

## **Service Bundling Opportunities for a 3PL in the Value Network**

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**ABSTRACT**

The 3PL industry is currently experiencing rapid growth, high fragmentation and intense competition. In order to survive and stay relevant going forward, 3PLs need to re-assess their current position in the value network and develop a clear strategy to position themselves as strategic business partners for the long term.

This thesis first explores the supply chain challenges and needs of the major stakeholders in the value network. It then tries to create a roadmap identifying the major opportunities which 3PLs should optimize in order to become true value-added service providers and long term strategic business partners in the value network.

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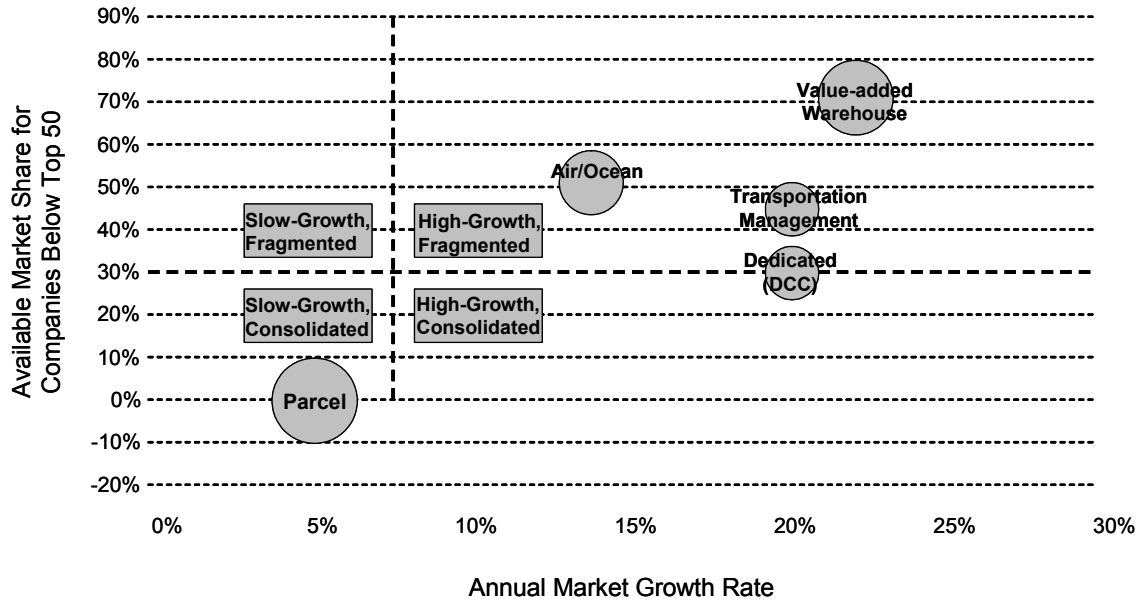
# INTRODUCTION

## 1 THE CURRENT TRENDS OF THE 3PL INDUSTRY

*For the eighth consecutive year, U.S. growth in third-party, contract logistics has exceeded growth in the U.S. economy. Results for 2002 show increases in turnover, net revenues and net income. Turnover increased by 6.9% and net revenues by 7%. Net income increased from 1.7% in 2001 to 3% in 2002. – eyefortransport, Apr 2003.*

In the last decade, the third party logistics (3PL) category has grown at a rate greater than 20%, and some studies predict that this rate will remain at an annual 15-20% in the years to come. A recent Lazard Frères study showed that the percentage of transportation that high-volume shippers outsourced is growing from 37% in 2000 to an expected 73% in 2005.

As promising as it is, the business space of the 3PL is a very complex and fragmented one. As shown on figure 1, the parcel industry (historical core competency of some of the largest modern 3PLs) is only growing at 4% and completely dominated by the larger players of the top 50. On the other hand, the four core logistics sectors – warehousing, transportation management, air/ocean freight forwarding and dedicated contract carriage – are growing at an impressive rate of 15-25%, and still completely open to the 1000 small logistics players (Gordon B.H., 2003).

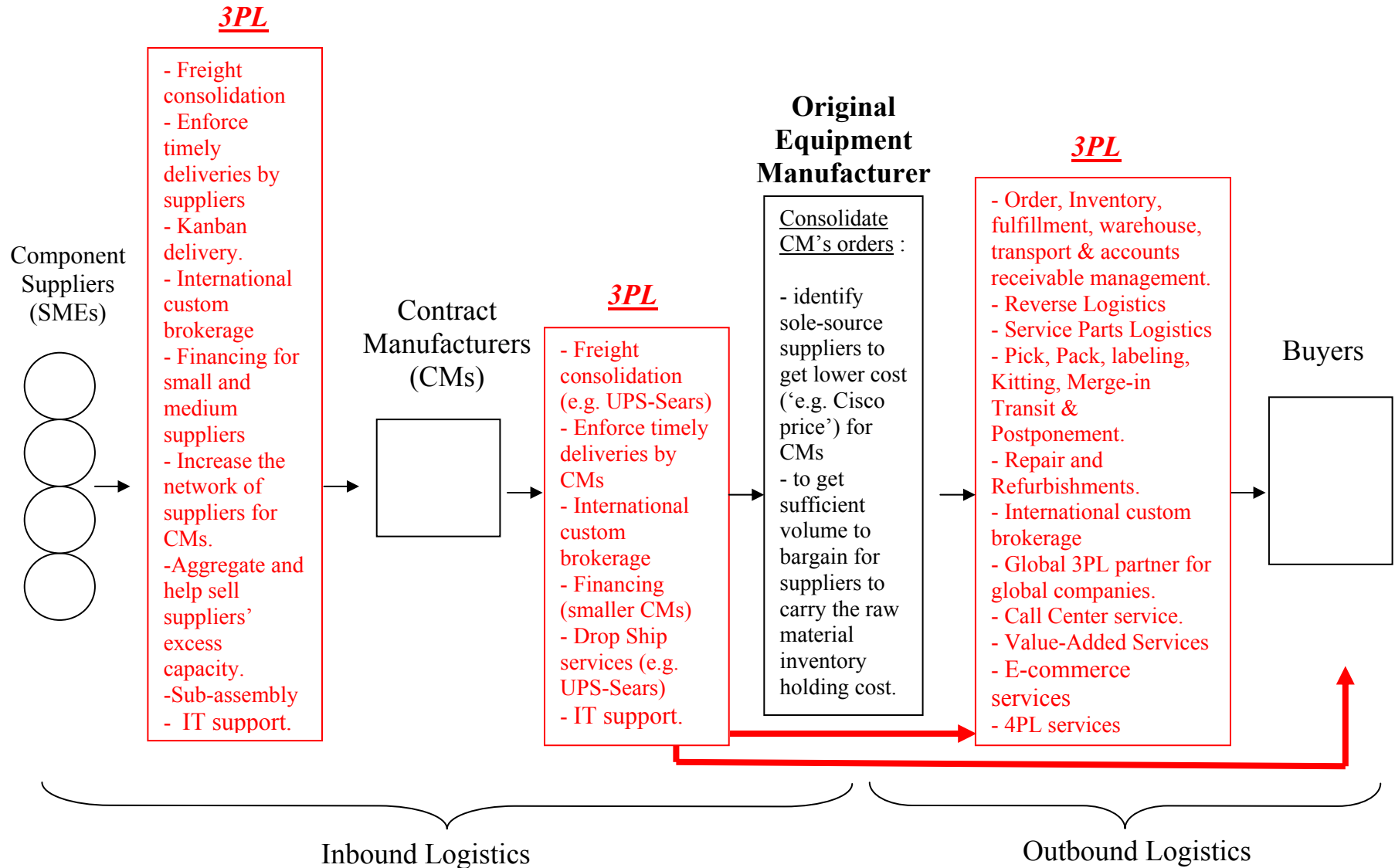


Source: Armstrong & Associates, BG Strategic Advisors Analysis

Figure 1 – The logistics market today: high growth but fragmented.

The following diagram gives an overview of the different types of services that the 3PLs are currently offering in the value network.

Figure 2 – Current business space of the 3PL industry.





This fragmentation of the market and the proliferation of proposed services have been rapidly followed by a significant number of mega-mergers in the past three years: Deutsche Post-AEI-Danzas, UPS-Fritz, Kuehne & Nagel-USCO, and Exel-Mark VII. However, this period of unprecedented consolidation has not yet resulted in the domination by a single player in the market, but instead led to the expansion (both on the geographic and service level) of several major players in the industry.

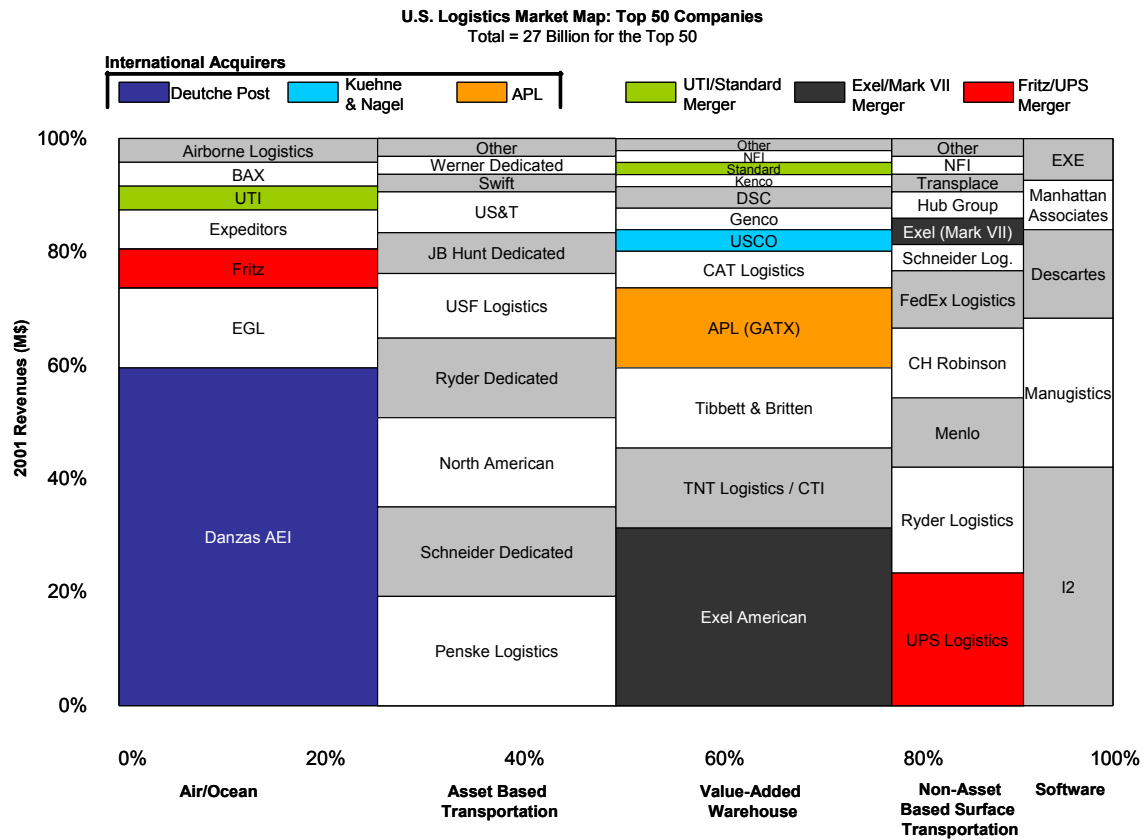


Figure 3 – 3PL industry, consolidation across modes and geographies.

The preceding observations seem to reflect both a tension between the deep desire of the 3PLs to move in the “right” direction and the ongoing pursuit of what this “right” direction really is. With the current state of the 3PL industry as a backdrop, the authors of this work hope to offer some practical insights to the question: *what are the strategic*

*directions that a 3PL should steer towards in order to gain a competitive advantage and stay viable in this highly fragmented, rapidly growing and consolidating 3PL industry.*

## **2 METHODOLOGY OF THE RESEARCH**

In order to accurately identify the actual opportunities of a 3PL in this complex and evolving business space, it is necessary to avoid the common pitfalls of being too theoretical and conceptual in our approach. As such, this work is primarily focused on gaining the perspectives and insights of business leaders from the conduct of interviews. The methodology used in this thesis is based on a simple 3-step approach:

- A literature review of the current 3PL industry trends.
- Interviews with all the major stakeholders of the Supply Chain Network in order to understand their supply chain challenges and their perceived opportunities for 3PLs.
- Integration of step 1 and step 2 in order to develop a coherent roadmap identifying the major opportunities for the 3PL industry.

The companies, professionals and organizations interviewed for this work fall into 7 categories:

- **Manufacturing companies of different sizes and from different industries.**

Color Kinetics, Gillette, Pratt & Whitney, Hardy Design, Boston Fuel Cells, Precision Combustion Inc, Cisco Systems, Agilent Technologies, Qualcomm, Nokia, Bose Corporation, General Motors, General Electric.

- **3PL.**

UPS Supply Chain Solutions.

- **IT solution providers.**

UPS IT Solutions, Exiros IT, SAP.

- **Analysts and Consulting groups.**

Gartner Inc., Cap Gemini Ernst & Young.

- **Standards bodies.**

UCCnet, RosettaNet.

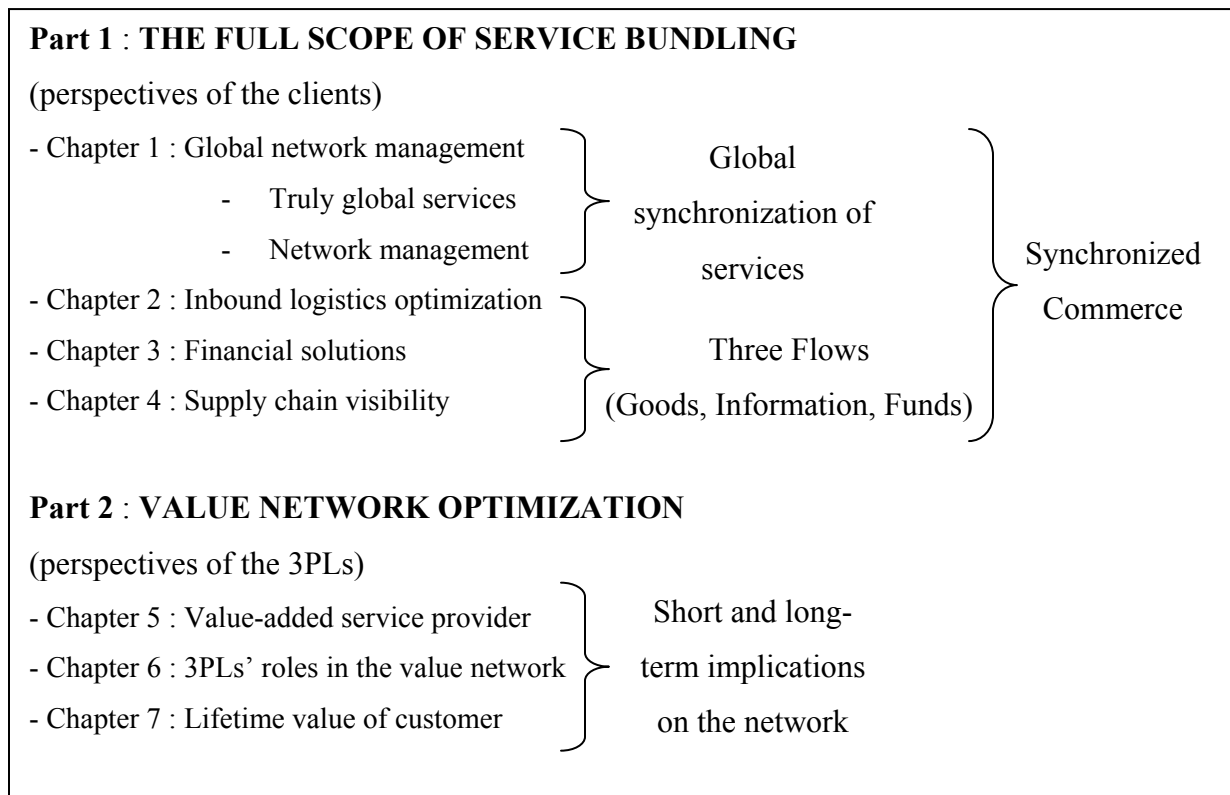
- **Technology Research Center.**

Auto-ID Center.

- **Academia.**

Yossi Sheffi and David Simchi Levi – Professors of Engineering Systems at MIT.

### 3 STRUCTURE OF THE THESIS



*Figure 4 – Roadmap of the thesis*

The objective of the first part is to detail the major needs for bundled solutions that we have identified from the perspective of the client companies. As it turns out, these needs fell naturally into two main categories:

- **Global network management**, defined as the ability for a 3PL to provide an integrated set of services on a global level via a single point of contact,

- the bundles related to the three flows (goods, information and funds) that exist inside the supply chain – **inbound logistics optimization, financial solutions, and supply chain visibility.**

The objective of the second part is to take the perspective of a 3PL, and lay out the short and long-term implications of establishing a synchronized commerce inside the value network. In order to relate this in a comprehensive way, this part of the study has been logically divided into:

- the **need for 3PLs to be true value-added service providers,**
- the **roles of 3PLs in the value network,**
- the ways to optimize the **lifetime value of the customers.**

**PART I**

**The Full Scope  
of Service Bundling**

# CHAPTER 1

## GLOBAL NETWORK MANAGEMENT

*"More and more, the global way is the way of business. Customers tell us they want to deal with one company for international and domestic, express and package." – Airborne Chief Executive Officer Carl Donaway.*

In this first chapter, we try to give a precise definition of the increasingly used concept of “global network management”. From the feedback of various companies, we argue that this notion consists of a bundle of two separate sets of services:

- Truly global services defined as the ability to provide consistent local expert services on a multinational level.
- Network management defined as the full integration of services achieved through a single point of contact from the 3PL.

### Global network management

“Truly global” services			Network management	
Multinational Presence	Local Expertise	Standardization	Full integration of services	Single point of contact

*Figure 5 – The components of global network management.*

### 1 “TRULY GLOBAL” SERVICES

Most large companies go through the evolutionary phase of geographic expansion from a local presence to a multinational one. In this natural evolution, they would highly value from their 3PL partners (i) any help to reach and penetrate foreign markets, (ii) a local expertise in these foreign markets, and (iii) a consistent set of service quality standards across different regions.

However, the most sophisticated evolution of geographical expansion is ultimately achieved when the company is able to think in “truly global” terms, thus requiring its logistic partner to provide all of these three elements in a bundled service. Results from our interviews with companies suggest that this truly global thinking has not been achieved by any of the major 3PLs, and as a consequence, the ability for any 3PL to provide truly global logistic services may very well become a competitive advantage in a growing market of premier clients.



*Figure 6 – The components of “truly global” services.*

### ***1.1 Needs of an expanding company***

#### **a A natural trend towards a multinational presence**

The natural desire of most rapidly growing company is to overcome the barriers to entry in the most remote regions in order to increase market share. However, in many of these remote regions, the company often could not find well-known international 3PLs and are forced to partner with small local 3PLs which are not price-competitive and lack high quality of service. As a consequence, there is a real need both from small companies that are about to make the first step outside of their traditional market, and from the large companies that want to penetrate a particular remote country in a region which they already have strong presence.

This is the case of Color Kinetics, a rapidly growing company that is moving aggressively to distribute its products on a multinational level and facing a very classic tradeoff between achieving low overhead and efficient geographic expansion. On one hand, the company is at a stage of growth when it is still very cost conscious, and thus very careful not to increase the number of distribution centers unnecessarily. This is why:

- It has negotiated special arrangements with its contract manufacturers in China to hold the finished goods inventory for up to a period of 6 months – both physically and on the contract manufacturers’ books – before delivering them directly to the nearby clients in Asia,
- It uses only one warehouse which is run and owned by UPS at a “sweet spot” of American distribution<sup>1</sup> to reach all the North American clients, and
- It currently distributes to its European customers directly from China or the US without a more strategically-located warehouse.

On the other hand, Color Kinetics is well aware that efficient distribution is a key requirement to effectively penetrate into foreign markets. As such, it is planning to partner with 3PLs to set up more strategically-located warehouses in Asia and Europe. In this difficult tradeoff, a 3PL with a multinational presence can definitely make a critical difference and boost the expansion efforts of their smaller clients.

