, hence greater levels of transparency and then higher levels of trust. But what if one of these key dimensions is missing? The cycle is broken and transparency, trust and an understanding of time are lost. So the 3 Ts are dependant on each other, but what has been found is that by using time as the starting point organisations can create transparency and trust thus resulting in significant increases in competitive advantage.

### **TIME**

#### **Velocity Within the Business Environment**

In his book “Business @ speed of thought” Bill Gates states that “If the 1980’s were about quality and the 1990’s about re-engineering, then the

2000's will be about velocity". Velocity is distance divided by time but with direction! Many organisations have plenty of speed i.e. velocity without direction, people running around very fast doing things which seem important, but velocity needs to be aligned on a goal and objective. Within the supply chain the goal is to maximise the customer perceived value of product or service to be supplied. Within our velocity equation the distance can be defined as "the added value journey we take a customer on", understanding the "added value journey" is critical to supply chain success, the journey involves pre-transaction [what happens before the purchase is made], transaction [actually purchasing and receiving the product or service] and finally post transaction [after the initial purchase what the customer experiences.

To achieve velocity within organisations a focus on time is required. Organisations can gain advantage by taking a customer on the same "value adding journey" in less time or by taking customers on a longer "value adding journey" in the same time as the competition. In both situations velocity is increased. In order to do this, time compression is required in all processes but to achieve time compression, an understanding of the processes with respect to time is required.

Within supply chains the need for improvement with respect to time-based resource management is receiving increasing recognition. Research indicates that it is not uncommon for the time spent actually 'adding value' i.e. doing things that a customer is willing to pay for, to be as little as one tenth of 1%!

It has been found that by focusing on time in the supply chain the cost issues tend to look after themselves. Time is a common measure across all supply chain partners, whereas cost and transfer price data are open to a variety of interpretations. In comparison to activity-based costing techniques that are often used in the analyses of supply chains, focusing on time enables one to see 'the wood rather than the trees'. The analysis is also much faster and more effective - often using about 20% of the time and resources of a traditional cost based analysis. By focusing on time, analysis is forced down to a physical level. The time focus has proved to be easier to implement and yields rapid bottom line results.

**Time that Adds Value and Time that Does Not**

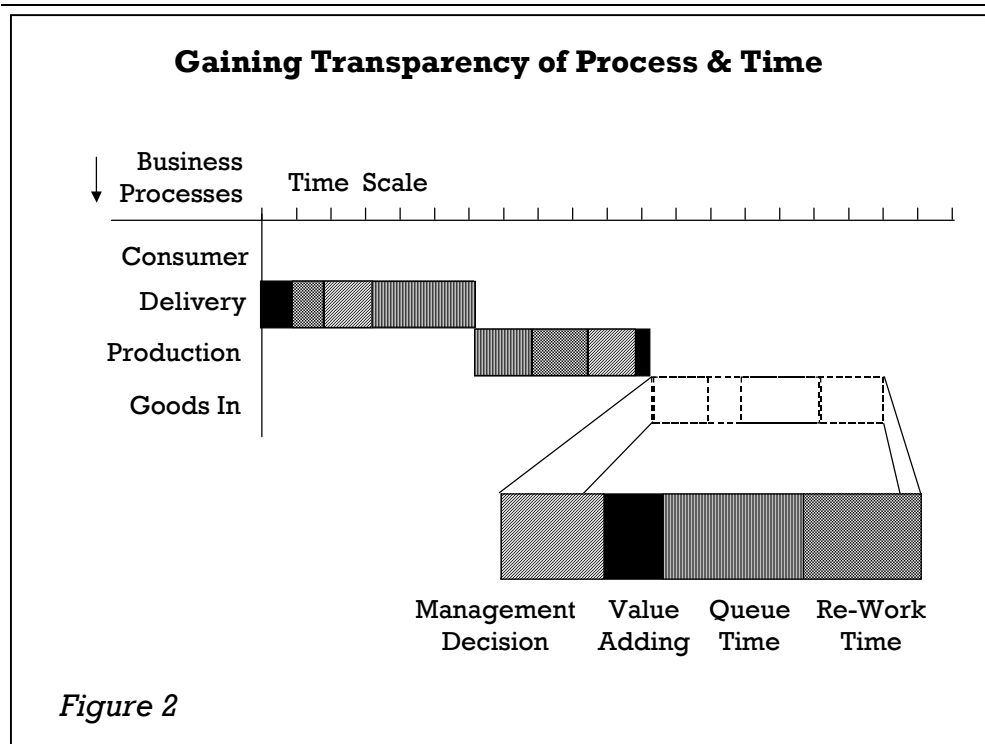
Value-adding time is characterised using three criteria:

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- Whether the process (or elements of the process) is physically changing the nature of the consumable item (i.e. the customer's product/service).
- Whether the change to the consumable item produces something that the customer values or cares about and may be willing to pay for.
- Whether the process is right first time, and will not have to be repeated in order to produce the desired result that is valued by the customer.

Non-value adding activity can be split into three categories: queuing time, rework time and time wasted due to management decisions (or in-decision as often is the case!). Remember a queue could be things sitting within your computer system waiting for a batch job to be processed or a pile of orders in an in-tray; rework time could be re-checking data after it has been transferred between computer systems or getting it into a format that is usable by your organisation's information systems. One does not need to be too concerned with the precise application of the definitions, because generally 95% of the time is wasted and therefore there is plenty of improvement to go for! A time-based process map can be used to gain transparency of the value adding and non-value adding activities (see figure 2). The map also enables the user to gain transparency of the supply chain process.



**TRANSPARENCY**

Figure 2 has already demonstrated a simple way of gaining transparency of time and process but this is not the only dimension that one needs transparency of within the supply chain. Once the time dimension of the supply chain is understood other key factors can be plotted against time within the supply chain. Inventory against time, demand against time, value against time and cost against time can all be plotted to gain transparency of these issues. The difficult issues need to be identified and discussed as one of my lawyer friends put it “We need to get the skunk on the table”, in order to do this we must get transparency of the nasty issues! When one medical supplies organisation got transparency of the invoicing process they were able to compress the time to raise an invoice by 20 days - this is giving them savings of £150,000 per annum in interest alone.

Inventory against time is a critical issue for many organisations, Figure 3 demonstrates one particular approach. The horizontal axis is defined as the time it takes to move items through the supply chain, the vertical axis demonstrates the inventory in terms of time that it is held at various

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points. If one imagines this as a pipeline and if one opens the tap at the end of the pipe, the amount of time it takes for all the inventory to drain out of the system is known as the pipeline volume. The map also enables transparency of where the same stock is held by two organisations - discussions can then take place about how to rationalise this and the appropriate place to store the inventory thus reducing inventory and subsequently cost. A leading clothing retailer identified that two warehouses just a few hours apart contained the same inventory; in one 20 days worth of inventory cover was present just in case supply from the other may not occur. This was recognised to be excessive and was reduced to just 5 days resulting in significant savings.

