

Trend #5 – Global sourcing drives network redesign & optimization

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“Thing Global, Build Regional, Act Local” used to be an old saying at Ernst & Young Consulting when I worked there many years ago, before globalization took on the speed it has today. It feels as though that saying has to be turned on its head today – *Act Global, Plan Regional Think Local*. As AMR Research quotes, this seems to be “the new mantra in our increasingly globalized world, where companies cater to the needs of individual markets with talent and production that can meet demand when it arises.” AMR Research took on the issue recently at its annual Supply Chain Executive Conference with the theme “Globalization Comes Home.” Supply chain leaders from across industries and former Mexican President Vicente Fox joined AMR Research to discuss the issue as well as detail how to address today’s environment that has companies sourcing and manufacturing in locations around the globe. As AMR’s Randy Weston put it, “Globalization is reaching its adolescence, as companies think more strategically about how and where to source and manufacture product. Companies are increasingly looking beyond China to other parts of Asia, Eastern Europe, Latin America, and Mexico—with some even returning to the United States—to mitigate risk, better meet market demand, and combat complexity.” Companies are rushing forward to redefine and redesign their sourcing networks before their competition does, and to eke out a year or two of competitive advantage while their competition catches up with the infrastructure spend and massive change required.

The Bottom Line

Pricing pressure will continue to drive global sourcing as it has in recent years. Network optimization will be driven by new ‘global hubs’ such as Dubai due to their significant capacity and infrastructure investments. Unlikely candidates hitherto, such as regional hubs, transform into global hubs as congestion on common lanes increases even more. Different types of network optimizations will be driven by product characteristics such as volatility, predictability, and volume (shorter lead times and more reactive networks for more unpredictable products). More ‘manufacturing’ (customization) work will be done during distribution steps while product is in transit to final destination, necessitating a product postponement / freeze-point-delay mindset starting with product design groups.

Shifts in Global Trade

Looking at global trade patterns, we see some macro-level shifts over time. Post-world war II, there was a surge in global trade from the US to the occupied countries, as well as the likes of Japan, South Korea, and Taiwan. Europe sourced within itself with little non-agricultural trade taking place due to devastated infrastructure in most of the continent. The US exported much of the required infrastructure during the early post-war era, but countries such as Italy quickly took on manufacturing and became net exporters of heavy manufacturing technology. Japan and other Asian countries quickly turned around the equation in the 1960s and 70s by producing cheap low quality (soon to become high quality) product in terms of electronics, automobiles, consumer durables, and fabrics to the rest of the world. Asia has long been the hub for technology production, first using reverse-engineered and copied innovations to actual collaboration (through global alliances as well as US company expansion) and offshore manufacturing of US businesses such as Cisco and Dell.

From a perspective of global supply chain networks, this was also a changing environment. In the 1960s and 70s, new production sites had to be planned in Asia and global supply chains had to be developed from scratch. Global shipping had not reached the state of advancement it had today,

and it was mostly local for local demand, or for long-lead-time and highly unreliable shipping import schedules with little visibility. This was okay, however, since consumers were not as demanding as they are today, and the velocity of trade was nowhere near what it is today.

With the iron curtain coming down, the 1990s also spurred a significant amount of opening up of different economies, albeit with economic chaos at first, to relative stability during the last decade. Russia opened up, Brazil opened up, China opened up, India opened up, and Eastern-Europe opened up, all with burgeoning local markets and a great capacity for manufacturing the world's goods. NAFTA was a ground-breaking 'first-step' move in terms of globalization for the US. Although business has been conducted trans-nationally for a very long time, the scale of it was the first of its sort. Companies shifted entire production bases from the US to Mexico, especially in the automotive component and assembly sector, and also in the electronics and apparel sector. From GM cars to Emanuele Ungaro suits, all products had a ubiquitous 'Made in Mexico' label, now being rapidly replaced with the 'Made in China' label. NAFTA allowed US businesses to do a 'pilot run' of globalization with a country quite well known and understood and with firm ties to the US. This was perfect, as many companies cut their teeth on this experience before the curtain came up on the whole world a 'free-trade-zone' by and large.