Similarly, the same need is also expressed by a considerably larger company like Gillette. Gillette is well established in Europe through its major 3PL partners, but due to the latter’s unavailability in the Scandinavian market, it had to use the services of smaller local logistic service providers in these regions although these smaller 3PLs do not have the multinational reach, the cost-effectiveness, and the range of services that would fully meet Gillette’s supply chain requirements.

Finally, in some cases, this geographic expansion is not a strategic decision, but a constraint that the relocation of business partners (suppliers and buyers) imposed on the company. Then the need for external help is even stronger, and the 3PLs can play a crucial value-added role in helping the company.

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<sup>1</sup> The US distribution is based in Louisville, a “sweet spot” in distribution since 60% of the US population resides within a 600-mile (2 day delivery) radius circle.



### **b The value of a local supply chain expert**

Given the increasing number of companies that are shifting their businesses and distribution operations to developing countries like China or Mexico, there is a growing need for these companies to gain local supply chain expertise. There is significant value for these companies to save the cost of re-learning the expensive logistic lessons that other companies have already learnt. To fulfill this need, a 3PL could serve as the local supply chain expertise and provide useful advice both on the strategic implementation of the supply chain network and the specific trade regulations of the country.

Ultimately, companies must be able to pass their business plans in these developing countries to the 3PLs, and let the 3PLs provide the design, planning and operations of the entire supply chain network. The benefits to these companies would be the avoidance of expensive mistakes, reduction of the time needed to set up their operations in these regions and consequently, avoiding losing market share, profit and customers.

A practical case of this search for a local expert is that of Pratt & Whitney (PW). The company needed a local expert in the procurement of its strategic raw materials in China, and thus outsourced to a single Chinese procurement agent: the procurement function, the delivery from the suppliers to the intermediate machining factories in China, and the final delivery to the Canadian facilities. In this case, PW was able to benefit more from partnering with a local supply chain expert than from partnering with a larger international 3PL company.

3PLs can also provide useful supply chain management expertise for these companies with respect to countering the intricacies of the local regulations for doing business in these countries. A blunt but very real example would be the management of corruption at the customs of some developing countries. A less provocative example would be trying to move goods through government-managed trading ports that intentionally “obstruct” or inconvenience the trades (imports and exports) from competitive neighboring countries. In this case, companies which expect the smooth and free flow of trade/goods between

these countries in the globalized economy would be unduly victimized when shipping between such countries.

As a consequence, there is an opportunity for 3PLs to become country-specific experts in supply chain management and provide first class solutions that are customized to manage the characteristics of local businesses. For the smaller 3PLs, this opportunity translates into the necessity to build a competitive advantage by advertising their local expertise as a core competency of their business, and for the larger 3PLs, the opportunity lies in offering (organically or through partnerships) local supply chain expertise inside every country.

**c The need for consistent service qualities across different regions**

In remote regions with only local 3PL service providers, multinational companies are forced to partner with local 3PLs and as such are often unable to obtain consistent service qualities from their pool of 3PLs. Even when these local 3PLs are managed by a 4PL, there is also no strict enforcement of service quality and standards by these 4PLs. Additionally, for companies that were able to use a single 3PL for a few different countries, the different local branches of this 3PL may not provide the same service quality or standards (e.g. a 3PL using different transportation software in different countries), thus incurring additional expenses and transactional costs for the companies. As such, one of the unfulfilled needs of a multinational client company lies in the availability of consistent 3PL service standards and qualities across the different countries.

***1.2 Towards a “truly global” thinking...***

**a Defining the truly global thinking**

The case study of a large distribution-oriented company like Gillette suggests the existence of a “life cycle” for a company that is expanding towards a global reach. This evolution consists of four consecutive stages of geographic presence:

- Local
- National

- Multinational
- “Truly global”

While the first three stages of this evolution may be very mundane, the very last stage needs to be carefully examined in order to distinguish between a multinational company and a “truly global” company. Most companies transition from a purely domestic presence to the penetration of the foreign markets through the creation of a new “international” division to complement the “domestic” division of the operations. Of course, the structure of the company might even be a little more sophisticated than this, and be organized around regional or continental division. Nevertheless, the fact is that having a multinational presence and thinking globally are two very different things. A “truly global” standpoint is achieved only when the company stops thinking about its operations merely in terms of connections of regional supply chains but as an integrated whole that reaches every corner of the world. Only a handful of companies have reached this stage.

In essence, the truly global 3PL services are defined by the bundled offers of:

- A multinational presence
- A local supply chain expertise
- A consistency between the local services

**b Meeting the needs of the “truly global” companies**

In the case of Gillette, the company has a true multinational presence with 60% of its sales outside the US. In addition, it possesses this truly global thinking in its strong desire to aggregate the global demands of its largest clients in order to be able to level-load the total production among all their facilities in the world. Of course, such a production planning strategy is probably neither possible nor desirable for all manufacturing companies: it is the size of Gillette, and the specificities of its core business – low volatility and cyclicity of the demand for razor blades – that makes it critical for it to evolve towards this type of truly global perspective.

As a consequence, Gillette is eagerly looking for equally global logistic partners. Ideally, a partnership with two or three of them would allow the company to benefit from a healthy competition in logistic services.

From the perspective of the logistic companies, the major 3PLs acknowledge the existence of this small number of truly global companies, and the need for them to find a global 3PL partnership service. In addition, the clients with this global need are always premier clients from the Fortune 100 with which any 3PL would like to establish the closest relationships.

All the major 3PLs pride themselves of a global presence in 100 to 200 countries. Nevertheless, interviews with Fortune 500 companies like Gillette revealed a gap between the 3PLs' offered services and the truly global service requirements of their clients. Most of the 3PLs' clients see the major 3PLs not as truly global service providers but as multinational ones that they can rely on to provide high quality logistics services for some limited regions.

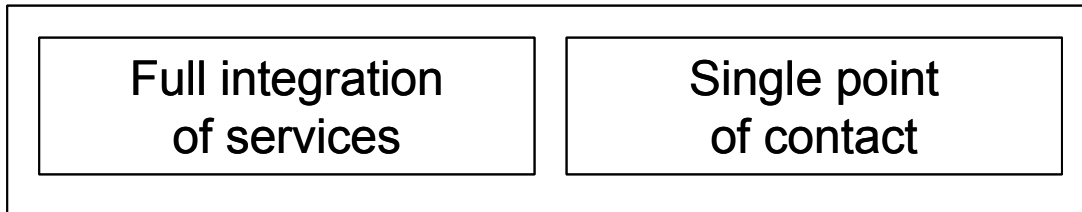
As such, there is an unfulfilled need among a handful of premier clients for truly global services. There is still a gap between a multinational 3PL (e.g. DHL, FedEx, or UPS) and a "truly global" 3PL that could fulfill this need. For now, 3PLs are focusing their efforts on the companies with a multinational presence that are still making decisions at a regional level. These companies need only broad international capabilities from their logistic partner but not a truly global service. However, we believe that the ability for 3PLs to provide truly global services might become a critical competitive advantage to lock-in a growing market of premier clients.

## **2 NETWORK MANAGEMENT**

The range of services which 3PLs usually offer can be extremely wide, and in most cases they need to be coordinated together. The concept of network management is simply the integration of these services by connecting the sub-networks and the tasks, through the 3PLs' single point of contact. In spite of the theoretical simplicity of the concept, it

represents no less than the practical enabler of a high service level to the clients, through the customization and bundling of services complemented by a more efficient event/crisis management for the client company.

## **Network management**



*Figure 7 – The components of network management.*

### **2.1 The scope of network management**

The possibilities of network management by a 3PL are clearly demonstrated in the example of Qualcomm.

The service parts logistic requirements of one of Qualcomm's business unit entail the management of 26 service centers throughout the US. Customers drive their truck (equipped with Qualcomm's wireless device) to these centers to have their wireless device repaired and serviced. The operations include:

- Sending the replacement parts (time-sensitive) via airfreight from Qualcomm headquarters to the service centers.
- Assuring the service operations (simple troubleshooting and repairs)
- Sending back the faulty parts (non time-sensitive) to the HQ for repair or scrap via ground express transportation.

To Qualcomm, there would be clear value in integrating the transportation of products to and from the service centers. It happens that the time criticality of the two types of product is not the same, and as a consequence, Qualcomm was able to take advantage of the most cost-effective service provider to meet the different transportation requirements of its service center operations. On the other hand, there is also value in dealing with the

same service provider, both at an operational level to manage the execution more efficiently and at a contractual level to negotiate a better deal.

Qualcomm has two strategic decisions to make in this case:

- whether to completely outsource the repair function to the 3PL – which would require the 3PL to hire trained people or have Qualcomm train them directly – or more realistically, to replace Qualcomm’s dedicated service centers use the network of forward stock locations of the 3PL and have the 3PL manage the Qualcomm’s service personnels in those centers.
- whether to outsource all the transportation services to the same 3PL, and compensate an increased price in one type of freight by the overall benefit of service integration. One of the ways this level of service integration could be achieved is through the complete interoperability of the two 3PLs. However, to fully benefit from this service integration, Qualcomm may be required to choose one of them as a single point of contact via a lead logistic provider arrangement. This would mean that the other 3PL would need to relinquish its direct relationship with the customer.

This case allows us to more precisely define the concept of network management by a 3PL as the full integration of services – i.e. the ability to connect all the networks and/or all the tasks that the client has decided to outsource to its logistic partner – via a single point of contact. The concept of single point of contact must be viewed in a broad sense, and be translated practically as having the client dealing with only one person for the entire span of integrated services:

- This single point of contact can be a representative in-house, or simply an external dedicated representative.
- The point of contact can represent all the services that a single 3PL is offering, or more broadly the services that a number of 3PLs are providing through a single 4PL or Lead Logistics Provider.

## ***2.2 The benefits of service integration***

### **a The specific case of the SMEs**

The value of full service integration within the 3PL providers is really significant to the small and medium-sized companies. The most obvious advantage lies in the administrative simplification of having a single point of contact for all the services. This is the case of Color Kinetics that has been relying on the various offers from the same major 3PL to grow and extend its operations. At a period of the company's life cycle when its people are very focused on cost reduction and effectiveness, it is important not to incur unnecessary transactional costs of dealing and coordinating with different points of contact within a large 3PL.

Furthermore, a better service integration from the 3PL allows both parties to establish a closer relationship right from the beginning. Interestingly, both parties should be able to enjoy much benefit from this arrangement. From the perspective of the SMEs, this may represent an opportunity to further drive down the costs by asking for discounts for the overall bundle of services involved. From the perspective of the 3PL, it is also very rewarding to develop a privileged relationship with a fast growing company, especially if it is in a promising sector.

### **b Network management as an enabler for customization**

Integration of the different services through a single point of contact is also a prerequisite to an effective customization of services. For example, Color Kinetics currently needs to interact with the different service divisions inside the same 3PL (i.e. airfreight service, ground express service, etc) in order to coordinate the seamless delivery of their supplies from China to Hong Kong to Long Beach and finally to its warehouse. However, in order to be truly seamless and efficient from the client's perspective, it would be useful if it could just "pick up the phone" at any time, and make arrangements with a single customer service representative of the 3PL to coordinate the end-to-end flow of its goods. In order to achieve that, 3PLs would need to invest in developing a centralized customer database and having dedicated customer service representatives who truly understand

their customers' business operations and specific operational requirements. Achieving this capability would enable truly seamless 3PL services.

At a higher level, effective service integration greatly depends on the simplicity of the bundled offers from the 3PLs. In the case of Color Kinetics, the company historically deepened their relationship with their main 3PL as the integration of the logistic services matured. As a result, Color Kinetics suffered initially from the complexity of the 3PLs' incoherent set of service menu as it had to pick "ala carte" among a significant number of individual services. From the perspective of the 3PLs, they have to find solutions to this problem by focusing on customer relationship management. In the case of UPS and its Supply Chain Solutions, the company has now opted for a comprehensive menu of 7 bundles which serves as baseline services offering clear and customized solutions to its clients. More 3PLs need to adopt such practices in order to provide the much-needed clarity and simplicity in their service menu.

### **c Network management as an enabler for event management**

Last but certainly not least, network management is the one of the most effective way for a client company to deal efficiently with crises while benefiting at the same time from the advantages of outsourcing to their 3PLs. In response to any crisis/event, companies need the ability to interact as efficiently as possible with their service providers (via the 3PLs' single point of contact) so as to better manage the situation.

An extremely efficient way to implement this integration of service through a single point of contact has been achieved by the JIT II program of Bose Corporation. In this specific model, representatives ("in-house reps") from the major 3PLs (FedEx, APL, Roadway) that the company uses are physically present inside Bose and are seamlessly integrated into Bose's supply chain operations. The centralized problem resolution capability that this system enabled in the case of logistic crises is simply remarkable. The 3PL reps in Bose are logged into their respective companies' IT execution software and are able to coordinate their efforts with people from Bose as well as with the other 3PL "reps" to achieve an unique efficiency in the company's supply chain management. In this case,



companies like Bose which place much emphasis on its ability to always provide high customer service levels (which in turn translates into efficient event management), would be able to enjoy the benefits of an outsourcing relationship without sacrificing the ability to deal with crises nor relinquishing too much control in their supply chain.

### ***2.3 Perspective of the 3PL***

There is clear value for 3PLs to provide a simple, comprehensive and integrated set of logistics services to the clients through the use of a single point of contact. However, such integration might not be easily achieved. On an IT system level, it requires the 3PL to possess an internal visibility which links all the pertinent information about a particular customer together so as to facilitate central processing. In addition, there would be organizational obstacles to overcome by aligning each division's vision of the client at the company-wide level and not merely at the divisional level.

## **CONCLUSION**

**Global network management is the true enabler of synchronized services provided by the 3PLs. However, there is a gap between the 3PLs' current offered services (in terms of global network management capability) and the requirements of some premier clients. At a time when the larger 3PLs are looking for a competitive advantage in this complex industry, it is surprising that almost all the advances in global network management are customer-pulled and not 3PL-pushed. Ultimately, an efficient global network management is the only way for outsourcing companies to get the "best of both worlds", i.e. benefiting both from the cost reduction of outsourcing while not losing efficiencies in the processes, and retaining the capacity to deal swiftly with crises/events. In this aspect, we believe that the first large 3PL who is able to go beyond a local/divisional vision of its clients' to a global/integrated one will be able to build a critical competitive advantage and possibly lock-in those premier clients with a need for such truly global services. To implement this change, emphasis must be put on customer relationship management initiatives and on the allocation of dedicated representatives for each client (achieving a single point of contact), both across countries and services.**

## **CHAPTER 2**

# **INBOUND LOGISTICS OPTIMIZATION**

Beyond the usual well-known transportation, warehousing and distribution services offered by 3PLs to optimize their customers' outbound logistics operations, we have through our interviews and research, identified some opportunities for 3PLs to optimize their customers' inbound logistics operations. An interesting observation is the high strategic value which most manufacturing companies placed on their relationships with their suppliers and contract manufacturers. While most manufacturing companies are willing to allow a 3<sup>rd</sup> party to optimize their inbound logistics operations, they would still want to closely manage and control the strategic supplier-OEM (includes both contract manufacturer-OEM and component supplier-OEM relationships) so as to enhance the overall supply chain efficiency, secure lower prices for their supplies or establish more flexible contracts to deal with fluctuations in customer demand.

### **1 OEM-CONTRACT MANUFACTURER MODEL**

The OEM-contract manufacturer model has been promoted to a large extent by the considerable successes seen in companies such as Cisco, Dell, IBM, or even GM. In this model, it is critical to understand the strategic considerations of the various network players before identifying where the additional values and opportunities are.

Our interviews suggest that, in general there is a high strategic value in the inbound consolidation of the OEM-contract manufacturer model by the 3PL. However, these opportunities are not necessarily left open by the master OEM. More detailed case studies show that the largest and most integrated OEMs like Dell, Cisco or IBM see their relationships to the upstream players as a strategic one, and thus will prevent any external intermediary from interfering. Similarly, the smaller OEMs that are outsourcing part or the complete manufacturing process also view their supplier relationship strategically. However, in this case, there exists a strategic opportunity for inbound consolidation by

the 3PLs due to the little leverage which these smaller OEMs have over their contract manufacturers and component suppliers.

### 1.1 The closed inbound network of the large OEMs

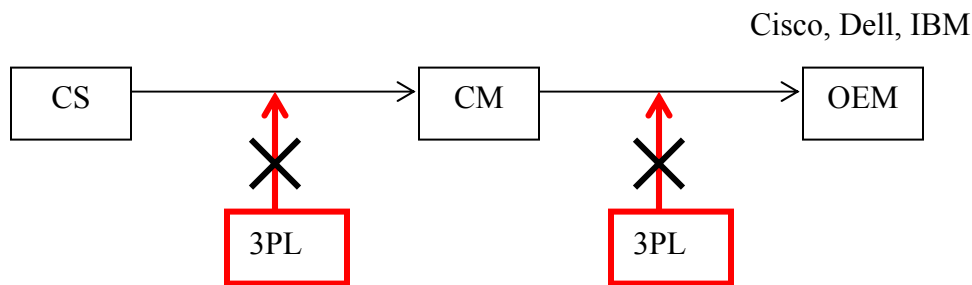


Figure 8 – Inbound private virtual networks of large OEMs.

#### a Relationship with the contract manufacturers

Cisco is currently undergoing a drastic reduction of its number of tier-1 contract manufacturers from over 40 to about 14 bigger players. This strategic decision has 3 main advantages from Cisco's perspective:

- It allows Cisco to minimize inventory exposure to sudden drops in demand of its products.
- This strategic reduction of the numbers of contract manufacturers dramatically increases its leverage and control over the contract manufacturers (CMs) as Cisco's orders ended up constituting between 30-70% of the CMs' total revenues. Consequently, Cisco was able to impose very strict inventory visibility, redundancy check, quality control and specific production requirements on its CMs. In the event of a supply chain disruption, Cisco requires its CMs to have the ability to re-locate their entire manufacturing operations to alternate production sites 2 weeks after activation.
- Keeping only the largest CMs also has its advantages. Firstly, the larger CMs are in a much better position to fulfill the demanding requirement for alternate manufacturing sites within 2 weeks of activation. Secondly, these CMs have

stronger buying power against their own suppliers, and thus are in a better position to get lower prices from their suppliers without any help from Cisco. As such, Cisco is able to focus its attention on more strategic and value added choices.

**b Relationship with component suppliers**

Although Cisco primarily deals only with its tier 1 CMs in its private virtual exchange, it still wants to retain full control of its supply chain and would not want to relinquish the strategic relationships with its upper tier suppliers – the component suppliers (CS) to the contract manufacturers – to some third parties serving as intermediaries or brokers. In this regard, Cisco’s private exchange solutions (eHub) would facilitate the end-to-end integration and information visibility with all its suppliers including upper tier suppliers.

**1.2 The open inbound network of the small OEMs**

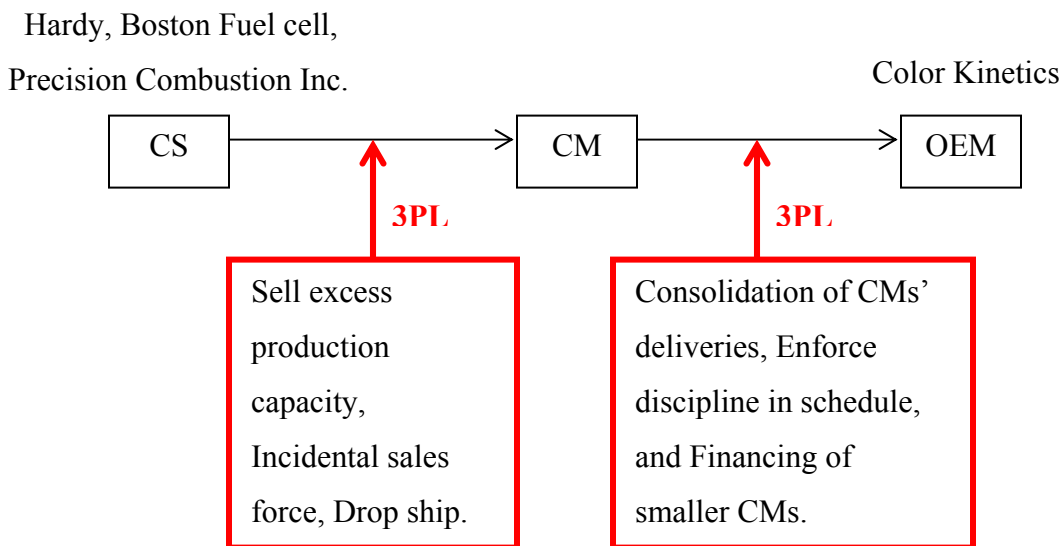


Figure 9 – Inbound network of small OEMs

**a The perspective of a small high technology OEM**

A high technology company usually focuses on component procurement for the contract manufacturers. The key strength of these companies’ manufacturing process lies in the

cost reduction which they manage to “squeeze” out of the component suppliers by consolidating the needs of their contract manufacturers. In the case of Color Kinetics, the company was even able to push further at this critical point of the supply chain, and negotiate “off-the-hook” arrangements from some of its suppliers. As a consequence, these component suppliers agree to hold the raw material inventory for a period of time (approximately 6 months) while making these supplies available at the disposal of any Color Kinetics-approved contract manufacturers. By doing this, the company manages to get the inventory off its books, and level-load the total need of components from their CMs.

At the end of the day, this personal face-to-face type of relationship with the supplier is in fact the core business of this cost-conscious company. As such, it is something that Color Kinetics is extremely reluctant to outsource to an intermediary or a 3PL. In addition, from the perspective of the suppliers, the negotiated prices that they are quoting Color Kinetics are extremely sensitive information and they would never agree to deal with a third party that is involved in other networks, with other contract manufacturers and other high technology companies.

For similar reasons, the relationship with the contract manufacturer is of strategic value to Color Kinetics. While Color Kinetics is eager to protect its relationship with small component suppliers (with which it has a considerable leverage by being a large client) against any external 3<sup>rd</sup> parties’ intermediation, its interests with the contract manufacturer are mixed. Although it needs to deal with a relatively smaller contract manufacturer in order to gain leverage over them, there are also some significant strategic advantages to gain from dealing with larger contract manufacturers since the “big players” on the market typically possess solid financial assets and a large range of manufacturing capabilities.

As a consequence, Color Kinetics is constantly making considerable efforts to move up the ladder of contract manufacturers from the smaller tier 3 to the bigger tier 2 players. As such, a high technology company like Color Kinetics would see a possible role for the

largest 3PLs to help organize and consolidate their contract manufacturers' deliverables, finance the smaller suppliers, and above all use their big brand names to enforce strict adherence to delivery schedules by the contract manufacturers.

**b The need from the micro component suppliers**

Hardy Machine & Design has a problem of excess manufacturing capacity whenever it is working on a project for one of its customers. Given that the fixed costs of operating the manufacturing operations has already been incurred, the company would like to be able to optimize the excess capacity to generate additional revenue. As such, it is receptive to the idea of having a 3PL acting as an intermediary and consolidating its excess capacity (along with those of its competitors) in order to serve some less strategic customers' requirements. However, such arrangements should not jeopardize its strategic relationship with its primary customers

Hardy Machine & Design currently uses contract manufacturers from India to produce some of its intermediate products. If the overall cost including the additional freight and service charges is attractive enough, Hardy will consider having a 3PL offering the production of these products to a wider selection of suitable suppliers and contract manufacturers from within the US or overseas.

## **2 FROM LTL TO TRUCKLOADS**

As trucking rates climb, the logistics organization is subject to an increasing pressure from top-level financial types to control or reduce costs. And while companies are trying to optimize and consolidate their inbound supply chains for increased efficiency, many continue to overlook volume consolidation and control in favor of a lower inventory model.

The idea of consolidating less-than-truckload (LTL) shipments into truckload or simply fewer LTL shipments is not revolutionary, especially in outbound shipments. But it is definitely an idea getting more attention on the inbound side of the house, thanks to some recent trends. Gerald McNeerney, transportation analyst with AMR Research in Boston,

observes the collapse of Consolidated Freightways last year as well as a new Teamsters contract are pushing LTL rates higher and driving more need for consolidation savings. At the same time, more effective and less expensive technology is helping shippers find more opportunities for consolidation of LTL into truckload, as well as other efficiencies.

Major LTL shippers can look to the consolidation work taking place in other modes: for example, as evidenced by the work at Ford Motor Co., a low-volume LTL shipper that focuses much more on truckload volumes. Chris Donnelly is Ford's model planning manager for the North American Material Logistics organization. That organization focuses on inbound logistics planning prior to the launch of a vehicle, interfacing with purchasing and product development groups to make sure logistics are considered as part of the vehicle design process. Once the vehicle goes into full production, the logistics responsibilities are handed off to 3PL provider, Penske Logistics.

Ford uses eight consolidation centers across the country to optimize its shipments, mostly truckload, and have providers maximize milk runs. These centers collect the freight for all plants and then deconsolidate it to plant-specific truckload direct moves, which flow to the plants on a daily or even hourly basis. Donnelly says LTL carriers are a rare sight at the consolidation centers because they could not provide the service reliability needed for Ford's very tightly sequenced shipping schedule using 15-minute windows.

Ford could not begin to focus so much on the planning and consolidation efforts until it had handed off the day-to-day logistics work to Penske. Ford's consolidation work is also made possible through its advanced planning tools, including Viewlocity, which allow Ford to plan a project's entire network at one time and review all the trade-offs instead of considering things one geographic region at a time. Ford uses Viewlocity's Inbound Planning Engine software to determine the delivery route schemes for every part at the lowest overall transportation cost, while supporting the just-in-time requirements of the Ford assembly plants and find consolidation opportunities.

"With these tools, we've been able to look at how often parts need to ship and can consolidate where needed," says Donnelly. "In the past we shipped parts every day. Now we can use our tools to analyze the data and decide that, based on the part size and demand and quantity and container, only 22% of the parts need to ship every day. The rest of the parts do not need to ship every day. We have been able to get to that level of information and design our networks around it taking trucks out of the network where they did not need to be."

By planning and consolidating inbound shipments before the launch of a vehicle, the purchasing department at Ford is able to better negotiate the needed contracts to support that logistics plan as well. Donnelly and other logistics specialists meet regularly with purchasing staffers at Ford to decide which bids should be done through RFQs and which should be put through an online bid.

### **3 KANBAN DELIVERY**

There is an increasing trend for major automotive manufacturers to employ 3PLs to provide Kanban delivery for their vehicle manufacturing. One example is TPG's contract with Ford to service its Toronto factory which produces 1,500 Windstar minivans a day (The Economist, 2002). To keep it running virtually round the clock, TPG has to organize 800 deliveries a day from 300 different parts makers. Its software must be tied into Ford's computerized production system. Loads have to arrive at 12 different points along the assembly lines without ever being more than 10 minutes late. Parts must be loaded into trucks in a pre-arranged sequence to speed unloading at the assembly line. It is a seven-year contract, and TPG has to lower its price by 2% a year.

Making all this run like clockwork takes a team of ten computer-wielding operations planners and 200 unskilled workers, who make up the loads in the right sequence at a warehouse down the road. The vehicles involved are mostly owner-operated, but under contract to TPG.



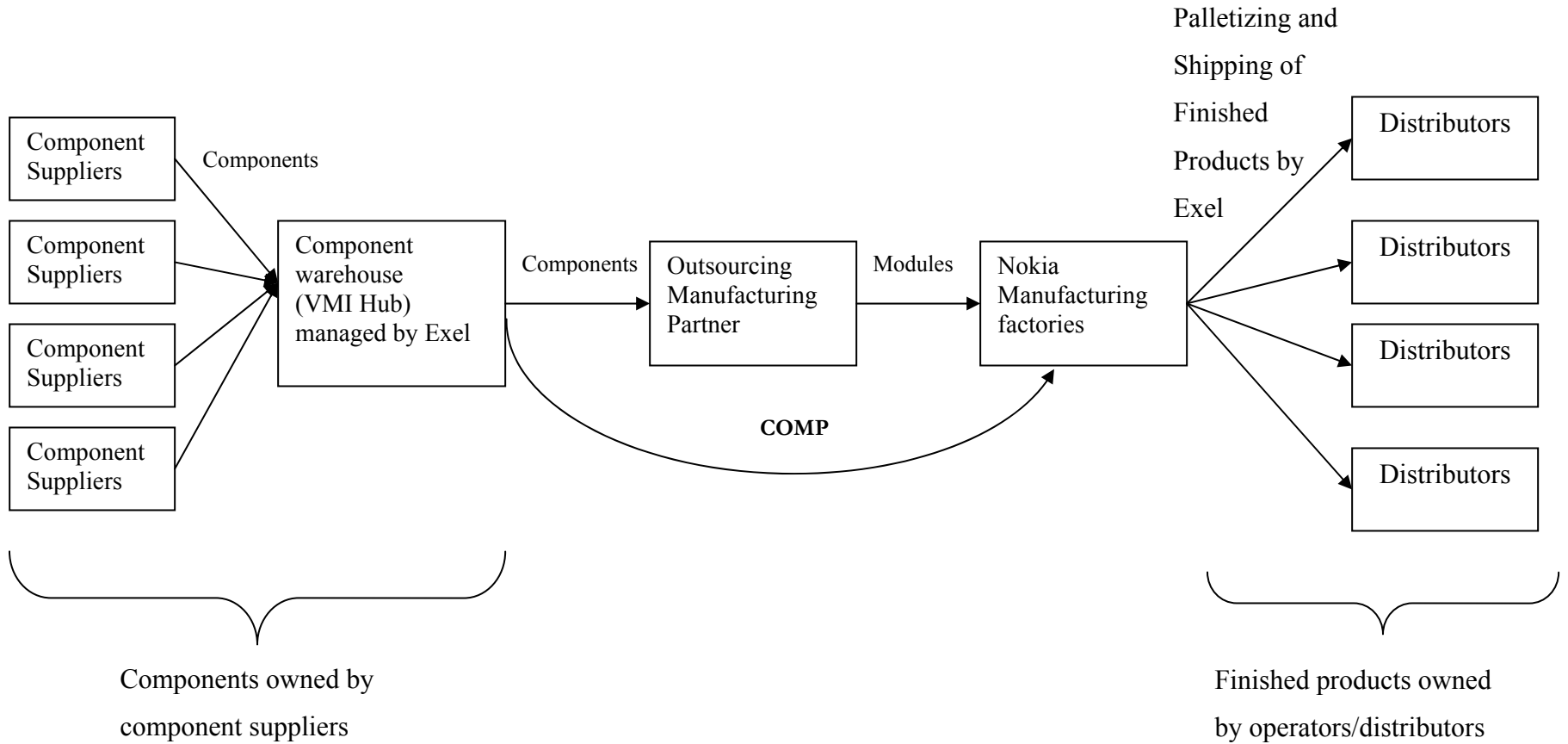
This example shows the inner complexity of supply chain management in a Kanban delivery. It is precisely at this level of complexity that a 3PL can make a difference by its expertise in logistics, transportation software and consolidation of goods.

#### **4 VMI HUB MANAGEMENT**

Nokia employs the concept of Inbound Hubs (VMI Hub Management) to optimize its inbound logistic operations. Exel's (Nokia's 3PL for inbound logistics) component warehouses (hubs) are situated close to the Nokia's manufacturing factories, and components in these hubs are owned by the component suppliers until Nokia uses them. The main advantages of such an arrangement is an enhanced ability to respond to customer demand fluctuations and the elimination of the need for Nokia to deal with the complexities of the incoming/inbound logistics. Although Exel organizes the inbound logistics from the component suppliers to the factories, the commercial relationship with the component suppliers is still owned and managed by Nokia.

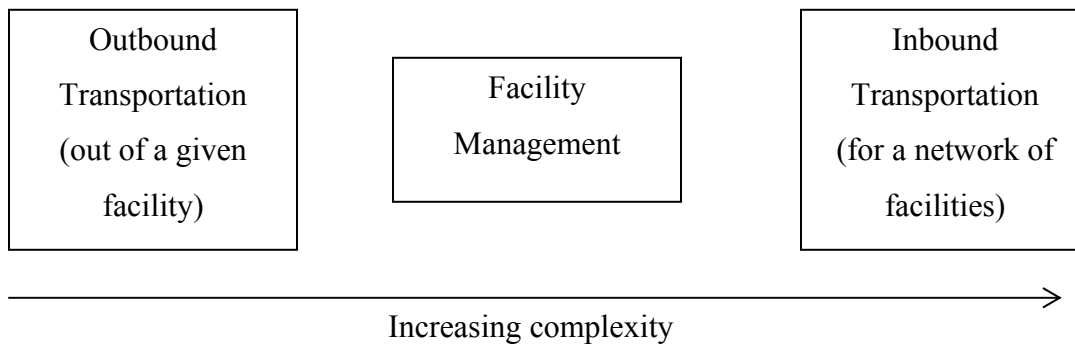
This is not a new or unique concept and is very similar to what the PC manufacturers do. Nokia has a park in China (Beijing), where Exel's component warehouse (hub) is located near the Nokia's manufacturing factories and the Nokia's outsourcing manufacturing partners (OMPs) to facilitate the vendor hub management operations. Exel performs all the custom clearances for the component supplies coming into the park and feed these component supplies to the Nokia factories based on the requests from these factories.

Figure 10 – Exel’s Vendor Hub Management for Nokia



## 5 PERSPECTIVE OF THE 3PLs

For 3PLs that started their relationships with their customers with providing simple outbound transportations services, the trend is to evolve those relationships over time to include providing services with increasing levels of complexity and responsibilities. After the initial outbound transportation relationship, the next logical expansion would be to assume the management of the warehouse/distribution facilities for these customers. Following this stage, there seems to be an observed trend for the 3PL that have established trust and long-term relationships with their customers to assume the inbound transportation for a network of facilities of its customers.



*Figure 11 – Evolution in 3PLs’ services over time*

## CONCLUSION

**Based on our interviews and research, there are numerous 3PL opportunities in optimizing and consolidating the inbound logistics of their customers. These services include the inbound consolidation in the case of a small OEM with its contract manufacturers, cost savings in the form of consolidating the numerous LTL shipments to a smaller number of full truckload shipments, VMI Hub Management, and the Kanban delivery in the automotive industry. If relationships were nurtured to develop the necessary trust between the 3PLs and their customers, then a 3PL that was initially limited to outbound logistics transportation services, could eventually assume more strategic roles in the inbound logistics and transportation of these same customers. An interesting observation is the high strategic value which**

**most manufacturing companies placed on their relationships with their suppliers and contract manufacturers. Although manufacturing companies are willing to allow a 3<sup>rd</sup> party to optimize their inbound logistics operations, they would still want to closely manage and control the strategic supplier-OEM relationship so as to be able to ensure overall supply chain efficiency, secure lower prices for their supplies or even to establish more flexible contracts to deal with fluctuations in customer demand.**

# **CHAPTER 3**

## **FINANCIAL SOLUTIONS**

Being a 3PL, designing an attractive financial offer for their clients is a delicate matter. As one of the interviewees puts it fairly bluntly: “I do not trust package-movers to provide the same financial expertise as a specialized institution”. More seriously, another company admitted that it could not see the value UPS can add to a financing service in comparison to a bank. However, some practical cases show that sometimes the visibility on the movements of the goods, an expertise in handling complex products, or a deep understanding of the network can put the 3PL in a unique position to better offer value-added financial solutions to a particular set of clients than commercial financial institutions. We will illustrate each of these three cases with practical examples.

### **1 LEVERAGING SUPPLY CHAIN VISIBILITY**

This aspect is particularly visible in the case of Scovill Fasteners, a company that makes snaps, buckles, buttons, and other fasteners for the apparel makers and companies in several other industries. Scovill’s customers’ plants were initially located close to its manufacturing plants in Georgia. However, due to the need to remain competitive, its customers had recently relocated their plants to China and Mexico where the labor costs are much lower. Unfortunately, Scovill was unable to follow its customers by relocating its manufacturing facilities to these new areas and was left with no choice other than extending its supply chain by moving its inventories to follow its customers. Two critical problems arose from this move. First, the unique trade regulations and the higher risk in these developing countries (China and Mexico) made it impossible for the lenders to lend against Scovill’s inventories. Second, decentralizing the inventory inside multiple warehouses (one in China, one in Mexico) was creating severe shortage of working capital for Scovill. As such, in order to continue serving its customers, Scovill had to drastically restructure both its inventory and financing strategies in a very short time.

Fortunately, Scovill's logistic service provider (UPS) was able to come its rescue and offer the following:

- Move the inventory back to a zone that can offer security interest and which in turn could facilitate borrowing and lending (Texas for the customers in Mexico and Hong Kong for those in China).
- Ensure that the products are still delivered in a timely fashion (1 day delivery) to keep the same standards of customer service that Scovill's clients were used to.
- Lend money directly to Scovill against the inventories (thus acting like a bank) and financing Scovill's working capital need for inventory.

The critical value of this offer completely lies in the bundle of the three services: supply chain visibility (information flow), warehouse/transportation/inventory management (goods flow) and the financial services (funds flow). This case clearly demonstrated how 3PLs could leverage on their visibility and expertise in their customers' supply chain in order to offer financial solutions that traditional financial institutions would not be willing or unable to offer.

## **2 LEVERAGING SUPPLY CHAIN EXPERTISE**

The second example is that of a manufacturing company in Austria that was using several warehouses to distribute its products to the hospitals and clinics in 10 major US cities. A critical constraint on its supply chain was the necessity for the products to be processed in a "cold chain"<sup>2</sup>. Most lenders are reluctant to lend against this "risky" inventory as the product was highly perishable, the distribution was geographically dispersed and the lenders do not have adequate visibility of the supply chain (inventory visibility). Fortunately, its 3PL was able to come to the rescue by centralizing the warehousing operations in Texas, leveraging on its well-honed supply chain expertise to ensure rapid delivery under the cold chain condition, and financing the company against the inventories. Similar to the Scovill case, the 3PL in this case was able to offer financial services to the company as it was able to leverage on its visibility of the supply chain (i.e.

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<sup>2</sup> A "cold chain" is defined as a coherent system for low-temperature distribution of sensitive products.

knowing exactly where the products/inventories were at any given time), its knowledge of the source of the receivables (buyer), and its ability to maintain the integrity of the product so as to get a high salvage price if needed.

Again, it is the expertise in logistics that created a unique opportunity for a 3PL to bundle its existing traditional set of services with an attractive set of financial services that a traditional institution cannot offer given the amount of uncertainties and risks involved in the supply chain.

### **3 UNDERSTANDING THE NETWORK AND ITS PLAYERS**

As small- and medium-sized OEMs grow in size, they are better able to attract and work with bigger contract manufacturers and suppliers who do not require any financial assistance (collaterals and letters of credit) from them to operate. As such, the trend is for these growing OEMs to migrate from the smaller and poorer component suppliers (CS) and contract manufacturers (CM) to bigger and more financially-independent ones. As such, in order for these small CS and CMs (located in developing countries) to continue serving their growing OEMs, there is a need for them to seek alternative sources of financial assistance (in the form of collaterals and letters of credit) from a third party.

A field example shows that a 3PL can be in a privileged position to fulfill this need. A manufacturing company with a need for auto parts was working with small suppliers in financial distress. These suppliers needed to change payment conditions by reducing the receivable period from 60 to 30 days. Based on the visibility it had on the products and inventory, the company's 3PL agreed to solve the problem by paying the suppliers in 30 days with a discount premium, and at the same time allowing the manufacturing company (the 3PL's client) to keep the same 60-day payable period with a premium.

In this case, the understanding that the 3PL has of the players in the network, of their relationship, and the working capital needs allowed the 3PL to make attractive financial

offers to the upstream players so as to ease the burden on the OEMs. One might argue that this will be especially true for high technology companies whose growth may be directly correlated with the working capital of their contract manufacturers and suppliers.