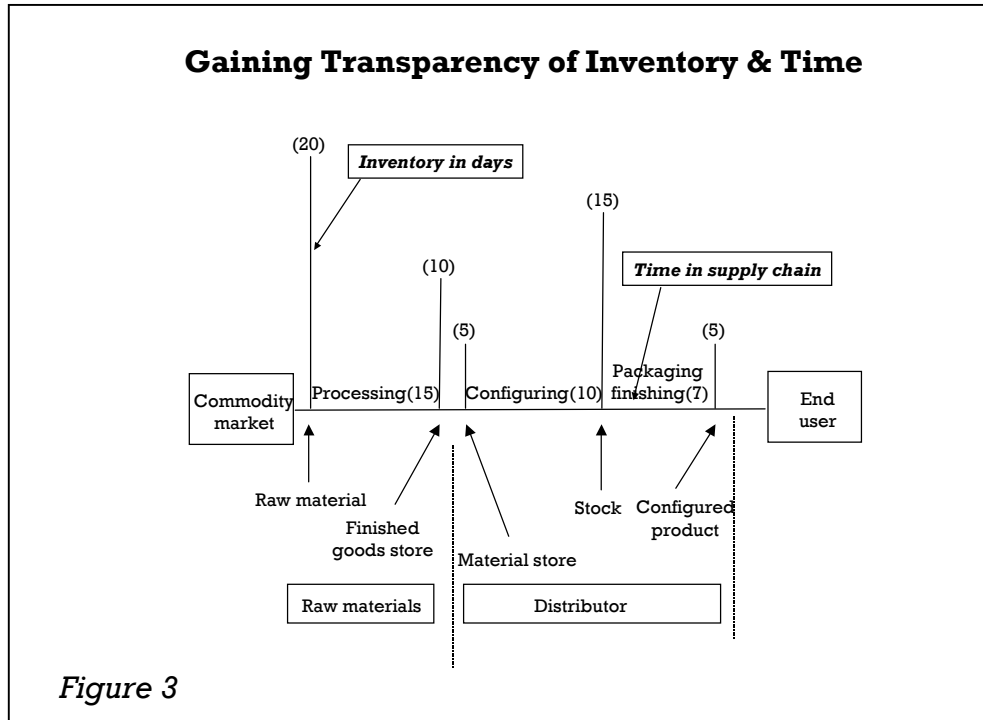


Figure 3

Demand is also key - by understanding the nature of demand within the supply chain all organisations can work on reducing the volatility that is generated. The majority of uncertainty within demand is the result of policies used by organisations within the supply chain and not the result of consumers changing their buying behaviour. In one example the author recently experienced, demand fluctuated between 14,000 and zero, when consumer demand changed by only 40 units. These dramatic oscillations were generated by the internal ordering procedures of the

organisations in the supply chain; reducing the oscillations results in less inventory and capacity being required and thus reduced costs for all. A retail supply chain which focused on demand patterns within the soft drinks category gained transparency and was able to reduce the overall production and distribution cost by 2.7% - this substantially increased the margin made on these products and resulted in benefits for both the retailer and supplier.

Transparency of cost is also important but within the supply chain it needs to be recognised that the total cost of sourcing, converting and delivering a product or service is seldom the sum of the lowest functional costs of each element in the supply chain. If a manufacturing facility reduces its cost to the minimum by producing large amounts of product it may result in warehousing having to store large amounts of product that results in more cost in this part of the supply chain. It is important to recognise how the functional costs build up within the supply chain and balance the functional goals between customers and suppliers. In one supply chain, in order to reduce costs by 3%, it required manufacturing to increase its costs by 15% and transport to increase their costs by 4% but overall the total costs reduced. Transparency of cost is key to enabling policies like this to be implemented. Imagine being a manufacturing director and being asked to increase your costs next year by 15%! You can only get his trust by having transparency.

### **TRUST**

The final dimension that is required within highly effective supply chains is trust. Trust is required in order that all organisations can collaborate together to achieve our objective of maximising customer perceived value and minimising costs for the total supply chain.

A recent survey by the Society of Human Resource Management further emphasises the need for trust between organisations in gaining competitive advantage. The survey analysed a series of top companies, selected for profitability, cycle times, volumes and other key performance measures. They found that the outstanding companies had the following competencies in managing their 'human assets':

- Organisational belief and commitment to basic strategy (i.e. knowing the direction in our velocity equation).
- Open communication and trust building with all internal and external stakeholders.