Where are the Risks and Opportunities

From our work at global clients, we see a number of risks and opportunities, some emerging and some prevalent. These risks and opportunities are what both shippers and Logistics Service Providers (LSP) need to consider when planning their global networks. We view some of the key risks and opportunities to be the following:

- Domestically, rising transportation costs, a rapidly aging logistics infrastructure with little recent investment to develop it to global standards
- Globally, rising fuel costs and commodity prices, and resulting transportation services and critical raw materials, resulting in generally higher cost of goods sold, implying eroding margins
- Asia (and specifically India & China) generally makes sense for manufacturing due to low manufacturing costs and a large domestic market, but quality (China) and regulatory (India) concerns often make a business continuity plan necessary and flexible
- Other countries are rapidly gaining popularity for sourcing sites due to their inclusion in the EU (Eastern Europe) and political stability (Latin America) as well as for market expansion in their developing economies with few local competitors who can stand up to the quality equation of their global counterparts

The Necessity for a Global Network – An Example

Dow Chemicals was mindful of the risks of global sourcing and had built a strategic contingency plan for what happened in one fateful winter in Argentina. As Jim Varilek, the vice president of supply chain at the 110-year-old chemical company said, "Globalization has never come home quite like it has this year."

The Wall Street Journal reported on May 29th, that Dow is raising prices across its product line by 20% effective June 1st, in order to cover skyrocketing energy costs

The volatility of energy stocks hit Dow hard last year when Argentina experienced one of the coldest winters on record. With four inches of snow in the capital city of Buenos Aires, consumer demand for natural gas to heat homes rapidly climbed. The government cut business

consumption of gas to meet consumer demand. Capacity at Dow's plants in Argentina was slashed by 75%.

But thanks to Dow's design of a flexible, global supply chain, they were able to shift this production to the Gulf Coast of the United States. They implemented their global network business continuity strategy such that all production and shipping was moved in 30 to 45 days, and the company only saw volume production fall 3% for the Latin American region served by the Argentina operations. Globalization came home and allowed Dow to survive what could have been a disastrous situation.

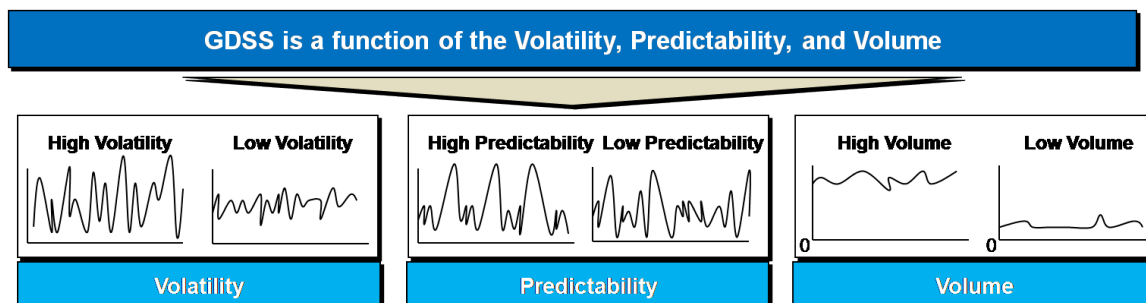
The Demand Side Gains Importance

As Dow learned, keeping close tabs on the demand side is critically important in understanding your supply side needs. Demand is a fickle thing these days, where fashion can sway in your favor during one month and away from your products in another month. If you're not there to serve and meet that demand, your competition will. And it's not here to stay either. However, you need the demand side to drive your supply strategy. The fickleness of demand should drive your supply chain network capabilities to be more flexible, since this fickleness is not only from the consumer demand but also from swaying government regulations. At one of our clients, we are actively building a network sourcing strategy based not only on supply capabilities and constraints, but equally importantly the demand characteristics of their portfolio. We characterize the demand into three dimensions:

- Volatility
 - The degree of variability in the demand, driven by markets, consumer behavior, micro-economic factors, competitive actions, and general trade conditions
- Predictability
 - The ability of your planners to forecast the demand correctly. In our previous month's discourse on the S&OP process, we emphasized that the integrated business plan (forecast) must be a cross-functional fact-based consensus of the direction of the market demand
- Volume
 - The magnitude of the sales – this is a fairly relative measure, which depends on your portfolio of products and on the market volume of product for your particular portfolio

Your sourcing strategy needs to be demand-based, using these dimensions, and considering your 'big picture' of global demand. "All of us are trying to figure out how to grow, and to grow you have to go where the demand is," says Angel Mendez, the senior vice president of global supply chain management at Cisco.

Global Demand-based Sourcing Strategy (GDSS)



As we see in the figure above <Jason, please take care of the numbering and references, thanks>, the demand can be with different degrees of volatility, predictability, and volume. Generally, when we consider network optimization, we never consider the demand side, which can lead to badly designed supply chains, with gross inefficiencies. Consider the example of a client who launched a new line of frozen meals in the marketplace. They had minimal experience with this type of product in the US, and hence did not have a good prediction of what the market demand might be. The product launched and was a huge success. Whereas this would have been a terrific outcome for the company, they were shackled with a supply chain with long lead time and low responsiveness. Sony's line of hip computers, the VAIO series, had the same story a number of years ago, where the supply chain lead time included several weeks on the ocean, and they were unable to respond in time for the volatile market demand.

How to Build a GDSS

The task is not a small one. It requires executive level insight, guidance, managerial expertise around the practicalities, and a heavy dose of analytics.

VOLATILITY

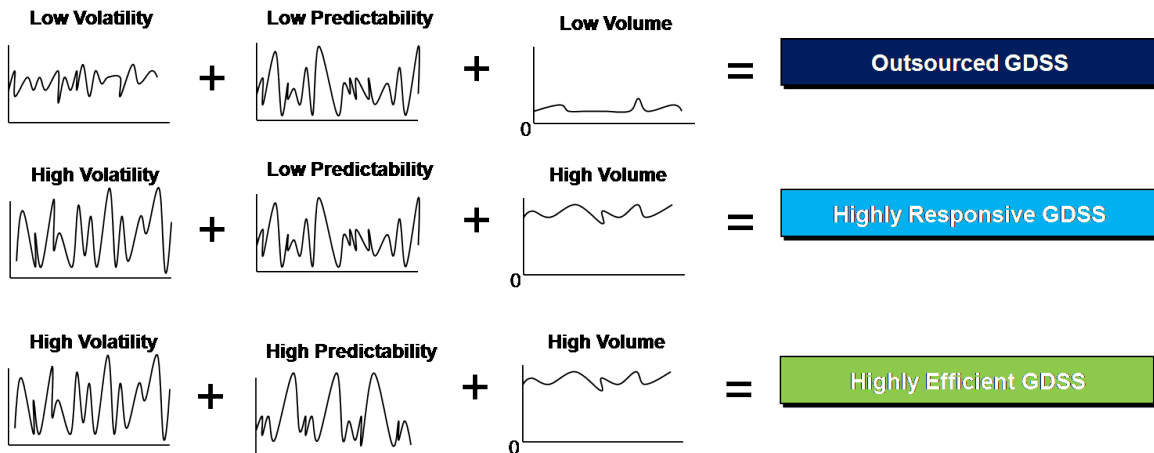
First we examine Volatility. High volatility of demand is symbolic of highly promoted products or a very stiff competitive environment. Industries such as electronics, high tech, consumer goods, apparel, and other trend- or fashion-oriented industries have such profiles. Believe it or not but the way furniture retailers have set up their businesses in the US, they also go through their 13-week 'seasons' or 'cycles' where product lifecycles are whizzed through during this period, witnessing the launch, maturity, and phase-out of products. Volatility in and of itself is only half the picture. Volatility that is periodic (such as seasons or events such as Labor day, Easter, etc.) may be highly predictable (i.e. supply chain planners may be able to plan such volatile demand quite accurately). In this case, the business can afford to have a longer supply chain. Now consider volatility that is unpredictable, such as the launch of a new model of laptops, with distinguishing features, or a new frozen foods product, or some fashion-oriented product – here, it is unlikely that the company will have a good understanding of their future demand. Volatility in this case needs to be countered through having a lot of 'instantaneous capacity' and 'throughput capability' for sourcing, manufacturing, distribution, and transportation in order to secure customer service levels. The alternative (sometimes cheaper) to this strategy is to build inventory to counter the effect of the long lead time, but then the risk lies in the 'mix' of products and to get this right is also another type of challenge.