## **CONCLUSION**

**The truth is that in most cases 3PLs will not be able to compete directly with traditional specialized institutions on financial services. However, under very specific circumstances where there are additional uncertainties placed on the inventory and when these financial institutions lack the visibility on the value network, a 3PL is in the unique position to fulfill a vital need for this client. Given the expertise that a financing institution must have to provide competitive rates or to make a significant margin, we do not think it's feasible for the 3PLs to transform this financing capability into a core competency. However, the strategic leverage that it gives them over their clients in dire financial needs could arguably represent a formidable advantage to force a long-term collaboration on a larger scope of services. As an observer from a client company put it, "a financial offer from a 3PL is far more than another service in a bundle, it is a long-term relationship".**



# **CHAPTER 4**

## **SUPPLY CHAIN VISIBILITY**

*“Visibility is more than just a tactical supply chain issue; it has profound strategic implications for the entire organization.” - Year 2002 report on Trends and Issues in Logistics and Transportation by Cap Gemini Ernst & Young, Georgia Southern University, and the University of Tennessee.*

This chapter will address several aspects of supply chain visibility : the needs, the obstacles, the adoption of new technology, the implications, and the role of 3PLs in supply chain visibility.

### **1 THE NEED FOR SUPPLY CHAIN VISIBILITY**

Visibility enables all supply chain members to easily see and manage the flows of products, services and information in real time or near real time, from end-to-end, as needed. True visibility is achieved when supply chain members do this in concert, and they can do it across their existing technology platforms. Visibility involves seamless integration such that access to information on inventory in transit or at rest, work in progress, product availability and order status enables the supply chain to execute as if they were a single “virtual” entity.

According to the Year 2002 report on Trends and Issues in Logistics and Transportation by Cap Gemini Ernst & Young, Georgia Southern University, and the University of Tennessee, top business management is one of the most frequent requestors of supply chain management information. These managers are attempting to gain visibility in real time such that they can better meet the needs of an ever-demanding customer and reduce costs internally at the same time. While the economy may have slowed, the drive for more adaptive and responsive supply chains has not abated. It is the adaptive, responsive supply chain that can simultaneously attain greater effectiveness and efficiency.

There is a growing need for the logistics managers of enterprises to provide to their Sales and Field organization data warehousing and visibility into the logistic processes in order to enhance the end customers' service levels. When Sean Burke, Agilent Technologies' Global Logistics Solution Manager asked his customers – the sales organization – how Logistics could add value to their customers, the answer was more visibility into their shipments to help decrease variability and increase customer satisfaction.

Achieving true inventory visibility was what Randy Pond, the Senior Vice President of Operations of Cisco Systems noted when asked about the challenge he faced in Cisco's current implementation of the virtual private exchange.

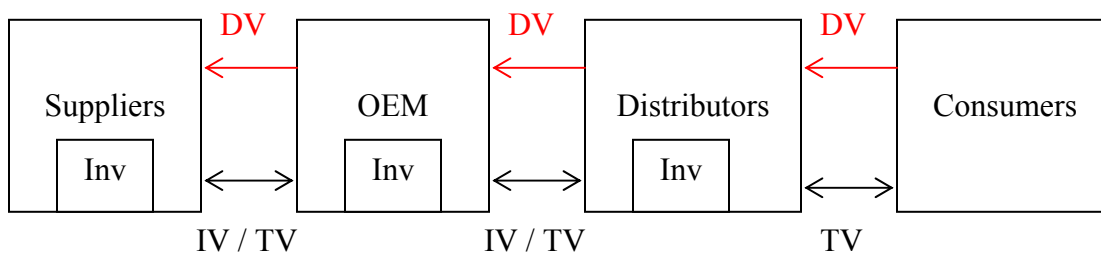
One of the main logistical challenges that Qualcomm faced is the lack of supply chain visibility. The legacy software solutions are not fully integrated with the newer Enterprise Resource Planning (ERP) solutions and this had in turn led to Qualcomm's inability to benefit from supply chain event management and better strategic decision-making.

### 1.1 Types of supply chain information visibility

Supply chain information visibility can be categorized into 2 main types:

- demand and inventory visibility (DV and IV).
- transportation visibility (TV).

Figure 12 - Types of supply chain visibility



Depending on the operations, different industries and companies would derive different amount of values (strategic competitive advantages) by achieving and optimizing these visibilities. For example, companies that have relatively higher transportation costs (e.g. Wal-Mart) would gain much more value by optimizing the transportation visibility information than inventory visibility. Similarly, companies that have high inventory cost (e.g. Cisco) will find greater value in achieving inventory visibility of its business partners and using this visibility to make better business decisions that will drive down costs and enhance efficiency.

**a Demand and inventory visibility**

Numerous efforts are currently in place to provide this type of visibility. Specifically, efforts to increase demand visibility include retailer-supplier collaborations like Quick Response, Continuous Replenishment, Vendor Managed Inventory (VMI) and Collaborative Planning Forecast and Replenishment (CPFR). Similarly, there are also efforts aimed at improving the inventory visibility of the suppliers and contract manufacturers. Examples include the private eMarketplace set up by Cisco to manage its contract manufacturers. Here, we describe some findings on the efforts to achieve both retailer-supplier visibility and OEM-suppliers inventory visibility (private eMarketplaces).

- Visibility of Distributors' Inventory

OEMs typically have more leverage over their suppliers than their buyers. As such, it is not uncommon for them to have good visibility of the suppliers' inventory but poor visibility of the buyers'/channels'/ distributors' inventory. Having distributors' inventory visibility can be critical to an OEM's bottom-line and overall business strategy.

For example, the inventory overstocking practiced by Nokia's channels (as part of their overall strategy to lower the phone prices from Nokia) is affecting its rate of introduction of new phone models to its channels as well as the availability of Nokia's latest and more popular phone models on the retail shelves for the end customers. This in turn is affecting Nokia's bottom-line as the channels' practice of inventory overstocking typically would

result in these channels having a low inventory level of the best-selling products while keeping an unhealthy level of the not-so-popular products. As such, by having greater channel inventory visibility would enable Nokia to replenish its channels' inventory based on actual demand and supply from the customers and eventually allow it to move towards a JIT delivery model for its channel. In addition, the channel visibility information could also be used by Nokia's supply chain planning systems to link with its suppliers' inventory visibility information to achieve a better end-to-end optimization of the overall supply chain management.

- Visibility of Suppliers' Inventory (Private eMarketplace)

Private eMarketplaces or private virtual exchanges are set up by large electronic / hi-tech Original Equipment Manufacturers (OEMs) like Dell, Cisco and IBM to enable close collaboration between them and their numerous contract manufacturers and component suppliers. These eMarketplaces are collaboration tools to achieve inventory and demand visibility. They are no longer founded on price competition among the different suppliers in reaching the buyers.

The eMarketplace is equivalent to a huge information hub (e.g. Cisco's eHub) that provides data transfer and raw material inventory visibility of the supply chain. These eMarketplaces provided critical answers to questions from OEMs (Cisco, Dell and IBM) like : "Can I complete the orders within the lead time of the supply chain".

OEMs in these private virtual networks do not want 3rd party service providers (e.g. a Descartes-equivalent or UPS) to be involved in their exchanges. This is because the competitive advantages of these companies are largely derived by optimizing this part of the supply chain. Specifically, the strategic collaborations with the suppliers as well as strategic business decisions like the inventory level, mixture of inventory between raw materials and finished goods, safety stock, Make-to-Order (MTO) or Make-to-Stock (MTS) strategy are made by establishing close direct relationship between suppliers (contract manufacturers) and buyers (OEM).

- Advantages of eMarketplace-enabled visibility

Optimized production and distribution strategies through flexible contract arrangements.

With demand and inventory visibility, and strong collaborative relationship, Cisco is able to construct flexible contracts with its contract manufacturers and suppliers to allow it flexibility to change its order whenever the demand of its products changes. Implemented successfully, this capability might prevent a recurrence of its famous \$2B overstocking of inventory in 2001 when the stock market and the corresponding inventory bubbles crashed. It could also send real-time signals to the suppliers to increase the production of more popular products or to decrease production of the less popular products.

Optimized pricing strategy:

With demand and inventory visibility, Dell is able to change its pricing strategy for some of its products up to 4 times a day. This was facilitated by its ability to have full visibility of its suppliers' inventory levels of each of its products. It uses pricing strategy to control demand and supply to move overstock inventory and prevent stock-out of highly-demanded items.

**b Transportation visibility**

There are 3 ways of achieving transportation visibility:

- Individual services provided by 3PLs for their customers (e.g. UPS or FedEx)
- Global secured web-based information networks (e.g. Descartes, SAVI Technologies) that connect carriers, freight forwarders, 3PLs, manufacturers and distributors. These 3PLs would provide real-time transportation visibility for the network of suppliers and retailers by placing real-time visibility information onto the network.
- Companies forcing 3PLs to feed transportation data into their tunnel systems for the internal translation to achieve transportation visibility.

In general, the transportation information visibility services provided are at the shipment/package level and are mainly for the purpose of achieving flexibility and exception-handling within the logistics process. The transportation information visibility

provided by Descartes and Savi Technologies is based on a web-based global secured information network that connects the services of a network of global logistics providers allowing retailers and suppliers to access their real-time transportation information on the web. By using these global information networks, retailers and suppliers effectively achieved a single point of contact (virtual) and interaction with their numerous transportation service providers (3PLs) all over the world. In comparison, companies like UPS/FedEx are providing transportation visibility to its own customers only.

## **2 OBSTACLES TO ACHIEVING TRUE SUPPLY CHAIN VISIBILITY**

### ***2.1 Problem with using numerous 3PLs***

A problem of information inter-visibility across the extended supply chain arises when different 3PLs are being used for different segments of the chains. Specifically, problems arise when a company uses multiple logistics partners and each of these 3PLs only has certain piece of the overall logistics data. In the current competitive situation of the 3PL market, each of these 3PLs would not be willing to integrate its information with each other thereby hindering the optimization of the entire network.

### ***2.2 Slow Adoption of common eBusiness standards resulting in lack of true inventory visibility***

Although there are efforts to adopt some common standards (UCCnet, RosettaNet, UNSPSC, XML) to facilitate eBusiness between enterprises and across industries, collaborative supply chains are still unable to achieve true inventory visibility due partially to semantic and cultural issues, and concerns about the data quality and availability. For example, different party may use a different language for their processes (e.g. Mandarin vs English). Furthermore, most companies would still use EDI for data exchange with their big logistic partners and would only use XML with logistics partners whom they have strategic alliances with.

While there may be much information visibility throughout Cisco's extended supply chain, there is still a lack of true inventory visibility across its extended supply chains due to the slow adoption of eBusiness standards (RosettaNet) by the various business partners of its private virtual exchange. This lack of inventory visibility has hindered Cisco's ability to analyze the available information which in turn reduced Cisco's ability in facilitating greater efficiency in its practice of production postponement. Cisco is therefore, fully supportive of RosettaNet and has invested much resources in developing its own IT solutions (eHub and Manufacturing Connection Online) to drive greater supplier integration in its private virtual exchange.

Adoption of eBusiness standards in the various industries is likely to be driven by customers needs for better services and facilitated by big network players like Cisco (RosettaNet) and Wal-Mart (UCCnet), who would enforce and impose strict standards adoption requirements on its suppliers. This ability to adopt common business standards is an effective way to facilitate true supply chain visibility, streamline the supply chain operations and drive down costs, increase efficiency and ultimately enhance the customer service levels.

### ***2.3 Achieving item-level visibility***

Almost all the major 3PLs (e.g. DHL, Ryder, UPS, FedEx) already offer item-level transportation visibility via their track and trace services. Most are also trying to provide item-level inventory visibility solutions to their customers. There are generally 2 ways of achieving this capability:

- 3PLs are trying to achieve this by constructing their software solutions via mixing and gluing the existing legacy software applications. If done correctly, 3PLs today could avoid rewriting the entire infrastructure of their application if they could associate a package to a customer that already has order-item information.
- Adoption of Radio Frequency Identification.

### **3 RFID TECHNOLOGY**

According to a report by Accenture, advances such as the use of radio-frequency identification (RFID) and the Internet could significantly improve supply-chain management. Transponders on product packages can communicate with devices in factories or warehouses, leaving a trail of where things are at any given time. All this makes it easier for manufacturers or their logistics contractors to track their products across the whole supply-chain. Accenture claims that RFID is the biggest advance in supply chain management since the arrival of the bar code.

Some consumer companies like Gillette are rapidly adopting RFID technology to achieve item-level inventory visibility in the hope of reducing:

- Finished goods inventory levels
- Theft of its products (e.g. shavers) at the retail store shelves,
- Illegal diversion of truckloads of their products (e.g. batteries and shavers).
- The labor cost and time needed to pick and pack its products.

One of the challenges of using such a system lies in the increased demand for human capacity to process information. Before RFID, 2 numbers would characterize a case: the amount of items in the case, and the SKU of these items. With RFID, up to 300 individual identification numbers may be needed to describe the contents of the case. This suggests a strong need for filters of information, a domain which Sun Microsystems is currently working on.

As far as implementation costs is concerned, it would not be an incremental change but a step-level change. Unfortunately, most players are not yet ready to contribute such a step-level investment. In particular, the carriers do not necessarily see the value of such an addition of information, and organizations such as PricewaterhouseCoopers Consulting and Accenture are currently working to design some value offers for them. 3PLs' view of the RFID is generally cautious with an unwillingness to take the lead. Their current approach is to participate and follow the adoption so as to understand their customers' usage of the RFID technology in the improvement of supply chain management.



On a macro scale, RFID has the potential to dramatically improve the way we use resources. Today, companies produce goods in the hope that consumers will buy them. In the future, RFID will help to better match supply and demand, so companies are not producing huge amounts of product that no one really wants.

## **4 IMPLICATIONS OF FULL SUPPLY CHAIN VISIBILITY**

*“Logistics visibility and data is only powerful if it is turned into data and action is taken.” - Sean Burke, Global Logistics Solutions Manager, Agilent Technologies.*

Significant optimization of the supply chain operations is enabled when companies are able to efficiently integrate demand and inventory visibility with transportation (real-time event-tracking for both inbound and outbound logistics) visibility, and use this integrated real-time visibility information to drive critical business decisions to achieve lower inventory costs, consistently high operational excellence, enhanced event management capability and higher customer service levels.

### ***4.1 Outbound logistics implications***

A company like Dell with real-time demand and item-level inventory visibility, would be able to dynamically change its delivery options and decide the most cost- and time-efficient (fastest and cheapest option, and whether to ship directly from the suppliers or warehouse) way to ship products to its customers. More importantly, real time exception-handling capability to react to delivery lost-in-transit or customers' change-of-order at the transportation phase would allow Dell to provide timely response to variations and dynamically trigger the most appropriate supplier/warehouse (nearest location to the customer and one that is stocked with an adequate inventory of the requested product) combination to ship direct to the customers without incurring shipment delay.

Dell has been known to benefit from its combined use of two of its most cutting-edge ideas: "event-tracking," the minute-to-minute computerized vigil kept on those ill-fated

trucks, and "demand-shaping," using the detailed information feedback to dangle a more enticing product in front of customers to cover up for shortages of another product. Dell's Americas unit, calls measures like these "the next turn of the crank." It says that if event tracking and other initiatives with suppliers could give it 48 hours of visibility down the supply chain, it could fix 90% of all supply problems today, before they cause any disruptions.

#### ***4.2 Inbound logistics implications***

Having real-time exception-handling capability at the inbound transportation of supplies/parts to a manufacturing operation would also further enhance the manufacturing process. Unexpected delays in supplies shipment would be signaled to the manufacturing processes so that alternate sources of supplies or manufacturing plan could be activated in real-time without incurring significant impact on the overall manufacturing schedule. This was elegantly demonstrated by Bose Corporation when it's application of the Just-In-Time (JIT) II concept and centralized problem resolution methodology for its inbound (and outbound) material transportation enabled it to survive the crippling west coast port strike in August 2002<sup>3</sup> without any shutdown of its factories. By having its logistics decision-makers and the carriers' representatives physically and centrally located in the corporate center up in Framingham, Bose was able to use the real-time transportation visibility information (gathered from the carriers' representatives in its corporate center) to expedite approximately 25% of the inbound direct materials on sea freight and to manage the remaining 75% of the inbound direct materials via other means (e.g. air freight, negotiated changes in customer delivery schedules, etc).

#### ***4.3 Catalyst for adaptive supply chain networks***

Many software solution providers are also leveraging on the benefits of better supply chain visibility information enabled by advances in technologies to better serve their

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<sup>3</sup> A labor dispute between dockworkers and shipping lines have caused a total shutdown of all unloading and loading of vessels at all major ports on the west coast of USA. As a result, many companies' factories across many different industries were shut down due to the delay in their direct materials shipment.

customers' needs. For example, by incorporating adaptive agent and RFID technologies into mySAP™ Supply Chain Management (SCM) solution, SAP's customers (companies) will achieve an increased level of visibility into their customer and supplier network, by immediately locating necessary information. This will dramatically enhance the efficiency and responsiveness of all processes along the entire supply chain by enabling a totally new way of real-time decision-making.

This effort further reinforces SAP's vision of adaptive supply chain networks. According to SAP, by replacing rigid linear supply chains with adaptive supply chain networks, enterprises will be able to continuously gather demand and supply signals from across the supply chain network and integrate that data into a cohesive environment. In doing so, network partners can intelligently cooperate to keep demand and supply closely aligned and better coordinate the fulfillment process, allowing each one to respond quickly to changes and more effectively manage cross-company supply chain processes.

## **5 ROLE OF 3PLS IN SUPPLY CHAIN VISIBILITY**

*“There is a need for IT integration that combines warehouse management and transportation execution with a web site that allows the customers to have real time control of the supply chains and event notification throughout the handling from production to ultimate customers.” - Logistics Management and Distribution Report, 2003.*

Given that major ERP and Supply Chain Execution (SCE) solution vendors are already planning significant efforts in providing software applications that enable supply chain visibility, and that significant efforts are also underway to facilitate the adoption of eBusiness standards and RFID to achieve true supply chain visibility, there is a need to re-examine the 3PL role in the supply chain going forward. With the pervasive adoption of RFID and eBusiness standards, true item-level visibility for inventory and transportation management would be attainable. As stated in the preceding section, such

item-level visibilities would in turn lead to true supply chain visibility facilitating significant increases in customer service levels and revenues for companies.

When asked about the role 3PLs would play with the widespread adoption of RFID technology, Mr Kevin Ashton, the executive director of Auto-ID center predicted that 3PLs would become increasingly more critical in the management of supply chains. With RFID, supply chain operations could be more accurate, much faster and with more things being handled with greater efficiency. This significantly enhanced supply chain management would require more specialized logistics know-how and would in turn drive more companies to outsource more of their supply chains to 3<sup>rd</sup> party supply chain experts like UPS.

3PLs could also assume the role of a supply chain information manager. Given the explosion of RFID data, 3PLs can provide enormous values to their customers by filtering, analyzing and customizing these RFID data to facilitate real-time supply chain decision-making. In addition, by integrating such processed item-level inventory visibility information (owned by companies but processed by 3PLs) with item-level transportation visibility information (owned by 3PLs), 3PLs could effectively assume the role of an extended supply chain information manager for their customers.

Another possible opportunity for 3PLs is to help provide SMEs that do not have the financial muscles to purchase sophisticated ERP systems, the right IT tools to integrate with eBusiness standards like UCCnet. This will then allow these SMEs to adhere to the standards requirement imposed by their big customers (e.g. Wal-Mart).

## **CONCLUSION**

**Achieving true supply chain visibility is one of the most critical ability that companies should strive for in their supply chain management going forward. The ability to integrate real-time transportation visibility information with real-time demand and inventory visibility information would enhance companies' ability to manage variations in customer demand and unexpected events in the supply chain.**

**The adoption of RFID technology and eBusiness standards (e.g. RosettaNet and UCCnet) by the various industries will provide greater availability and standardization of supply chain visibility information. To stay relevant, 3PLs need to seriously think about repositioning themselves as the trusted enabler and solution provider for companies to move towards greater supply chain visibility.**

**PART II**

**Value Network**

**Optimization**

# **CHAPTER 5**

## **VALUE-ADDED SERVICE PROVIDER**

Our research and interviews indicated that 3PLs need to segment their customer base and really get to know their customers' supply chain challenges and focus. With this insight, 3PLs can then decide which services it could and should offer in order to provide the most value-add to their customers. Thereafter, 3PL could proceed to strive for seamless and tight business integration with their customers' processes and operations so as to be able to offer truly value-added services that would complement the companies' overall business strategy, optimize the benefits from the adoption of the latest technological solutions, achieve greater cost-efficiency, and provide enhanced capability in event/crisis management.

