

Logistics – A Pathway Towards ‘Sustainable’ Competitive Advantage for the Multinational Enterprise

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Abstract

The Internet is significantly changing the strategic behaviour of many businesses that operate in the global arena. Today, many multinational enterprises (MNEs) work closely with their logistics providers to enhance their competitive positions. They increasingly outsource their non-strategic business functions, with logistics providers picking up this new source of business. The MNE is moving more towards a ‘front-end’ or customer focused operation, with their key logistics providers aligning themselves as supply chain integrators. Logistics providers may be classified as 1st to 4th party logistics providers. A 4th party logistics provider provides complete supply side solutions for the MNE, plus a degree of demand side service. It becomes an integral part of the MNEs competitive solution set. This paper proposes that integrated, fully activated, demand-supply (FADS) chains provide a mechanism to move beyond 4th party logistics provider (4PLP) solutions. It elucidates the key clusters of skills levels that must be activated by the logistics provider to operate at the 5th party logistics provider (5PLP) FADS level of outsourcing and service. The 5PLP FADS logistics provider brings a vast array of ‘added-value skills’ to the MNE, and a key innovative, flexible and highly agile partnership results, whereby pathways towards ‘sustainable’ competitive advantage may be developed. The 5PLP FADS logistics model is the next step in the progression to total logistics integration.

1. Introduction

The Internet has emerged as a powerful global force that is influencing, and sometimes significantly changing the strategic behaviour of many businesses. Some [25] [31] suggest the Internet is a new communications tool, building closer relationships with customers, suppliers, and employees. Others suggest the Internet is creating a new way to conduct business – often termed e-business [7]. The global marketplace has changed. The large MNE of the past is experiencing a dramatic change in competition from a diverse array of new global entrants [29]. Some businesses such as the book portal - Amazon.com, the auction house - eBay.com, or the automotive portal - SmartSearch.com.au, offer only an ‘on-line’ presence, yet each trades successfully. On-line Marketplaces like netbuy.com, offer extensive virtual inventories. NetBuy’s virtual inventory is four times the

size of the largest electronics components market distributor [26]. NetBuy cuts the long catalogue searching to seconds, removes inefficiencies, and links buyers with sellers. Such skilled niche operators focus on their ‘front-end’ or ‘web interface’ connectivity with the customer. Many incorporate aspects of the 8C’s of the customer web interface design - context, content, connection, communication, community, commerce, customization and characterization [15] into their business strategies. These focused, ‘on-line’ solutions are reducing both the uniqueness and the competitive advantage of the large MNE, by exploiting the unique features of the Internet [21]. This tough environment has invoked MNEs to seek lower cost solutions, whilst maintaining or improving quality [13]. Sustainability has now become a key function of cost management [26], and of strategy [7] [17] [25]. Competitive advantage has also become a key focus [12] [35].

2. Competitive Advantage

Porter, [24] proposed that 5 forces could be used to develop a company’s competitive position. These forces

1. the intensity of rivalry among existing competitors,
2. the barriers to entry for new competitors,
3. the threat of substitute products or services,
4. the bargaining power of suppliers, and
5. the bargaining power of buyers

present a key starting point from which MNEs may shape their unique competitive position. Porter’s original model displayed in Figure 1, whilst still valid, no longer covers the current global and networked environment.

Porter, [25] recognised the impact of the Internet on the business environment. He suggested new ways to create distinctive strategic positionings. Size is no longer the determining factor in success, but speed is a vital success factor. He identified two underlying drivers of profitability that transcend any technology or type of business:

- Industry structure, which determines the profitability of the average competitor, and
- Sustainable competitive advantage, which allows a company to outperform the average competitor.

Porter linked these drivers to his five forces model of competition and added the key negative (-) and positive (+) effects applicable to a specific ‘on-line’ industry. The bracketed sign indicated whether the relevant factor has a negative, or positive, effect on the competitiveness and

profitability of this industry. This Porter model, displayed in Figure 2, differs for each specific industry may be exhibit different effects, and to different degrees.

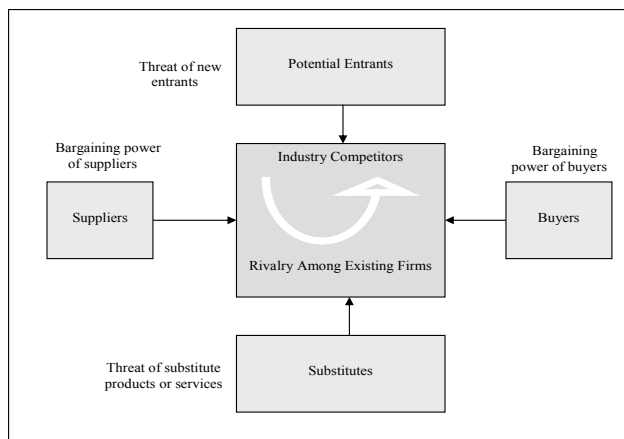


Figure 1: Porter's Five Forces Model (Source Porter, [24])

Porter suggests that, in general, Internet technologies will continue to erode profitability by shifting power to customers. This implies the MNE must move into this space and work closely with its customer base. Positive and negative effects on profitability, as a result of the impact of the Internet on the MNEs structure, can be subsequently looked at for each of the five competitive forces.