PREDICTABILITY

Next is Predictability. The degree of forecast error of a product's demand is the measure of predictability. The more highly predictable a product's demand is, the more leeway a company has to design a supply network for it. Less predictable product generally comes in two forms – (a) the product which is very small volume (your basic nightmare – small quantities, particular customers, non-conformant to your lot sizes, and sales people who won't let it go!), which generally forms a bulk of this unpredictable demand (in terms of items, but the converse in terms of volume – i.e. a very small volume), and (b) the very important high volume products, which are generally very critical products for the company, and forms the pipeline fill for retailers and is essentially the product that will help it meet the margin and top-line goals for the year. Then there is the highly predictable portfolio of product, which is the bread-and-butter product for the business, which has no intrinsic patterns and sells in a relatively stable pattern throughout the year. This product can be supplied through a relatively steady stream of supply capabilities, without much fuss.

VOLUME

Volume is the final dimension. This dimension is relatively straightforward. It is the magnitude or size of the demand. High volume implies a lot of capacity requirements, and low volume means a company has options for outsourcing. When combining high volatility and low predictability, if a company's demand is high volume, this is dangerous and expensive. A company will have to spend a lot of money on production and distribution assets as this is what your strategy will require. Meanwhile low volume, low volatility and low predictability might imply that you have a likely candidate for outsourcing. The figure below shows these options in a graphical manner.



GDSS Can Lead You to the Efficient vs. Responsive Decision

You may have already reached the conclusion by now that some of these combinations imply a 'responsive' GDSS and others imply an 'efficient' GDSS. These are two different supply chain designs altogether. Many companies have a break-point tension in their supply chains for exactly this reason. The demands are schizophrenic. On one hand, supply chain groups (logistics, distribution, and manufacturing) are required to have very low costs, and high service. These can only be done for very efficiently run supply chains, where you produce and ship the same thing over and over again using the same lanes or routes and carriers. On the other hand the marketing and sales folks are forever expanding the product portfolio, and the group of customers who demand the product gets larger each year, with huge amounts of product 'churn'. To give you a perspective, the average supermarket stocks about 30,000 items, of which 67% of them turnover each year! Imagine the supply chain complexity that this implies! Yet, customers and leaders expect these products to be delivered on time and in full, and available on the shelf. This requires a highly responsive GDSS. We highlight some key differences below:

Criteria	Efficient	Responsive
Motivation	Oriented towards reducing allocated cost per unit and maximizing margins	Oriented towards rapidly responding to unexpected changes in demand
Product Characteristics	Model typically used for high volume, highly predictable items, made on a frequent basis	Typically used in new product launches or promotions where predictability is low or also in 'C' items, where it doesn't compensate to make frequently
Product Life Cycle Characteristics	Used typically for products in the later stages of the lifecycle Alternatively, if used for products early in the lifecycle, used typically for base or core-component volume	Used for products in the earlier stages of the lifecycle where they typically have higher unpredictability than in later stages Also used for highly promoted items which are not promoted on a calendar basis
Functional Requirements	Heavy on functional excellence, not too much interaction required	Light on functional excellence, heavy on interaction
Organizational Requirements	Manage mostly by exception or lower frequency, hence less resource requirement; Less communication and interactions required	Exception is typically the norm, therefore more analyses, exception management, and hence more resources are required; Multi-echelon and multi-functional interactions constantly required
Process Requirements	Formal process, exception management	More fluid process, rapid decision-making

GDSS is an emerging practice and we see many clients interested in its potential to shape the supply chain design and spend money on assets and resources to serve their customers. GDSS can help companies meet their global demand in a better and more balanced manner to help achieve both efficiency and responsiveness through their global supply and sourcing networks.

As President Fox said in the AMR Research conference last month, "We are living in this flat world. Those with vision will move ahead first, and the rest will learn and copy." Keep in mind, though, even if you're one of the ones creating the vision, "even if you're on the right track, you'll get run over if you just sit there" (Will Rogers).

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