### **1 SEGMENTATION OF CUSTOMER BASE**

Depending on the technology employed and the complexity of the manufacturing operations, different companies would have different focus in their supply chain operations. Only after analyzing the specificities of each company's supply chain challenges and its respective focus (i.e. inbound and/or outbound logistics), a 3PL service provider would be in a better position to decide what services it could and should offer in order to provide the most value-added to its customers. In addition, a good understanding of the customers' focus and supply chain values would also allow 3PLs to better tailor customized solutions to meet the specific needs of the companies in each industry. A segmentation of the companies interviewed based on their respective industries (i.e. high/low technology with high/low manufacturing complexity) and their supply chain focus (i.e. inbound and/or outbound) is presented on the following page.

	High Technology		Low Technology	
	High Manufacturing Complexity	Low Manufacturing Complexity	High Manufacturing Complexity	Low Manufacturing Complexity
Large Companies	Cisco <b><u>(Inbound)</u></b>	Dell <b><u>(Inbound &amp; Outbound)</u></b>	Pratt & Whitney <b><u>(Inbound)</u></b>  Nokia <b><u>(Inbound &amp; Outbound)</u></b>	Gillette <b><u>(Outbound)</u></b>
Small & Medium Businesses		Qualcomm <b><u>(Inbound &amp; Outbound)</u></b>	Bose <b><u>(Inbound &amp; Outbound)</u></b>	
		Color Kinetics <b><u>(Inbound &amp; Outbound)</u></b>		Hardy Design <b><u>(Inbound &amp; Outbound)</u></b>
		Precision Combustion Inc <b><u>(Inbound &amp; Outbound)</u></b>		

Figure 13 – Inbound and outbound values of the different customer segments.

In **bold underlined** font: Focus of the Company



Based on the above segmentation, it is clear that high-tech high-manufacturing complexity companies like Cisco has placed higher strategic value in establishing supplier integration (inbound logistics) than its outbound logistics operations. This is understandable given that the competitive strategic advantages of these companies are predicated upon their suppliers' lead time, their manufacturing strategy (either Make-to-Order or Built-to-Order), their inventory level, and the ability for these companies to leverage their relationships with their suppliers / contract manufacturers in order to establish flexible contracts allowing them to adjust the order quantity in real time to respond to the changing market demands of their products. As such, optimization of this aspect of the supply chain would yield the most returns for a company like Cisco. In order to gain control of the above strategic factors, Original Equipment Manufacturers like Cisco, Dell and IBM had established close strategic relationships with their suppliers and contract manufacturers with the building of private virtual exchanges to facilitate information visibility.

On the other hand, companies like Gillette had placed relatively higher focus on their outbound logistic strategy than their inbound logistics as they would get more benefits out of their supply chain operations by optimizing on its outbound logistics. For these companies, the competitive advantages would be their ability to establish strong retailer-supplier relationship so as to achieve collaborations that would reduce the finished goods inventory, enhance the distribution channels and the speed in reaching the end customers. Examples of some optimization efforts in these areas would be the adoption of Vendor Managed Inventory (VMI) and Collaborative Planning, Forecast and Replenishment (CPFR) by companies like Gillette.

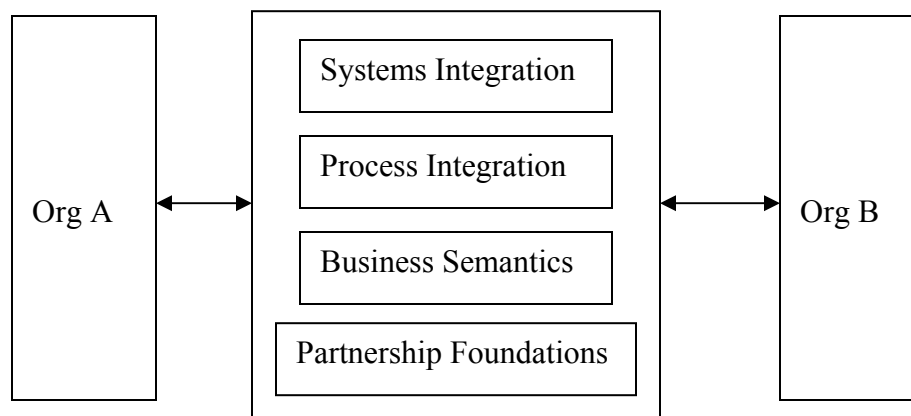
Armed with this information, 3PLs would be able to bundle and offer customized services that are better tailored to the requirements of their customers. A good understanding of the relationships and dynamics between the different players in the supply chain would also serve to provide insights into the different opportunities available for 3PLs to offer services in the supply chain network. As an example, when asked whether there exists a possibility for any 3rd party to facilitate the relationships

between Cisco and its contract manufacturers or between the Cisco's contract manufacturers and their component suppliers, Cisco strongly rejected the idea and maintained that it would want to closely manage the strategic relationships it has with its suppliers without any intermediary getting in the way.

## 2 BUSINESS INTEGRATION

The second stage after segmenting the customer base and understanding their supply chain challenges and focus is for business partners (e.g. 3PLs with their customers) to work towards business integration. Given that outsourcing has become the driver for the extended organization model, there is a need for companies (including 3PLs) to focus on both making partnership management a core competency and on optimizing the business integration between business partners. In order to achieve true business integration, partners need to address many other aspects of the partnership as well (Robichaud C., 2003). These include partnership foundations, business semantics, process integration and systems integration.

*Figure 14 - Business integration*



*Source : Robichaud Conseil. (2003).*

A close partnership is different from a simple client-supplier relationship. It is founded on being long term and sustainable, is based on strategic outsourcing rather than sub-contracting, has bi-directional information flow, has consensus-based decision-making,

has cross-organizational control, and is also focused on quality and timing besides price. On business semantics, companies involved in a partnership need to arrive at a common representation of data and agree on the standardized document formats to be exchanged. In an effort to achieve this objective, standards body like UCCnet is currently pushing for the adoption of these ebusiness standards.

As for process integration, 3PLs should aim to seamlessly integrate their services into the operations of their customers so that the overall operation becomes more efficient instead of slower due to additional time taken at the interface caused by poor integration. Systems integration can be either one-to-one or many-to-many (hub-and-spoke). An example of a many-to-many system integration would be that of Descartes' transportation information network where organizations connect through a central intermediary. While one-to-one systems integration could achieve better customization of services, it would also cost more due to more customized integration efforts required.

If business integration is not properly carried out, many partnerships would not be able to achieve the benefits of outsourcing. In fact, some companies still view 3PLs as additional services which adds cost rather than values to their overall supply chain operations. Some of these companies have done comprehensive evaluations on whether to outsource their non-core operations or to manage them in-house. Apparently, some still find that they are able to do a better or more cost-effective job themselves in warehouse and transportation management than a 3rd party. Adding additional parties between the companies and their end customers can easily be seen as additional overhead costs especially if the value-added by the 3rd party into the business process does not justify the additional integration effort needed. Past bad experiences that some of these companies have with 3PLs'/4PLs' services have further reinforced their notions of not trusting and over-relying on the 3rd parties' services.

For example, Bose chose to retain its own expertise in logistics and also a private fleet of delivery trucks simply because it still needs to have a fallback option whenever the external carriers are unable to achieve the service level required for its customers.

Whenever Bose adds a new facility like warehouse, it would conduct detailed comprehensive analysis and evaluations on the cost-effectiveness of outsourcing versus in-house management. So far, it still finds it more cost-effective to manage its own warehouses than to outsource to a 3rd party.

An illustrative example is a major automotive company's (MAC) use of 3PLs to deliver the products it purchased from Bose Corporation. In the usual arrangement, Bose's formal contractual obligation to the MAC ends when the shipments leave their docks and were taken over by the MAC's 4PLs or 3PLs. In a recent incident, a critical delivery was delayed and the MAC requested that Bose salvage the situation by performing an airfreight of the goods to the MAC's facilities immediately. Although Bose does not have formal obligations to MAC once the shipments leave its dock and were picked up MAC's 3PLs/4PLs, its culture of ensuring full satisfaction of its customers drove it to investigate the delay. Using its internal logistics expertise which it had developed and retained over the years, it proceeded to analyze the shipment delays and found that the 6 transitions and touch points introduced by the MAC's 3PLs/4PLs were the real cause of the increase from the original 8-day lead-time to the 13-day lead-time. This specific transportation operation organized and managed by MAC's 3PLs/4PLs was found to be inefficient with redundant intermediate stops and long delays. Not only was Bose able to identify the exact source of the delay, the MAC also accepted Bose's recommended recovery actions which helped to salvage the situation.

### **3 VALUE-ADDED SERVICES**

After gaining insights into the customers' logistics challenges and focus, and establishing business integrations, 3PLs would be in a better position to offer value-added services to their customers.

#### ***3.1 Complementing companies' business strategy***

To be a good strategic business partner, 3PLs need to offer services that would complement and align with the overall strategy of their customers.

For example, knowing that Nokia would like to optimize the distributors' inventory in order to ensure its latest handphone models get onto the retail shops in a timely manner, a 3PL could then consider positioning itself as a neutral intermediary between Nokia and its distributors to serve this need.

Similarly, given that the optimization of Gillette's outbound logistics would enhance its competitive advantage over its competitors, 3PLs would better serve Gillette's needs by offering customized services that would address Gillette's concerns in this area. For example, Gillette is concerned with illegal diversions of its product shipment across borders, store theft of its products, and its ability to manage inventory to reduce costs and better serve the retailers' needs. As such, it has invested heavily in RFID technology to keep track of its shipments, joined retailer-supplier information networks like UCCnet to offer standardized product information to its retailers, and use CPFR to enhance the relationships with its retailers. In this case, 3PLs would better serve Gillette's need if it could offer value-added warehouse and inventory management services, reliable transportation services with real-time visibility and effective event management capabilities (for variations and exceptions handling) to Gillette so that Gillette could better interoperate with its customers (retailers like Wal-Mart).

For the case of Qualcomm, its customers would drive their trucks into the 26 service centers scattered across the country for servicing and maintenance. The servicing of the parts is performed by Qualcomm's skilled workers who were trained with specialized knowledge of the product and the troubleshooting know-how. Qualcomm has contracted FedEx to deliver time-sensitive parts from its head office to these service centers and UPS to return the relatively non time-sensitive parts from these service centers back to its head office. However, given that the servicing of the parts are a non-core business of Qualcomm, it may well decide to outsource the entire operation of the service parts logistics to a 3rd party in the future. Since 3PLs like UPS and FedEx are already doing the delivery of these parts to and from the service centers, they could provide additional value-add to Qualcomm if they could also take over the entire operation of the service centers. The services may include scheduling the delivery and the actual servicing of the

parts, and may even include replacing Qualcomm's existing service centers with the 3PLs existing network of forward stock locations or warehouses, thereby saving cost for Qualcomm.

In the case of Pratt & Whitney (PW), if 3PLs understand and are able to meet its requirements for a procurement agent and inbound supplies deliveries (i.e. between the suppliers and the machining factory and between the machining factory and the manufacturing plant in Canada), then they will be able to provide a fully integrated 3PL service that would include direct materials procurement, transportation, warehouse and inventory management for PW.

### ***3.2 Technology solutions provider***

A growing number of shippers are coming to rely on their 3PLs for sophisticated and costly technology solutions. Many leading-edge 3PLs specialize in understanding new technologies and use them to bring substantial value to shippers. Companies increasingly rely on their logistics providers for expertise in complex technologies such as transportation management systems (TMS), warehousing management systems (WMS), supply chain event management (SCEM), and international trade logistics systems (ITLS).

Shippers can benefit from tapping the knowledge that 3PLs gain from working with multiple customers. A logistics provider may purchase a TMS and implement it for 20 different accounts. Through this experience, it can gain valuable expertise on how to get the most productivity out of the technology. In addition, tech-savvy 3PLs can provide their shippers with a better understanding of the latest technologies. Shippers, for their part, can gain powerful cost advantages by leveraging a service provider's purchasing power to gain volume discounts and by paying only for those modules they need. Not surprisingly, technology has become a key component in many Fortune 1000 companies' decision to outsource logistics.

The next battleground for technology adoption in logistics will be the mid-market. Web-based transportation and warehousing management systems now enable large 3PL companies to reach smaller customers. Schneider Logistics provides a good example of this capability. Historically, this large service provider would not do business with midsized companies. As Schneider's former Senior Vice President of Business Development Bob DeVos recounted, "If you were under \$50 million in freight spend, I didn't even take your call." But now, with its Web-based SUMIT system in place, Schneider expects to serve a much broader range of customers more cost effectively. As the Schneider example shows, technology lowers the threshold size of customers that large 3PLs can reach. This only intensifies the pressures on midsized logistics companies to keep pace with new technology offerings (Gordon B.H., 2003).

### ***3.3 Achieving higher cost-efficiency for the customer***

In order to interoperate effectively with the customers, 3PLs need to have in-depth understanding of the customers' processes so that they could design truly efficient integrated services that would interface seamlessly with the customers' processes. Such efficiency would usually also result in significantly greater overall cost-efficiency. The increased financial benefits or savings could then be re-distributed between the customers and the 3PLs.

A good example is the redesign of the carriers' truck-loading operations in Bose's distribution centers. Previously, Bose's employees would prepare and sequence the loads (in the distribution centers) to be loaded and transported by the carriers' trucks. However, such a practice was sub-optimal as the loads would not necessarily be delivered by the carriers according to the loading sequence determined by the Bose's employees. After a comprehensive process redesign jointly conducted by the carriers' industrial engineers and Bose's distribution centers' management, the entire distribution centers' operation (including truck-loading operation) was revamped. In this re-designed process, the carriers' personnel instead of the Bose's employees, would be responsible for the planning and sequencing of the truck loads. The entire distribution centers' operation was re-engineered jointly by Bose and its carriers to achieve greater cost-efficiency. The

significant cost-savings resulted from the enhanced operations was subsequently re-distributed among the carriers and Bose.

### ***3.4 Empowering customers for event management***

*“He who manages the supply chain wins” – Cathy Elliot, Director of Business Logistics, Bose Corporation.*

When the 3PLs’ services are seamlessly integrated into a company’s processes and operations, the company may be empowered to achieve significant synergy and capability in terms of crisis/event management. An excellent example is Bose Corporation’s use of the JIT II concept for its transportation services and how it values the competencies of the 3PLs by bringing them into its premises to empower itself to do better work.

Bose Corporation has a very strong and unique culture of focusing on delivering excellent service and product quality for its customers. Its humble beginnings have also cultivated a very independent, cost-conscious philosophy within the entire company. This excellent service culture and cost-conscious philosophy have been translated into a set of very stringent business requirements and practices<sup>4</sup>. For example, Bose’s practice of having the carriers’ representatives physically located in Bose’s corporate center was meant to ensure that Bose has the necessary resources (both internal and external) to efficiently manage in real-time, any unexpected events or crisis that may affect its promise of excellent service quality to their customers.

Under the JIT II program, the carriers’ representatives are physically located in Bose’s corporate center to make critical real-time decisions both for normal day-to-day logistics operations as well as unexpected crisis/event management. The different carriers’

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<sup>4</sup> Bose maintains a private fleet of 35,000 trucks to handle deliveries with high marginal cost of failures, to serve as a backup to external carriers for short-lead time and high customer service level requirements, to be less susceptible to external factors (e.g macroeconomics factors) disrupting the services offered by the transportation industry, and to counter unreasonably high prices for 3rd party transportation services in certain regions.



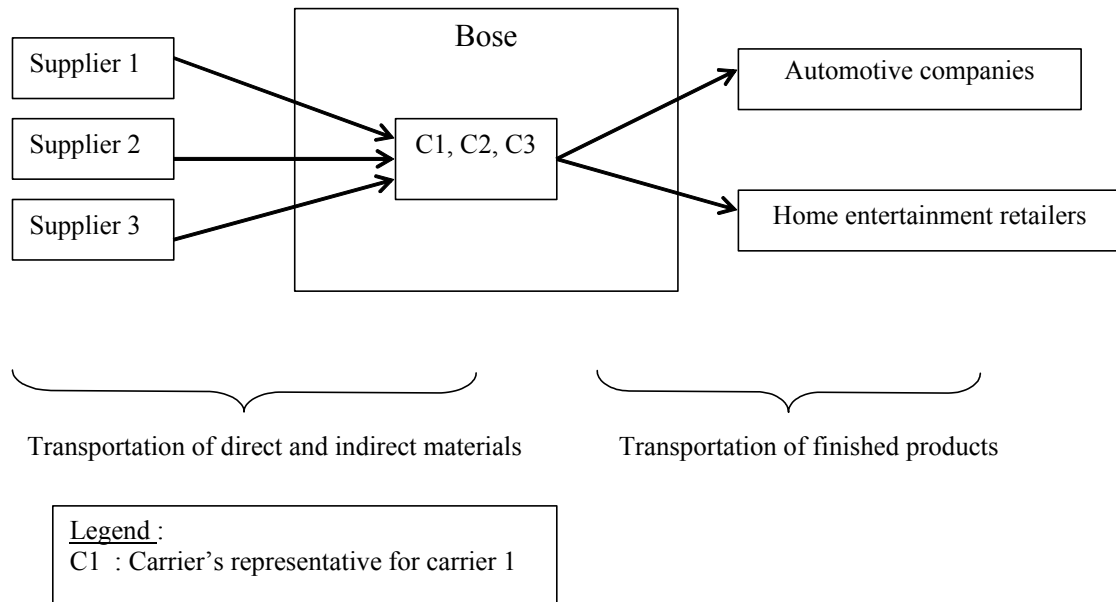
representatives (FedEx Trade Networks, UPS, APL and Roadway) are co-located next to each other in the Bose corporate center to service Bose's transportation needs. Together and under the management of Bose's logistics managers, these carriers would coordinate their services closely in order to achieve seamless intermodal transportation of Bose's raw materials and finished goods.

The practice of having a single point of contact for each of the carriers' services has been instrumental in implementing centralized problem resolution in Bose. Instead of simply issuing the Request-For-Quotations (RFQ) and having a static relationship with the carriers, Bose's relationships with the carriers (via JIT II) is dynamically structured which allows it the ability to transform and intervene the carriers' services on-the-fly based on real-time changes and variations encountered in the logistics operations. With this arrangement, Bose is able to shave 1-4 days off the normal delivery schedule in critical times when the delivery needs to be expedited due to unexpected events and high service level requirements.

Applying the JIT II concept on Bose's logistics (transportation) had made Bose look much 'bigger' and more 'powerful' in the eyes of the carriers and Bose's competitors. Its strong relationship with these carriers has certainly contributed to the willingness of the carriers to have their representatives physically located in Bose's corporate center. More importantly, the physical presence of the carriers' representatives essentially served as the real-time single point of contact for Bose whenever it wants to track the location of any package. This ease of accessibility to its carriers is critical for Bose in getting the priority access for exception handling that it expects from its transportation providers.

Bose is able to 'reach-into' the transportation process in real-time to address exceptions with the kind of priority treatment given only to the bigger and more powerful customers of these carriers. As such, the JIT II concept of having the carriers' representatives physically in Bose's facilities and the close strategic relationship that Bose has developed with its carriers had effectively given Bose tremendous power to manage exceptions during the transportation process. This in turn has been translated into Bose's ability to

maintain very high service levels for its customers. The interesting point to note is that this increased in power is real-time, collaborative in nature (between Bose and its carriers and among the carriers) and does not come with additional cost at all.



*Figure 15 – Application of JIT II in Bose's logistics*

## CONCLUSION

**3PLs need to segment their customer base and have a good understanding of their customers' supply chain challenges and focus. Armed with this information, 3PLs could then tailor their services for their customers and proceed to strive for greater business integration with their customers' operations. With the seamless integration of their services with the customers' operations, 3PLs would then be better positioned to provide value-added services that would complement the customers' overall business strategy, achieve higher cost-efficiency, optimize the returns from using new technology and achieve significant capability in event/crisis management.**

# CHAPTER 6

## 3PLs' ROLE IN THE VALUE NETWORK

To continue to stay relevant in the value network, 3PLs must constantly look for new opportunities and roles that they can fulfill and satisfy. Some of these roles came up during our interviews with companies and are discussed in this chapter. 3PLs are uniquely positioned to play a number of significant roles in the supply chain network. These may include offering a comprehensive set of innovative solutions via strategic alliances with other service providers, balancing the power between buyers and sellers in the network, offering IT solutions that would place them in a critical position in the purchasing life cycle, and becoming an eCommerce intermediary for the buyer and seller.