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Porter believes that cost and price advantages (profitability drivers) are developed by either improving 'operational effectiveness' or 'strategic positioning'. 'Operational effectiveness' refers to 'doing the same things your competitors do but doing them better'. Here, the MNE only gains advantages if it is 'able to achieve and sustain higher levels of operational effectiveness than its competitors'. Porter concludes that 'the nature of Internet applications makes it more difficult to sustain operational advantages than ever'. As such, strategic positioning becomes all the more important, gaining cost advantages or price premiums by competing in a distinctive way. This requires a 'strong focus on profitability rather than just growth, an ability to define a unique value proposition, and a willingness to make tough trade-offs in choosing what 'to do' and 'not to do'. It involves the configuration of a 'tailored' value chain that enables a company to offer unique value. Porter states that 'when it comes to reinforcing a distinctive strategy, tailoring activities, and enhancing fit, the Internet actually provides a better technological platform than previous generations of IT'. Multinational Enterprises (MNEs) and other large firms operating in the

global arena, need to tailor their deployment of Internet technology to their particular strategies'.

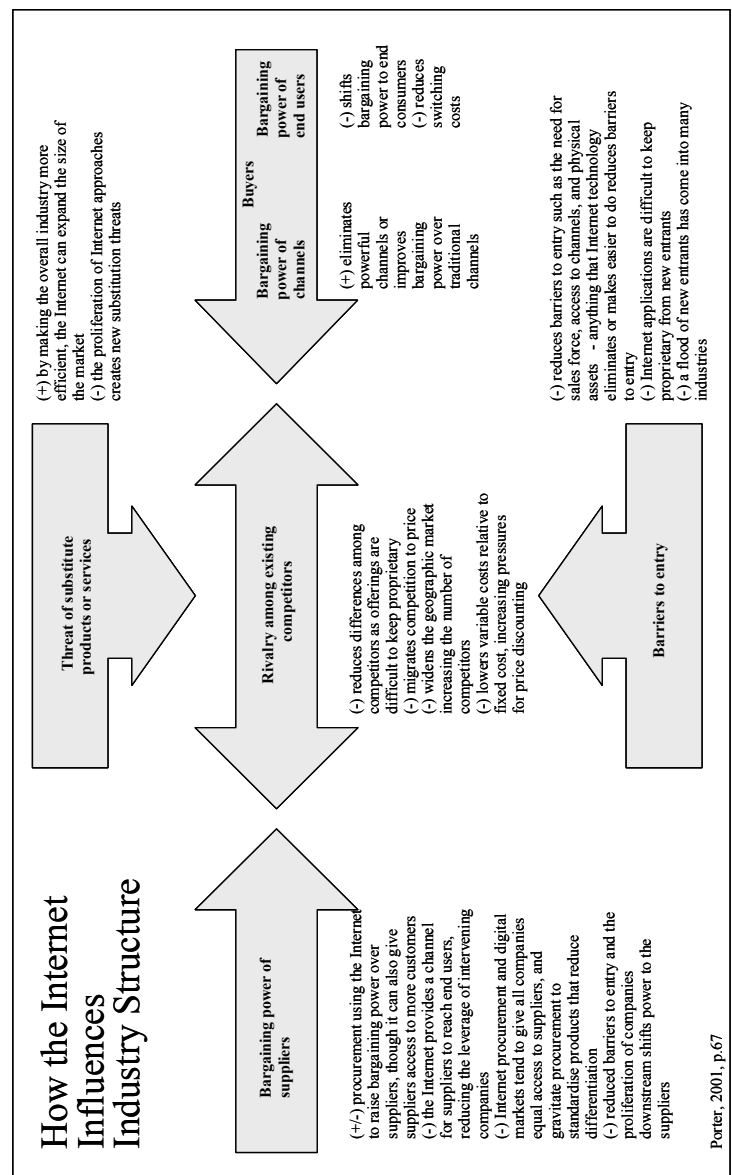


Figure 2 - How the Internet Influences Industry Structure (Source Porter, [25])

Porter suggests six principles exist for establishing and maintaining a distinctive strategic positioning:

1. start with the right goal, which is superior long-term return on investment,
2. deliver a value proposition different from those that competitors offer,
3. operate a distinctive value chain, performing either different activities than rivals or performing similar activities in different ways,
4. abandon or forgo some product features, services, or activities in order to be unique at others, in other words looking at trade-offs,
5. strategy defines how all elements of what a company does fit together; all a company's activities must be mutually reinforcing, and

6. maintain continuity of direction, in order to develop unique skills and assets or build strong reputations with customers.

To establish and maintain a distinctive strategic positioning, and to respond to competitive pressures from start-up businesses, substitute products, new initiatives, and the like, many MNEs have moved down the outsourcing path, outsourcing commodity like areas such as transport, warehousing and the like, and then have concentrated on their core functions and competencies. [23] [34] support these ideals from both economic and price viewpoints.

3. Outsourcing

The reason(s) why a MNE decides to outsource can vary widely. Greaver 2nd, [14] offered the following reasons why an MNE may outsource an entire business function, or some elements of its business:

- Organizational driven reasons
 - Enhance effectiveness - concentrating on what you do best
 - Increase flexibility to meet changing conditions, demand for products and services, and technologies
 - Transform the organisation
 - Increase product and service value, customer satisfaction, and shareholder value
- Improvement driven reasons
 - Improve operating performance (increase quality and productivity, shorten cycle times, and the like)
 - Obtain expertise, skills, and technologies that were not otherwise available
 - Improve management and control
 - Improve risk management
 - Acquire innovative ideas
 - Improve credibility and image by associating with superior providers
- Financially driven reasons
 - Reduce investments in assets and free up these resources for other purposes
 - