

Address to the Calgary Chamber of Commerce

22nd April, 2005

Globalisation and its impact on Supply Chain Management

Ladies and Gentlemen: It is my pleasure to be with you today and I thank the Chamber for providing me with this opportunity to address you.

While preparing this address I was struck by the extent to which supply chains affect our lives but are taken for granted, when shopping at Home Depot in my home town of Oakville. There I found Wooden Garden Benches for sale, not in itself unusual, the box proclaimed that they were made in Vietnam, again not too surprising, but the wood was grown in Brazil! It illustrates how global the economy has become when a low value product like wood can be transported across the Pacific Ocean...twice to be sold in a country known for its abundant natural resources.

Today I would like to discuss the historical development of trade, the differences between traditional trade and modern global supply chains, illustrate the complexity of these supply chains and the consequent development and growth of supply chain management companies. Finally a look at the current and future challenges facing the industry.

When human society was little more than roaming bands of nomads there was little need for trade. Thus arguably the first farmers who travelled to sell and barter their produce at the local market town were also the first traders. People only had access to that which was grown or made within a few hours travel. In Medieval times the known world was bound by Mediterranean, Baltic, Black and North seas. The merchants of Genoa, Venice and the Hanseatic League controlled both trade and the

transportation of goods. The common ownership of the methods of transportation as well as the trade goods marks a distinction from what we experience today. Changes to this came about as explorers, such as Marco Polo returned from their travels with stories of new and exotic commodities. They were soon followed by traders eager to barter local products. The Camel trains traversing the Gobi desert were the precursors of the Clipper Ships of the 19th and the Container ships of the 20th centuries. It is easy to imagine a trader without the wealth to own his own Camel approaching the baggage master to find a lightly laden beast to which his goods could be added. Hence the modern LCL concept originated as Less than a Camel Load.

Trade was driven by the desire to consume products not available locally. If you wanted Silk and Spices, then they had to come from China, similarly, Furs from Scandinavia, Coal from UK, Fruit and leather from Iberia.

Further exploration was driven by trade, specifically, the need to replace the overland route to the orient that led to the discovery of the Americas. By the middle of the 19th century trade routes were already global and became the foundation of the European powers' empires as well as the source of many of their wars. The growth of trade coincided with and was indivisibly linked to the Industrial Revolution in United Kingdom and mainland Europe. This Imperial pattern of trade where the colonies are both a source of raw materials, and a market for the manufactured goods of the Imperial power we can see echoed today. With China as the Imperial Power, hence China's interest in Canadian resource companies.

A classic example of this pattern was the trade in Beaver pelts and lumber in the case of Canada and wool in the case of Australia. The city of my birth, an example of the dark satanic mills of the Industrial revolution Bradford, Yorkshire was processing more than 80% of the Wool output of Australia by the beginning of the 20th century. The other ingredients for the production of woollen goods, water came from the northern moorland, coal from the mines of southern Yorkshire. Halifax was the centre of textile machinery manufacture and Huddersfield was home to the heavy engineering companies consuming the steel output of Sheffield. With the exception of the raw wool everything was locally produced. In 1920 80% of a product's total cost was generated by the manufacturing process and 20% by the supply chain, today those numbers have been reversed. What has happened to create this reversal? What has driven the constant growth of trade?

What characterises the trade described above and still generates much of global trade is that the trade is between unrelated parties dealing at arms length. Australian farmers and British woollen goods manufacturers for example. However since the Second World War we have seen the rise of the Multi National Corporation who not only sells on a global basis but also sources and manufactures on a global basis.

These organisations are the new economic Imperialists who will source raw material, manufacture and sell based on economic considerations alone. They are often accused of being driven only by the bottom line, owing no loyalty to any country and being exploitive in their treatment of suppliers, employees and customers. This talk is not intended to address these issues but I will comment that often we as shareholders and consumers demand maximum return on investment at the same

time as we make purchases based on price alone and thus influence the behaviour of the companies we own and buy from.

The arrival of the MNC has changed the trade model from one of sellers and buyers based on where a product is available, to one of a single organisation deciding where to source and manufacture. Economics of production have taken over from scarcity. This is very evident in the High Technology sector. The semiconductor manufacturers were early adopters of global supply chains. As early as 1975 they had moved a part of their production process to Asia. Wafers were made in fabrication plants in California and Texas and flown in a continuous stream to Malaysia and Singapore where they were cut and connected then to be flown back to the US for incorporation into finished products. Back then this probably meant digital watches, calculators and mainframe computers.

More recently Aircraft Engine manufacturers have followed suit shipping castings and forgings to Poland and China to be machined into components returned to North America to be assembled into finished engines. Whole production lines have been moved across the globe to enable this.

The drive to reduce manufacturing costs has resulted in a constant search for the next low cost region. From South East Asia to the Indian subcontinent to China, to Eastern Europe and to Latin America.

One other reason to manufacture in areas remote from where final assembly or sale will take place includes economies of scale. A motor manufacturer develops different models that share power trains, in addition to other components. One model is built in Europe and one in USA. Each comes with an option of a V8 or V6 and associated

transmission, all V6s are built in US and all V8s in UK. The production lines for both cars span the Atlantic Ocean.

Development and launch of commercial aircraft requires huge investment. Nowadays no single company has the wherewithal or fortitude to bet the company as Boeing did with the 747. Thus companies seek to share the risk through involving subcontractors who may be continents away from the assembly location. Thus a Business jet built in North America has the centre section and wings built in Japan and the fuselage and horizontal stabiliser built in Europe. Only the cockpit is made in the same country as final assembly. Boeing's 747, 767, 777, as well as the new 788 Dreamliner has major components manufactured in Asia and Europe and Airbus has modified one of its own aircraft to enable transportation of fuselage assemblies of an even larger aircraft.

Yet another pressure to globalise production comes from responding to demands that make access to new markets contingent on manufacturing in that market. China has been forceful in this regard. If you want to sell in China you must manufacture in China. Not unlike the US-Canada Auto pact of the 60s.

These are the drivers of increasingly global supply chains and the primary difference between trade of 100 years ago and today. The relationships between MNCs and their vendors and customers as well as between different units of the same organisation and the associated financial arrangements create highly complex supply chains. Terms of sale, responsibility for transportation and risk have to be considered as well as transportation costs and the pressure to reduce inventories. We have moved from a 'push' scenario, make it, ship it and they will buy it to a pull scenario only make and ship what is needed.

Dell has become a master of this process. By shortening their supply chain, from factory to you and only shipping to order, after Dell has your money they have no inventory of finished product. Through demanding that their vendors own their inventory until it is consumed they have no inventory in Work in Progress. The trick is to have a supply chain that is nimble enough, responsive enough and has sufficient velocity to meet the demand of their customers. Management of information and visibility are critical in this scenario.

In another example, imagine the experience of a printer manufacturer who manufactures finished product in Japan and ship to Europe based on sales forecasts. Which, as we all know, are notoriously unreliable. There are more than 20 possible configurations of printer, power supply, cords, manuals and software required to serve the 'single' market of the EU. Needless to say the manufacturer ended up with warehouses full of unsold 'German' product whilst unable to meet demand in France. The solution is a concept known as postponement. That is to delay final configuration of the product until the last possible moment, preferably after the customer has placed an order. This means that the final set up takes place while the product is in transit and in the supply chain rather than at a recognised manufacturing facility. Taken to its logical conclusion only the printing engine needs to be manufactured in Asia, so rather than shipping the almost finished unit there is an opportunity to source components where they are most readily available and closest to end use and merge them in transit prior to final delivery.

On the inbound to manufacturing side there is now a requirement to outsource the receiving, kitting and line replenishment functions.

A motor vehicle manufacturer requires their vendors to locate close by the assembly plant. They outsource the management of the resulting vendor park to an

organisation whose role is to take the outputs of many vendors and deliver to the line, on a just in time basis , everything needed to create and install an instrument panel.

So how does my friend the Camel Train Baggage Master manage in this brave new world of global supply chains? How does he deal with this blurring of the role of transportation provider, distribution manager and manufacturer. Today he would be working for a new type of organisation. The Integrated Global Logistics Service Provider. He neither owned the goods nor the means of transporting them, with some exceptions, neither do his modern day counterparts. He was the original freight forwarder or 3PL provider. He has been succeeded by a series of organisations of increasing size, scope and capability. He has needed to learn a whole new set of skills to cope with the increased size and complexity of the market.

Freight forwarding companies grew out of the need to complement and expand air and ocean carriers terminal to terminal operations. The carriers focused on their asset operations and networks were unable and unwilling to provide the pre carriage and post carriage services, including inland transportation, documentation, customs clearance and delivery. Nor could they afford a sales force large enough to reach a diverse and dispersed audience of shippers and consignees. So they appointed 'agents' who performed these functions and who earned a 'sales commission' from the carrier. Some of these agents grew their own global networks over the years and developed their own services buying capacity from the carriers as wholesalers and selling to individual shippers as retailers as well as combining carrier services to produce intermodal solutions.

Customers benefited from door to door services and lower prices than they could achieve on their own. The forwarders earned money from the buy, sell spread plus

fees for ancillary services. The carriers received cargo, 'ready for carriage' to the point of accepting shipper built units from the forwarders and eliminated credit risk by imposing strictly enforced credit terms on their agents.

Accepting that carriers operate port to port and forwarders door to door the new model of supply chain requires organisations that move up and down stream from the purely transportation process.

Global players that provide integrated multi service solutions have developed over the last 50 years. Some are clearly asset operators such as the small package carriers, or integrators, who have added logistics as a value add to their core small package transportation operations. Some steamship operators have created logistics subsidiaries. Some European organisations have used their postal monopolies to fund aggressive acquisition programs to position themselves for the day when their monopolies expire. Others have a long histories as pure play forwarders that I described earlier that have added warehousing and distribution to their portfolio. Exel is an example of a company that has developed through mergers and acquisition from an asset base being the combination of a steam ship operator, Ocean and a trucking and warehousing company, NFC (Exel) but which today is essentially non asset based.

What of the future? What are the challenges and opportunities facing global traders and the companies that manage their supply chains.

The opportunities are a function of the continued growth of world trade, increased liberalisation of trade and increasing affluence in the developing world. Demand for the products of trade continues to grow despite short term economic shocks and

downturns. According to Boeing the growth in demand for air cargo, for example, exceeds the growth of the global economy and averages 7%.

There is a growing trend for manufacturers to outsource non core processes and activities which is good news for Exel and its competitors. There is a growing requirement to balance localisation of demand with globalisation of supply.

However....

There are three barriers to growth.

The three c's, Compliance, Congestion and Cost of fuel. Prior to 9/11 trade was become easier, and processes more streamlined. Electronic data interchange eliminated much of the paper clogging the system. The declining requirements of customs and excise authorities have been replaced by increased demands of security organisations. It is significant that the organisation previously known as Revenue Canada, Customs and Excise has morphed into the Canadian Border Security Agency. The needs of security cannot always be satisfied with Electronic Solutions and the more physical demands of compliance, enforcement and interdiction add to Congestion.

Trade growth has outpaced investment in infrastructure required to facilitate it. This manifests itself in line ups at border crossing points, especially the bridges in Ontario. Long delays in the ports of Vancouver and Montreal and the lack of rail cars and line capacity to transport containerised traffic across the country. Canada is not unique in this respect and the US west coast, in particular, is suffering the same problems.

Delays due to compliance and congestion require that increased inventory be held in the supply chain at a time when all companies are trying to reduce and eliminate the costs associated with it.

Cost of fuel has a direct and immediate impact of transportation costs. Fuel surcharges account for a rapidly increasing percentage of the total freight cost. It is possible to see a time when they exceed the underlying freight rate.

Companies must constantly review their supply chains in the light of these developments. Kodiak, a manufacturer of boots that ceased manufacturing in Canada several years ago has recently purchased a company with manufacturing capability in Ontario and intends to move their manufacturing back from Asia. Another company had declared an intention to source 80% of their input in China has decided after a detailed review that the better number is 18%!.

We are unlikely to see a reduction in world trade of a magnitude to reverse the trends of the second half of the 20th century. But, we may see a slowdown in the rate of acceleration. Governments and enterprises are continuing to invest. Airbus has orders for the freighter version of their 380, Vessels capable of carrying the equivalent of 8,000 20 foot containers are commencing operations this year on the North Pacific. Prince Rupert will become a major container port with investment from provincial and federal governments as well as rail companies.

I believe that global trade is a positive force. It creates widespread wealth and brings people together and provides opportunities. It is not a perfect system, it shares the usual human imperfections. Nevertheless it has constantly evolved and the

practitioners have responded to the challenges that evolution has brought and, I'm confident, will continue to do so.

Thank you for your attention and your interest, I hope I have shed a little light on this subject.