### 1 STRATEGIC ALLIANCES

3PLs may not always be able to provide all the services that are requested by their customers. In order to better serve their customers, 3PLs can choose to form strategic alliances with financial institutions, “specialized” industry partners (medium complexity manufacturing processes), IT companies, and other 3PLs so that the final delivered services would be a comprehensive set of best-of-breed services required by the customers.

#### *1.1 With financial institutions*

The essence of the financial offers revolves around the perspectives of the three concerned stakeholders:

- The client needs financing to enhance its working capital.
- The 3PL has the supply chain expertise and visibility to guarantee the salvage value of the products.
- The bank has the financial expertise to provide low interest rate financing (at least lower than a 3PL).

As a result, win-win situations emerge from these different perspectives, interests and expertise. It is possible to imagine (i) a contractual agreement between the 3PL and the bank stating that the 3PL guarantees a specific salvage value of the product, (ii) a financing relationship between the bank and the client with a lower interest rate than with the 3PL, and (iii) a logistic relationship between the 3PL and the client. The overall benefits to the client is exactly the same as in the purely 3PL-client relationship, and the risks are not increased for any of the stakeholders. In addition, the expertise of the bank creates a value premium that could be shared with the 3PL.

This example shows that 2 existing relationships (traditional bank-client and the 3PL-client) can be more effectively handled by an alliance between a 3PL and a bank for an overall increase in benefit to both parties without any increase in risks.

### ***1.2 With specialized industry partners***

Referring to the service integration that Qualcomm would like from a 3PL that offers a single point of contact, it is realistic to envision a 3PL not taking over the specialized services (repair, semi-complex assembly, etc), but rather partnering with a specialized entity to carry them out. The perspectives of the three stakeholders are:

- The client needs quality in the completion of the specialized tasks, and velocity in the supply chain related to these tasks.
- The 3PL has the ability to assure the supply chain velocity and to provide a single point of contact to the company.
- The specialized industry partner has the recognized expertise to carry out a high quality service for the business of the client.

The premium value of the bundle to the Qualcomm lies in the advantages of having a single point of contact via the 3PL while meeting the high quality repair and servicing needs that a specialized partner can provide. This is another win-win situation for all the three parties involved.

### ***1.3 With IT software companies***

In order to offer a fully integrated service to the customers, 3PLs with only the ability to provide simple transportation visibility information (track and trace) at the shipment level should consider upgrading their offerings with state-of-the-art transportation management systems (TMS), warehousing management systems (WMS), supply chain event management (SCEM), and international trade logistics systems (ITLS). This can be achieved by either internal development, adopting some large ERP or Supply Chain Execution (SCE) software vendors' solutions or by partnering with specialized SCE solution vendors to provide complementary solutions.

The objective of presenting such an integrated information service to its customers is to stay useful and relevant amid the current rapid developments in the supply chain collaboration (between suppliers and buyers and between suppliers and retailers) and the adoption of critical capabilities like Supply Chain Event Management solution and RFID technology.

### ***1.4 With other 3PLs***

The collaboration with other 3PLs is of far more delicate nature. Historically, the competition between transportation companies in general has grown into a very fierce one. An example of this current mindset among the transportation companies is their reluctance to even discuss the possibility of implementing standards in transportation execution.

#### **a Meeting the needs for expertise, consistency and multinational presence**

Going back to the needs detailed in the provision of global services, it seems very unlikely that any single 3PL might ever be able to fulfill on its own a set of truly global expert services in every country, a completely consistent set of services between different regions or a totally worldwide coverage for its clients. Even Gillette, with its strong desire for a truly global 3PL services, is well aware that an exclusive relationship with a single 3PL is not a desirable one as it would preclude the advantages which healthy competition can bring to an industry. From this simple observation, it is necessary to

envision the different degrees of collaboration that might be developed between several 3PLs so as to provide a high customer service to the clients.

The least binding mode of collaboration is the mere interoperability between the different 3PLs that companies are using. It would consist of collaborative development of standards for the IT execution software. However, this mode, though simple, is clearly the least realistic as long as the IT execution is part of the strategic focus of the 3PLs. In this case, there is a problem of information inter-visibility across the extended supply chain when different 3PLs are being used.

A more binding mode of collaboration would be the joint venture between a global and a local 3PL. In this case, a win-win situation would be achieved for all the parties involved as the global 3PL would serve as the single point of contact for the client in need of global solutions by ensuring the high quality of local 3PL services for the client via its tight collaboration with the local 3PL. The resulting premium to be shared by the two logistics parties is founded on the basis that it is too costly for the global 3PL to develop new local logistics infrastructures to address the relatively low business volumes in these remote regions, and also on the fact that the local 3PL does not possess the global reach that its partner can provide.

A further degree of 3PL collaboration would be the enforced network of a 4PL model. As observers in Gillette accurately pointed out, a virtual network of 3PLs could provide the comprehensive set of services and the global thinking that the company needs as long as the 4PL that manages this network of 3PLs is able to enforce a consistent set of (high quality) 3PL service standards required by the customers. However, one might observe that such a model is probably a rather challenging endeavour given the current intense competition within the 3PL industry.

**b The opportunity to “grow the pie” for the entire 3PL industry**

On a higher level, an observer at Agilent noted that the possibility for the 3PLs to “grow the pie” for their industry is not a purely conceptual one. He posits that in some countries,

there would be a clear desire for the governments to promote/restrict the flow of specific types of products at the customs by declaring/withholding tax free zones for these products. However, there is inadequate transportation visibility information of the flow of such goods for these governments to make these decisions. Herein lies a possible win-win situation for the 3PLs to share and collaborate their expertise in the socio-economic specificities of the countries and the transportation visibility of the goods flow in order to enable the decision-makers (governments) to pass the appropriate regulations to enhance trade. As a result, the overall benefit to the local supply chains would be increased with the possible benefit to all the concerned players including the overall 3PL industry.

## **2 REGULATION OF THE BALANCE OF POWER**

Large OEMs like Cisco, whose orders constitute a significant portion of their CMs' overall revenue, have tremendous leverage and power to enforce discipline and demanding requirements (e.g. adoption of RosettaNet) on their CMs and suppliers. In contrast, smaller OEMs like Color Kinetics have little leverage or power over their CMs and component suppliers due to smaller order volume and overall size. As such, a large company is needed to serve as an independent respectable 3rd party to help these smaller OEMs enforce delivery discipline and common eBusiness standards (like RosettaNet) on their CMs and suppliers in order to better streamline the overall supply chain operations. In this case, a large 3PL could easily fill the role of the powerful respectable business partner on behalf of the smaller OEMs.

Another interesting balance of power situation arises in the case of Nokia. Like most OEMs, Nokia has much more leverage over its suppliers than its buyers (channels). As such, although it has full visibility of its suppliers' raw material inventory, it only has about 90% visibility of its channels' (distributors') inventory visibility. Similarly, this asymmetry of power Nokia has over its suppliers and buyers has also made it easier for it to enforce RosettaNet adoption at the supplier side than at the buyer side.

The typical inventory overstocking practiced by the channels is affecting Nokia's rate of introduction of new phone models to its channels as well as the availability of Nokia's

latest phone models on the retail shelves for end customers. This in turn is affecting Nokia's bottom-line as the channels typically would have a low inventory level of the best-selling products while keeping an unhealthy level of the not-so-popular products. This is an interesting example of low availability of newer models of products caused by the high inventory levels of older models of products.

Given such a situation, an independent 3PL may be able to help by:

- Expediting the last-mile delivery.

By ensuring the physical delivery of the finished products from the channels' warehouses to the retail store.

- Optimizing the channel.

By efficiently managing the channels' inventory and providing inventory visibility information for Nokia to eventually move towards a JIT delivery model for its channel. The information provided by the 3PL would then be used by Nokia's supply chain planning systems to optimize the overall supply chain management.

Given that Nokia is a big player in this industry, the channels would be wary if Nokia tries to gain additional power over them by dictating how they should control their inventory. As such, an independent intermediary (3PL) coming in between Nokia and its channels to manage the channels' inventory may not be as threatening and would probably be more acceptable to the channels. In addition, since these channels are also distributors of other phone manufacturers as well, a 3rd party managing these mixed brands would also be more appropriate. This is another interesting example of having a 3PL as an independent intermediary to balance the power between trading partners.

### **3 STRATEGIC POSITIONING**

To stay relevant, 3PLs should strive to position themselves strategically so as to continue to be useful and valuable in the business transaction between the buyers and sellers. One strategy is to position themselves to be more involved in the purchase phase of the



business transaction instead of their traditional delivery role which is only activated during the sales phase of the transaction when the goods need to be delivered and transported.

### ***3.1 “Listen-Check-Delivery” role***

One possibility would be the role purported in the preceding chapter on supply chain visibility where 3PLs could offer IT solutions that would link the real-time demand and inventory information of its customers with the real-time transportation information that they currently offer to their customers. For SMEs that may not have the financial muscles to develop their own IT solutions, 3PLs could also provide IT solutions that would facilitate these SMEs to adequately interface and integrate with the software applications and eBusiness standards (e.g. UCCnet) adopted by their big customers (e.g. Wal-Mart).

By exploiting the item-level visibility information enabled by RFID, 3PLs can offer comprehensive IT solutions that would enable them to move from the current “Delivery” role to the more strategic “Listen-Check-Delivery” role. Specifically, the “Listen” phase requires the 3PLs to ‘reach into’ the purchase phase of the transaction to extract real-time demand data. In the “check” phase, 3PLs would keep track of the inventory information while the “delivery” phase would be the current transportation phase currently handled by the 3PLs. The data available in all these 3 phases would be real-time item-level information enabled by the adoption of RFID technology. By managing and integrating the information from these 3 phases, 3PLs would be able to provide their customers with powerful real-time item-level event/crisis management while assuming a more strategic relationship with their business partners by being intimately involved in their customers’ strategic decision making processes.

This set of IT solutions would be the building blocks to facilitate “demand shaping” that is currently being employed by Dell. As mentioned in the chapter on Supply Chain Visibility, the enterprises’ ability for event management and demand fluctuations would be greatly enhanced with these IT solutions. Specifically, for event management, customer service levels would be maintained and even enhanced by making real-time

supply chain decisions based on the integrated transportation and inventory visibility information. For demand shaping, the prices of goods could be dynamically adjusted to influence demands so that inventories of overstock products or “slow-moving” goods could be reduced appropriately. Similarly, by linking the demand information with the inventory and transportation information, enterprises could more easily move towards a build-to-order model with significantly lesser inventory, more robust strategy to manage demand fluctuations and consequently, a more dampened form of the “bullwhip effect” that most supply chains are currently plagued with.

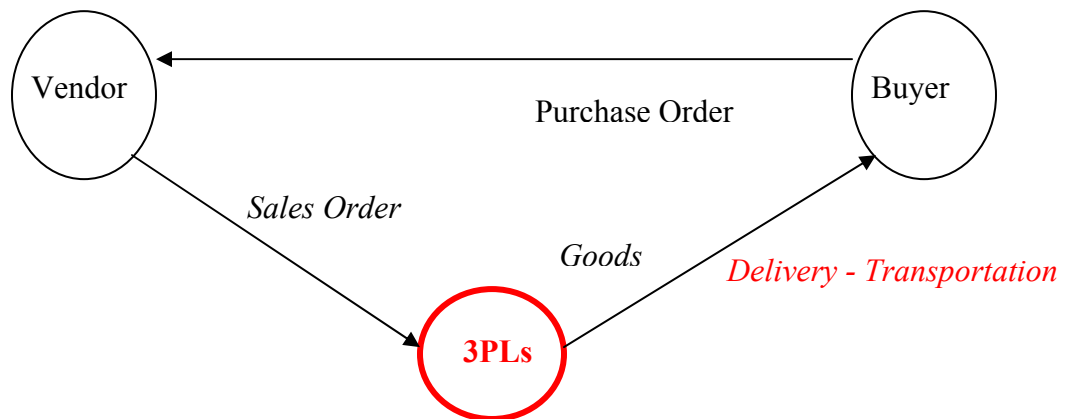


Figure 16 – Traditional “Delivery” role.

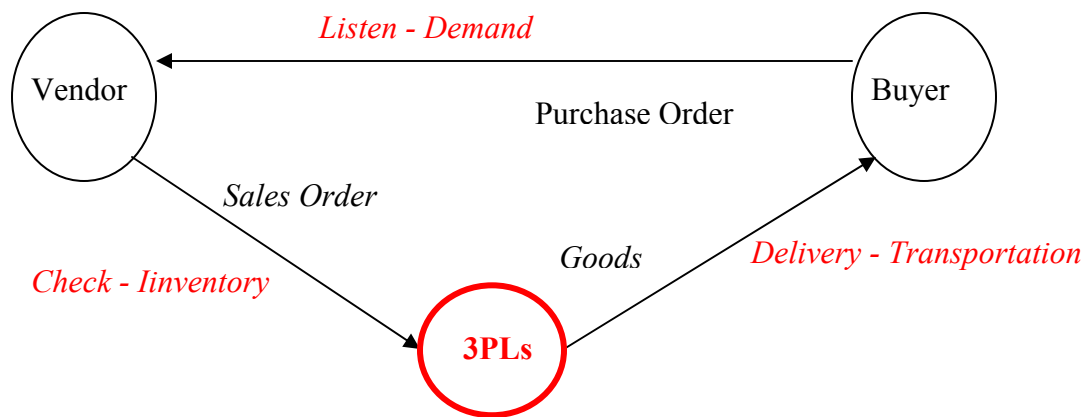


Figure 17 – Proposed “Listen-Check-Delivery” role.

### ***3.2 eCommerce intermediary role***

The role adopted by eCommerce 3PLs like PFSweb and Dotcom is an interesting one. Essentially, these 3PLs place themselves in a critical strategic position with respect to the overall business transaction of their customers. All purchase orders from the buyer to the seller would be processed and handled by these 3PLs. The sellers' goods are being managed, distributed and transported by these 3PLs based on the prior agreed-upon terms of contract.

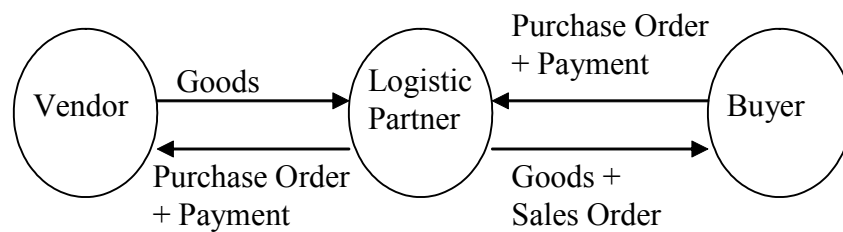
When an order comes in (through the web), the eCommerce 3PLs would send a confirmation email to the buyer while informing the seller of the purchase order. After the order has been fulfilled, the 3PL would proceed to deliver the sellers' goods to the buyer. The 3PL would then send out an email notifying the buyer of both the shipment and tracking number. This is also done with any returns that may be processed. Meanwhile, the financial transactions would also be initiated by the 3PLs so that the seller receives the timely payment for its goods.

Everything is accessed through the computer. Sellers have access to their accounts on the 3PLs' website. As long as the sellers have access to their computers, they can find their inventory and see what the 3PLs have sent out.

The Dotcom's business process begins with incoming inventory that is labeled and scanned with the radio frequency in the warehouse. This information is then immediately available to its manufacturing companies by computer. Dotcom's 240,000-square-foot facility features six automated scanners and handheld scanners. These are all connected to the warehouse management system.

When a buyer clicks his/her mouse to place an order, a light goes off in the Dotcom's warehouse and the order is immediately processed. Once a credit check is done and the product is on the truck, the money is immediately deposited into the manufacturer's account with Dotcom. Dr. Alan D. Shair, a Dotcom client and owner of Bio-Logics, an e-commerce company featuring supplements for doctors and nutritionists, explains, "I send

them inventory and as my orders come in and product ships out, a confirmation is sent and the computer is updated. This way I am aware of what it costs me, and what my profitability is.” This role is especially appropriate for eCommerce businesses that do not possess any logistics set-up. In addition, it would also be attractive to large enterprises that require the eCommerce expertise of the experienced 3rd party business partners. Essentially, the 3PLs could take over the entire business transaction on behalf of the seller by handling the purchase, order-fulfillment, inventory management, distribution, transportation and financial transactions.



*Figure 18 – eCommerce intermediary role.*

## CONCLUSION

**Given that 3PLs are part of the overall value network that they serve, they may be required to play different roles for different partners in different circumstances. Forming strategic alliances with other service providers in the network may allow 3PLs to offer a more comprehensive set of solutions to their customers. In certain situations, 3PLs may also be needed to act as a balance of power between the different players in the value network. To stay relevant as a value-added business partner, 3PLs should also rethink their fundamental roles in the traditional purchasing life cycle with a view to position themselves as a more strategic business partner that would remain instrumental to the success of the business transactions between the buyers and sellers. This could be achieved by providing critical IT solutions that would link the demand/inventory information with the transportation information or by serving as an efficient eCommerce intermediary for the buyer and seller.**

# CHAPTER 7

## LIFETIME VALUE OF CUSTOMER

With the increasing trend towards greater logistics process outsourcing, more companies are looking for longer-time strategic relationships with their 3PLs. Specifically, they are looking for 3PLs that could meet their needs not only in the short term but also in the longer term. These companies are also interested in simplifying the outsourcing process by reducing the number of strategic 3PL providers and by offering more of their outsourcing requirements to only a handful of strategic service providers. 3PLs should take advantage of this trend to lock-in their valuable customers so as to stay viable in this highly competitive and fragmented 3PL industry.

### 1 MATCHING CUSTOMERS' NEEDS FOR THE LONG TERM

Most business integration failed not because of the technical difficulties but because of misalignment of partnerships expectations. To be fully efficient, the process of outsourcing should be based on a two-step approach:

- The client has to calibrate its requirements very precisely to the potential service offers from its logistic partner
- The 3PL must align the resources at its disposal to provide the service level that its client requires.

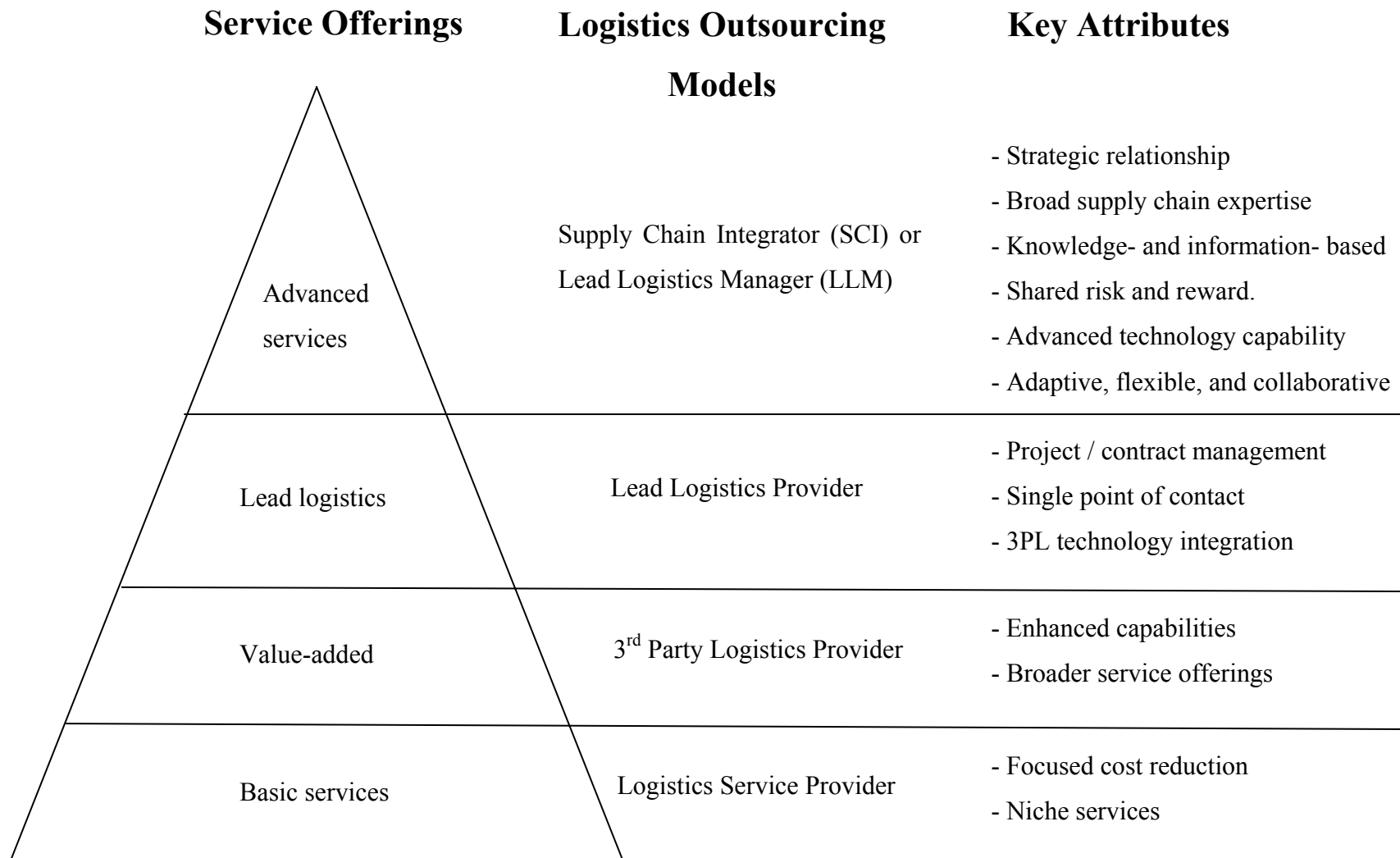
Recent surveys have shown that the success of the 3PL-customer relationship is viewed by the customers as 59% “somewhat successful” and only 28% “extremely successful” (Cap Gemini Ernst & Young, *et al.* [1], 2002). Although the length of the contractual relationships between the 3PLs and their clients is typically set for a period of 3 to 5 years, the terms of these contracts are usually not re-evaluated periodically. This lack of constant realignment, even when the initial agreement was efficiently calibrated, is a source of tension between the 3PLs and their clients.