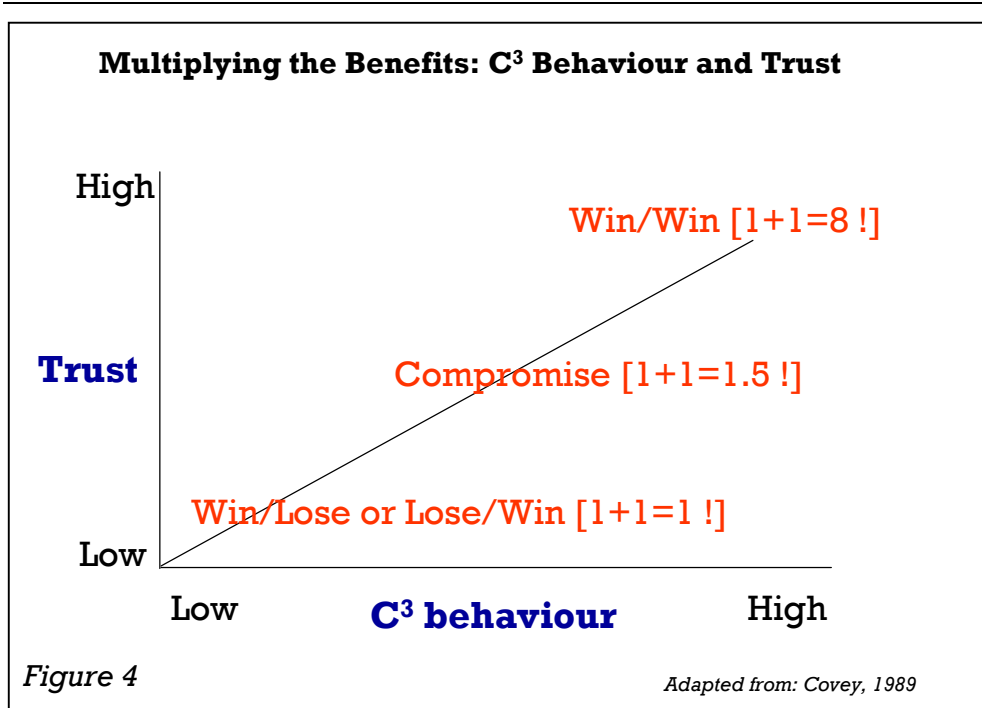
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- An interest in building relationships inside and outside the organisation where they offered competitive advantage.
- Collaboration, support and the sharing of resources.
- An environment where innovation risk taking and learning together is promoted.
- A passion for competition and continual improvement.

Trust is required in order for all the supply chain to evolve. The simple evolutionary process that takes place is as follows. Firstly the parties need to “co-operate” on issues, they then move to “co-ordination” where they may work independently but will co-ordinate activities and finally move to full “collaboration” where both parties will work together at both tactical and strategic levels.

Generally when little trust is present a win-lose situation occurs (i.e.  $1+1 = 1$ ); when higher levels of trust are present a compromise occurs (i.e.  $1+1 = 1.5$ ); but when trust is at its highest and full collaboration is present a win-win occurs (i.e.  $1+1 = 8!$ ). Figure 4 depicts this relationship.



**CREATING COLLABORATIVE ENVIRONMENTS THROUGH THE 3Ts**

The 3 Ts framework provides an excellent basis for the promotion of collaboration. It needs to be recognised that collaboration is not something that can be achieved instantaneously. It is foolish to believe that going to a customer or supplier and demanding collaboration will instantly result in an effective supply chain solution.

Within some supply chains collaboration in agreeing joint processes, setting common key performance indicators for all supply chain partners and defining jointly the goals and objectives of the strategy to serve customers, is common practice but in order to reach such levels of trust and collaboration you need to start small, trust does not occur instantaneously. In order to build trust it has been found that simple co-operative projects are the starting point, looking at time in the supply chain or demand with respect to time are often perceived as non-threatening and supply chain partners are willing to work together. The same cannot be said of cost. If cost is discussed when starting to build trust in the supply chain, it often results in war. If you don't trust the other party it is unlikely you will share such personal information about yourself!

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### **CONCLUSION**

The 3 Ts of highly effective supply chains are keys to competitive advantage. By focusing on time as a measure of performance, the use of key resources becomes understood. This leads to three key outputs:

- It enables the business to give more responsive services to customers.
- Eliminates waste giving cost savings and improved quality.
- But most important of all it generates an organisation motivated to working in a constantly changing environment. It creates T shaped people, people whose body is within their function but whose arms reach out within the process.

Without addressing the 3 Ts companies are going to find it increasingly difficult to compete. The 3 Ts are the foundation for effective e-business and collaborative commerce that are being increasingly used in many sectors. Recent problems in electronics and telecoms industry supply chains are the result of a lack of focus on the 3 Ts. Misunderstanding the time dimension has resulted in excessive inventory holding of products that rapidly go out of date. Transparency has been lost of both process and inventory so trust within the organisation and within the supply chain has been lost resulting in loss of consumer confidence and then the resulting downward spiral of share prices. The 3 Ts can have a profound impact on shareholder value so treat them with respect.

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### **FURTHER READING**

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