Most companies are in a constant struggle to define the Return on Investment (ROI) whenever they invest in partnering with the 3PL providers. Even though one of the original intent of outsourcing their supply chain operations to 3PLs was to reduce the overall long-term cost, they are not truly certain that they would be able to achieve that intent with their current 3PL partners most of whom do not share the same longer-term interests. For example, many of these 3PLs do not want to partner their customers in non-profitable areas and are interested only in optimizing their shorter-term profits.

As businesses evolve and change over time, 3PLs must also complement these changes in their customers' businesses by continually improving and updating their services over time. These efforts must commensurate with the rate of business changes and technological advances/adoption so that 3PLs could still remain as viable, indispensable and trustable business partners for the long haul.

Companies have been diversifying their businesses globally in order to reduce costs, counter business risks and uncertainty in the markets. For example, GE expects to source up to \$5B worth of materials from China in 2005, Bose is expecting to rapidly expand their customer and supplier bases in China and Agilent Technologies has rapidly grown to become 5 separate businesses all of which have different logistics models and supply chain requirements. However, many of the 3PLs which have their origins in some niche areas (transportation or warehouse) or regions are still not matching these growths at the same rate and are still offering limited services to their customers. The following figure depicts the change in key attributes as 3PL service offerings migrate.

Figure 19 - 3PL service offerings migration



Source : 3PL Results and findings of 2002 Seventh Annual Study, CGEY, Georgia Institute of Tech, Ryder Logistics & Transportation Solutions Worldwide

## **2 BEYOND PURELY FINANCIAL RELATIONSHIP**

Most 3PLs still build their relationships with their customers based on short-term financial considerations. In order to win more contracts, many 3PLs undercut their competitors by lowering their prices. With this trend becoming more prevalent, many 3PLs became fearful of losing their customers and started to join in the vicious cycle of competing based on low prices. This has in turn resulted in the rather short-term views that these 3PLs have chosen when structuring the relationships with their customers. As such, many 3PLs are unable to focus on truly engaging their customers for the long term and establishing strategic customer relationships based not on cost, but on the ability to provide customized value-added services for their customers.

Similarly, although many 3PLs claimed to be global 3PL service providers, they continue to provide ‘regional’ financial treatments to their truly global customers. Many of these 3PLs measure their regional performances based on actual profits and not by the number of customer accounts these regions are able to maintain for the 3PL firm. As such, a company would not be able to get the lower global rate from the 3PL for a particular country even though it may be a valuable strategic customer for the particular 3PL in general. This problem is largely attributed to the way many of these ‘global’ 3PLs have structured the performance measurement for their Country Account Management team. As a result, the Country Account Managers of these 3PLs often have conflicts with their Global Account Managers and would not be willing to serve a less profitable customer even though the customer is a strategic business partner of profitable to the 3PL in other regions.

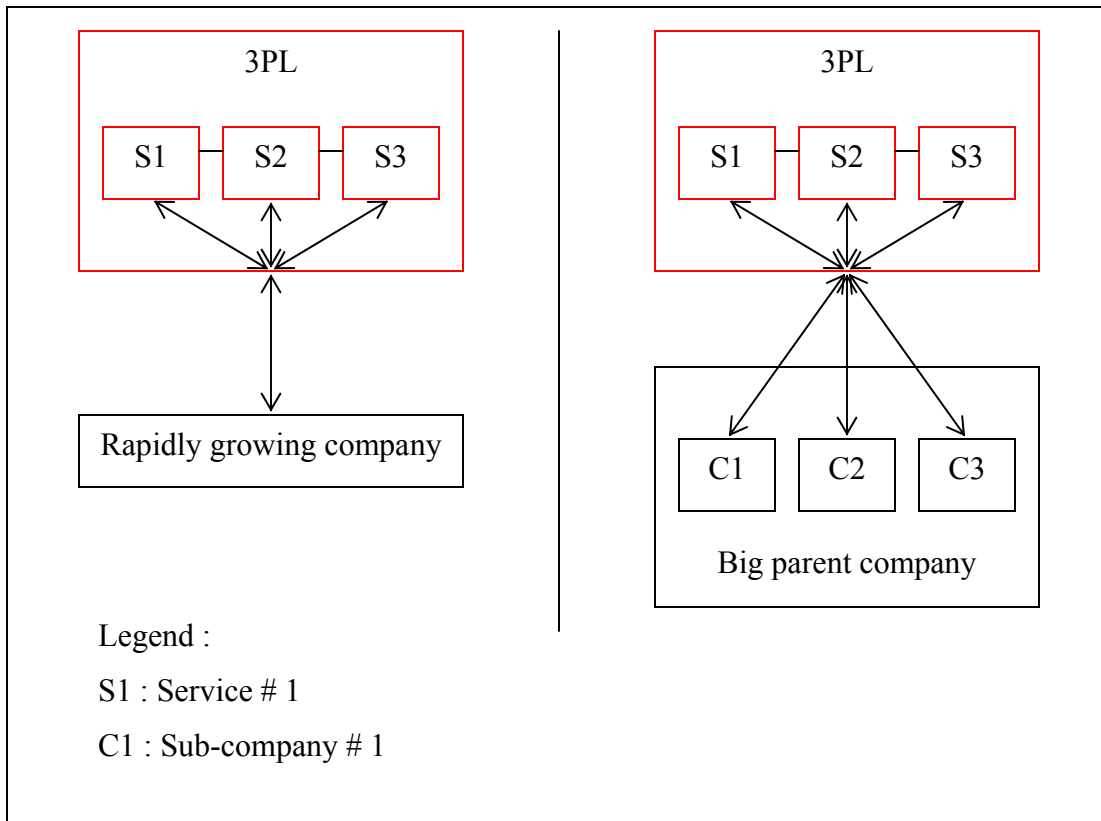
To be able to optimize the lifetime values of their customers, 3PLs need to look beyond competing only with low prices and stop rewarding their divisions based on short-term / regional profitability measures. Instead, they should make serious long-term investments to understand their customers’ needs, provide customized value-added services and aim to become the long-term strategic expert business partners (both regionally and globally) for their customers in supply chain management.



### **3 OPTIMIZING THE FULL VALUE OF THE CUSTOMERS**

Given that large companies with different businesses would have a larger need for 3PL services, some of them have indicated that they would like to eventually outsource all their 3PL requirements of these businesses to a single well-trusted 3PL strategic business partner, if possible. However, they have indicated that they would want to have a gradual build-up of trust and relationship with their 3PL service providers. In addition, these strategic 3PL partners must have a sincere intent to establish a longer-term relationship with them. In order to become a full service strategic 3PL partner for companies with numerous sub-businesses, 3PLs need to be able to offer a full set of seamlessly integrated services that are customizable to meet the specific needs of each of these sub-businesses. In addition, the 3PL partner must also not be blinded with focusing on achieving short-term profits with any of the sub-businesses at the expense of jeopardizing the overall strategic partnership with the parent company or the other sub-businesses.

Similarly, smaller companies like Color Kinetics that are rapidly expanding their operations into different regions are also potential customers for striking a longer-term strategic relationship and for optimizing the customers' lifetime value. Color Kinetics has plans of expanding their existing distribution capabilities to other regions like Asia or Europe. As such, it would be looking for a strategic 3PL business partner that can offer a set of seamless fully-integrated 3PL services that could meet all its expansion needs (including possibly financing needs as well) going forward. However, to be selected, 3PLs should gradually establish a close business relationship with Color Kinetics and be ready to offer a full range of services (either via joint venture or alliances with other service providers) to meet the future specific needs of Color Kinetics.



*Figure 20 – Strategic relationship between a 3PL and its customers.*

#### **4 LONG-TERM 3PL-COMPANY RELATIONSHIP**

To be able to achieve a strategic 3PL-company relationship, 3PLs must maintain focus on educating their customers and providing quality service to their customers' needs as they (3PLs) expand and grow. An interesting evolution of the 3PL relationship with their customers can be enlightening by looking at the example of Hewlette Packard (HP). Back in 1992, HP had around 20 3PLs providing its global needs. However, as these 3PLs started to grow and expand, their costs increased and their services became expensive to HP. Instead of having these 20 3PLs educating and assuring their customers like HP that their increases in service costs and prices were just a temporary phenomenon due to rapid expansion, and that they would revert back to providing lower prices once their expansion periods were completed, these rapidly expanding 3PLs continue to charge higher prices at the expense of losing their customers.

As a result, in order to reduce the cost of outsourcing, companies like HP decided to increase their pool of smaller 3PLs to get better and cheaper services, and eventually ended up with up to 1204 3PLs around 1998. However, having such a large number of 3PLs complicates the information management severely and HP decided to revert back to lesser 3PLs to better streamline its operations. Unfortunately, their hope of reducing and depending on only a few large 3PLs to meet all its requirements was unachievable as the services of bigger 3PLs are highly demanded resulting in these bigger 3PLs' inability to fully satisfy all the requirements of companies like HP. This had in turn resulted in HP having to partner with smaller local 3PLs (e.g. in China, India, Mexico, Brazil etc) in order to be able to get the types of services they required. Currently, HP has settled to about 15 3PLs (9 major and 6 minor ones).

This type of regular hiring and firing of 3PLs is definitely not conducive to setting up a long-term strategic business relationship. In addition, a more stable and longer-term relationship between 3PLs and their customers would serve to benefit both parties during bad economic times when businesses for both parties may be severely affected.

Given that many companies continue to have plans to increase the outsourcing of their operations<sup>5</sup>, and to continue to invest in the growth of their suppliers (including 3PLs), they would expect that these suppliers think in terms of partnerships when dealing with them instead of working in 'silos' and thinking only about their own immediate bottom lines. In order to regain the trust and confidence of companies like HP and Agilent, and to become the strategic long-term 3PL business partners with these companies, large 3PLs need to offer a truly sincere relationship with excellent worldwide services. For regional areas which these large 3PLs do not currently offer services, they should also serve as effective 4PLs strictly enforcing high-quality 3PL standards on behalf of these companies.

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<sup>5</sup> Agilent may have plans to eventually reduce its current 60% in-house manufacturing to 30% in-house manufacturing.

## **CONCLUSION**

**3PLs are becoming essential business partners in the growing trend towards greater logistics process outsourcing by enterprises. However, in order to optimize the lifetime customer value, 3PLs need to adopt a longer-term view of their relationships with their customers. They should match their customers' needs not only for the short term but also for the longer term. They should also structure their relationships with their customers beyond short-term financial considerations in order to take advantage of the longer-term gains that they could extract from these strategic business partnerships. Companies are also simplifying their outsourcing operations and are therefore receptive to the idea of a single/handful service providers managing the entire supply chain requirements of their portfolio of businesses and divisions. However, to do that, 3PLs must first establish very trustworthy and strategic relationships with these enterprises.**

# CHAPTER 8

## CONCLUSION

With the current state of the 3PL industry as a backdrop, we hope to offer some practical insights to the question: *what are the strategic directions that a 3PL should steer towards in order to gain a competitive advantage and stay viable in this highly fragmented, rapidly growing and consolidating 3PL industry.*

The main ideas of this thesis can be grouped into 4 main themes: globalization, supply chain visibility, balance of power and SMEs' needs. In each of these 4 themes, we have identified the supply chain needs of the companies and the corresponding opportunities for 3PLs.

### 1 GLOBALIZATION

#### *1.1 Global supply chain service*

Many companies are going global and are rapidly expanding their businesses into different corners of the world. As such, their supply chains are also correspondingly extended beyond the originating regions into countries like China, Mexico and Scandinavian countries etc. Companies are increasingly locating their manufacturing, distribution, warehousing and sourcing in different parts of the world. In view of this development, 3PLs must correspondingly provide a truly global presence defined as having “presence” in all parts of the world that their customers have businesses in. This is more than a multinational presence and can be achieved either organically or by acting as Lead Logistics Provider (LLP) managing the smaller local 3PLs in remote regions.

#### *1.2 Local supply chain experts*

Given the above geographic expansion of the supply chains, 3PL should aim to be the supply chain country expert for business partners in order to save the expensive lessons learnt by others, and be able to design a supply chain that fit the socio-economic, cultural and even political specificities of the country which its customers are doing business in.

### ***1.3 Integrated service***

Provide a comprehensive set of seamlessly integrated solutions through alliance, joint ventures or partnerships. For 4PL services, it is critical that 4PLs ensure high quality of 3PL standards under its charge. Combining this need with the first point on providing global services, 3PLs must recognize that there is a real need for them to match their customers' growth both in terms of service scope and geographic presence.

### ***1.4 Single point of contact***

2 levels : (i) for all services within a 3PL, and (ii) for services of all the local 3PLs managed by the LLP. Both small and large companies have indicated the need to streamline their logistics operations and reduce transactional cost by communicating with their 3PLs through a single point of contact of the 3PLs. Main advantages: central problem resolution and event/crisis management in order to uphold the customer service levels, and also enabler of true customization.

### ***1.5 Fewer major 3PLs***

Companies are moving towards logistics simplification and are receptive to using fewer or even a common 3PL for most of their logistics requirements. However, this would only work if the 3PLs are prepared to gradually build trust by first establishing humble and sincere relationships that provide consistently high service quality for these companies. Over time, when sufficient trust and good working relationship have been forged, companies may outsource most if not all of their sub-divisions' supply chain requirements to the one/few trusted 3PL. This is the start of a strategic long-term business partnership.

### ***1.6 Long-term strategic partnership***

All the above needs (i.e. global 3PL service, integrated service provider, having local supply chain expert partners, single point of contact and using fewer 3PLs) have instigated many companies to rethink their 3PL relationships. Specifically, the relationship is beginning to move from short-term outsourcing contracts with many 3PLs,

to longer term strategic business partnerships with a few good trusted 3PLs.

3PLs may also need to seriously re-examine itself internally both in terms of reward structure and mental models. In order to gain trust and forge good business partnership with their customers, 3PLs must have the willingness and internal reward structure that go beyond establishing outsourcing contracts based on short-term regional profit considerations.

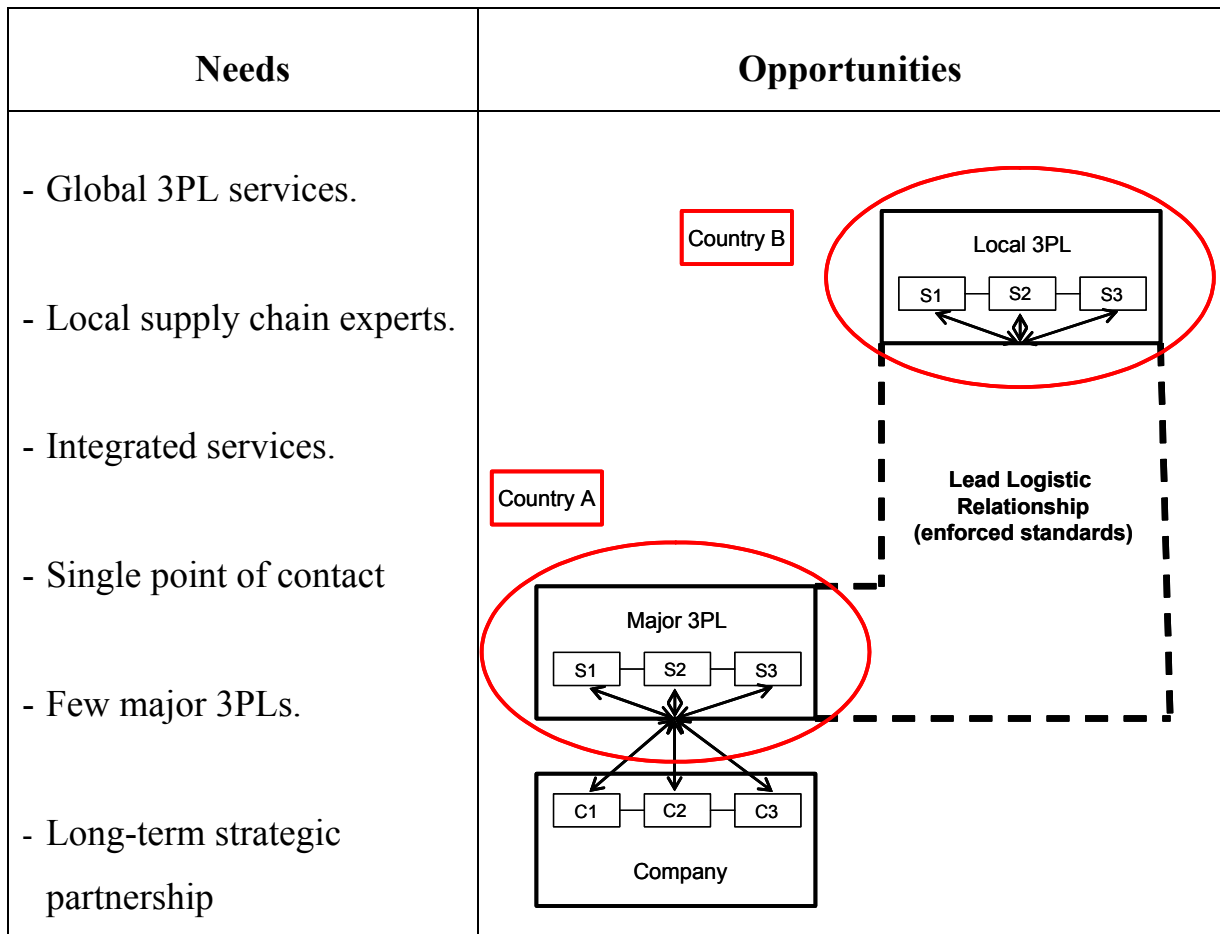


Figure 21 - Globalization

## 2 SUPPLY CHAIN VISIBILITY

### 2.1 *Adaptive Supply Chain*

For many companies, staying competitive require them to match assets to market needs rapidly, track customer demand closely, and manage variability in a complex environment. As such, supply chains need to move from being slow and static to being real-time and adaptive. It is with these transformations that supply chain visibility has become one of the most critical competitive advantage for business success. The ability to integrate real-time demand, inventory and transportation visibility will enable the move towards a more adaptive supply chain network<sup>6</sup> while providing significant enhanced capabilities in terms of event management (to maintain high service levels) and demand management (to reduce inventory and working capital). A good example is how Bose Corp was able to integrate all the real-time supply chain visibility information from the customers' demand, suppliers inventory and shipment in the transportation phase in order to avoid having its manufacturing plants shut down by the paralyzing port strike up on the west coast of US last year.

By exploiting the real-time visibility information enabled by RFID technology and the latest developments in supply chain solutions like TMS, WMS, SCEM and ITLS), 3PLs can offer comprehensive IT solutions that would integrate the full set of real-time item-level demand, inventory and transportation visibility information and bundle it with their existing service offerings so as to transform themselves from the traditional 'delivery' role to become a true provider of supply chain solutions via the "Listen-Check-Delivery" role.

Specifically, the "Listen" phase requires the 3PLs to 'reach into' the purchase part of the transaction to extract demand data. In the "check" phase, 3PLs would keep track of the inventory information while the "delivery" phase would be the transportation information

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<sup>6</sup> SAP defines Adaptive supply chain network as a community of customer-focused companies that share knowledge and resources to intelligently adjust to changing market conditions.



provided by the 3PLs. The data available in all these 3 phases would be real-time item-level information enabled by the adoption of RFID technology.

This set of IT solutions would be the building blocks to facilitate “demand-shaping” and “event-tracking” that are currently being employed by companies like Dell. Specifically, the prices of goods could be dynamically adjusted to influence demands so that delivery variations can be better managed and inventories of overstock “slow-moving” goods could also be reduced appropriately.

As such, by offering these solutions to manage and integrate the information from these 3 phases, 3PLs are empowering companies with a set of critical tools that would allow them to move towards a more adaptive supply chain by enabling better management of the 3 flows (funds, information, and goods). Specifically, 3PLs would help to:

- provide the ability to make real-time supply chain decisions, move closer towards a build-to-order model with significantly lesser inventory (which means enhanced working capital),
- achieve a more robust strategy for management of event/crisis and demand fluctuations (dampening the “bullwhip effect”) thereby enhancing customer service levels.

Lastly, it would also serve to position 3PL as a more strategic business partner for its customers. Depending on the levels of service needed by different companies, 3PLs can then set the appropriate integration effort needed to fit the requirements of these companies. Specifically, it can either take over the entire management of the transaction (e.g. eCommerce 3PL intermediaries like PFSweb, dotcom) or simply offer a customized comprehensive set of supply chain visibility information that is bundled to the current logistics offerings to meet the specific dynamic decision-making needs of companies.

## ***2.2 Adoption of Advanced Technology***

In order to fulfill the above role as the supply chain visibility information

provider/manager, 3PLs need to first become technology solution providers for their customers. With the rapid adoption of RFID and the consequent explosion of RFID data in the supply chain, there is a need for companies to make sense of all these data before they can really make full use of it. 3PLs can fill this role by filtering and analyzing these RFID data on behalf of their companies so that companies can then make use of the specific required information to make real-time supply chain decisions.

A growing number of shippers are also coming to rely on their 3PLs for sophisticated and costly technology solutions (Gordon B.H., 2003). Many leading-edge 3PLs specialize in understanding new technologies and using them to bring substantial value to shippers. Users increasingly rely on their logistics providers for expertise in complex technologies such as transportation management systems (TMS), warehousing management systems (WMS), supply chain event management (SCEM), and international trade logistics systems (ITLS). Shippers can benefit from tapping the knowledge that 3PLs gain from working with multiple customers. A logistics provider may purchase a TMS and implement it for 20 different accounts. Through this experience, it can gain valuable expertise on how to get the most productivity out of the technology. In addition, tech-savvy 3PLs can provide their shippers with a better understanding of the latest technologies. Shippers, for their part, can gain powerful cost advantages by leveraging a service provider's purchasing power to gain volume discounts and by paying only for those modules they need. Not surprisingly, technology has become a key component in many Fortune 1000 companies' decision to outsource logistics.

### ***2.3 Adoption of eBusiness Standards***

Lastly, in response to increasing changes in customers' demand, large companies like Wal-Mart are increasingly feeling the pressure to streamline their supply chain operations. As such, Wal-Mart has started to enforce strict adoption of eBusiness standards (like UCCnet) on its suppliers. Companies which are unable to adopt these standards would be dropped and not become future suppliers to Wal-Mart. Herein lies another opportunity for 3PLs (as these companies' trusted logistics partners) to bundle this affordable application program interface (API) for these companies to adopt the new

standards and remain as Wal-Mart's suppliers. This would also serve to position the 3PLs as a more strategic business partners as the business of these companies continue to grow over time.

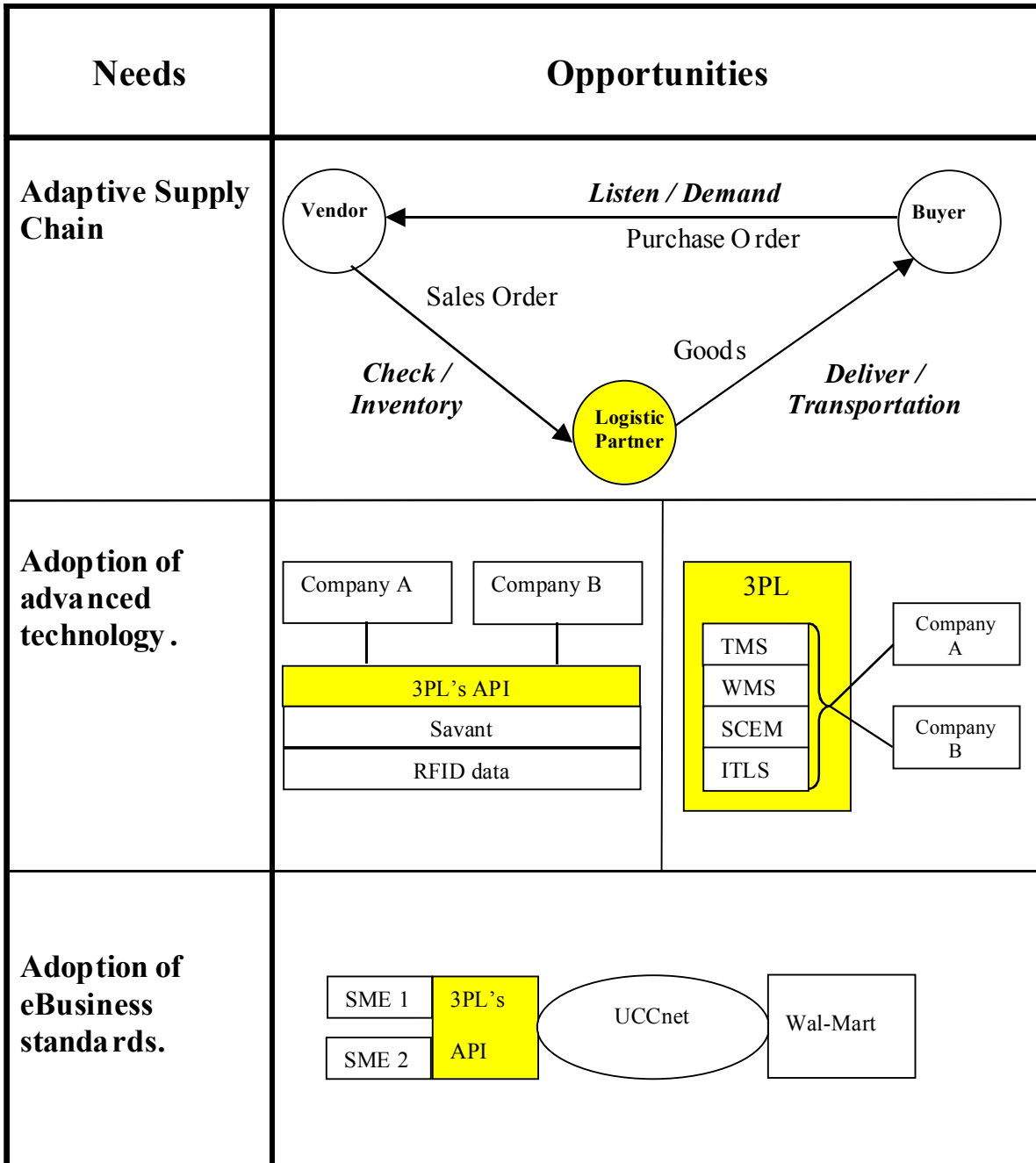


Figure 22 - Supply chain visibility

### **3 BALANCE OF POWER**

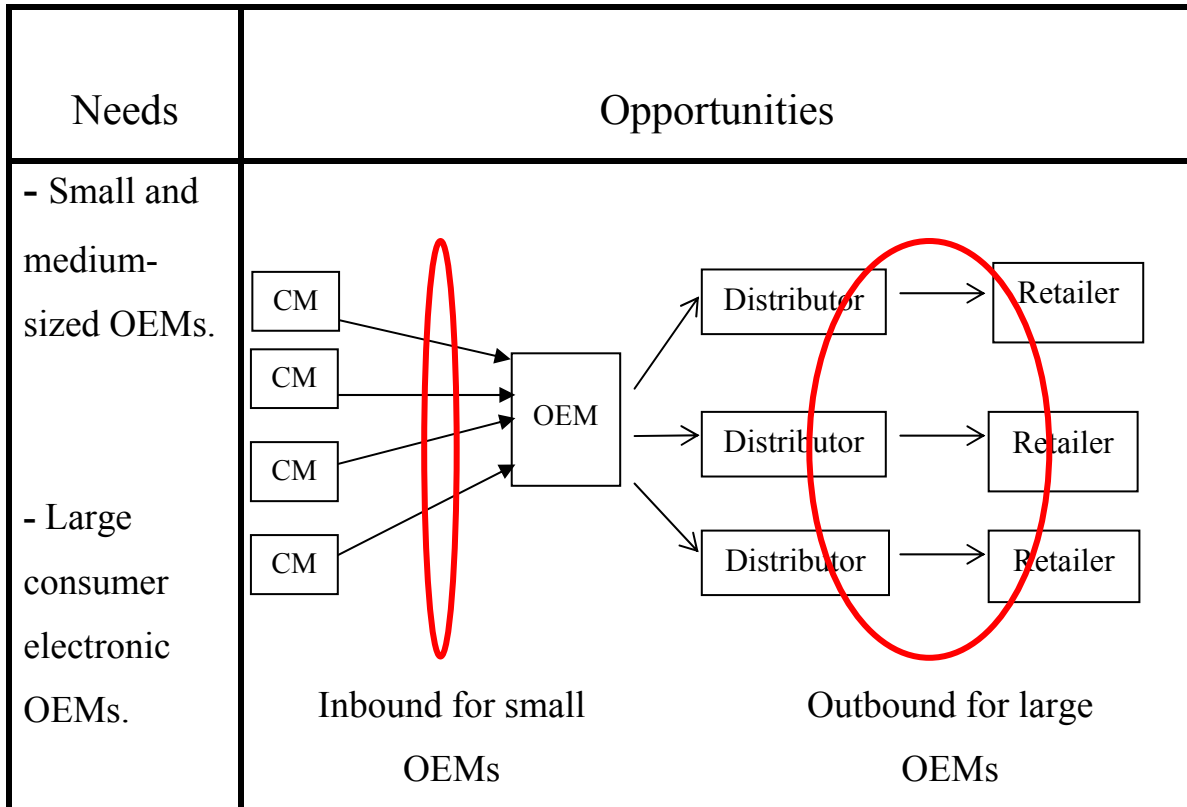
The other role we have identified for 3PLs is that of a Balancer of Power in the supply chain. Depending on the size of the companies, different companies would possess different influence / power over the different players in the supply chain and value network.

For small- and medium-sized OEMs whose orders do not constitute a significant amount of their contract manufacturers' (CM) revenues, there is a need to have a neutral 3rd party to enforce discipline among the CMs to meet the OEMs' delivery schedules. For this to be effective, the neutral 3PL needs to be large and respectable so that the contract manufacturers could not afford to "misbehave" and would obey the delivery schedules set by the 3PL. In addition, the 3PLs would also serve as a consolidator of supplies on behalf of the OEMs to gather the supplies from different suppliers located at different parts of the world.

Similarly, for larger OEMs in the consumer electronics industry, there is a need for a neutral 3PL to play the role of a manager of the distributors' inventory. Generally, the large OEMs typically have much power and influence over their suppliers and as such, are able to enforce strict inventory visibility requirements onto these suppliers. However, these large OEMs often do not have similar influence or power over their distributors and would not be able to extract much visibility information about the distributors' inventory nor control how their final products are being pushed to the end customers. As a result, many OEMs tend to be subjected to the "tricks" that their channel distributors play by delaying the purchase of the products from the OEMs in the hope of getting them at a lower price later. These "tricks" had resulted in the unhealthy overstocking of the outdated product models and caused the OEMs to lose market share over their competitors as they are unable to push their latest products out to the end consumers through the distribution channels in a timely manner. The situation is made worst by the size of the large OEM as any attempt by large OEMs to try to poke into the distributors' inventory would be seen by the distributors as a threatening move by the OEM. In this

case, the role of the 3PLs would be to come in as a neutral 3rd party to manage the inventory and distribution of the distributors. This approach is non-threatening to the distributors and would also provide the much needed inventory visibility information needed by the OEMs, thereby restoring the balance of power between the OEMs and their distributors.

Figure 23 - Balance of power



#### 4 SMEs' NEEDS

Through our interviews with SMEs, we have also identified some unique requirements pertaining to their businesses. These companies are typically driven by cost considerations while making their supply chain decisions. They are generally unwilling to use 3PLs unless the overall gain in profitability and competitive advantage with the use of 3PL outweighs the financial outlays.

One of the needs is the ability to reach out to a greater pool of suppliers from regions around the world with cheaper materials or labor.

Another need is the ability to sell the excess production capacity to customers which are typically beyond their reach due to their smallness. Large 3PLs with international reach and greater economy of scale would be able to aggregate the excess production capacity and provide this reach for them.

The other major need would be financial support. However, from our interviews, we sensed that these would be restricted in scope to the likes of the Scovill-type of arrangements and being less common than other forms of funding that many start-ups require when growing their businesses.

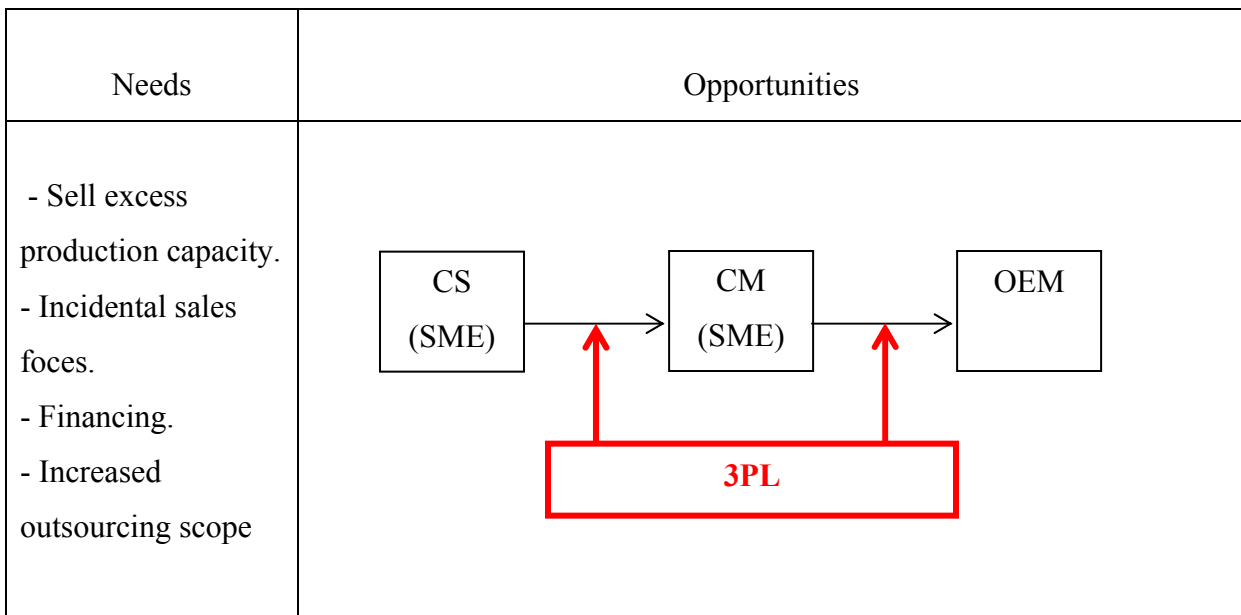
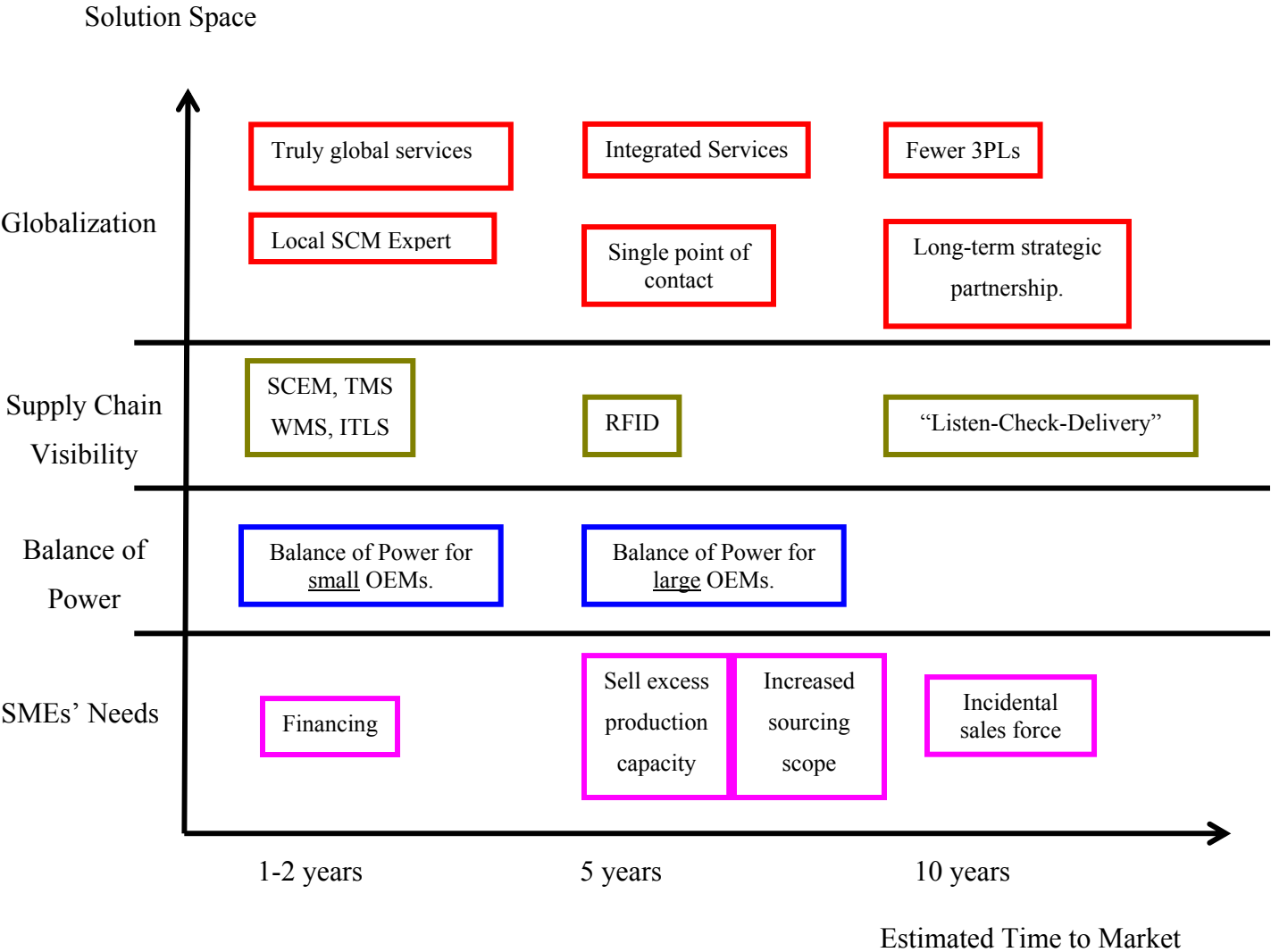


Figure 24 - SMEs' needs

## 5 SUGGESTED ROADMAP

Based on the various needs and the corresponding opportunities identified in the preceding sections, a suggested roadmap for 3PLs to market the identified opportunities is developed.

Figure 25 - Roadmap for identified 3PL solution space



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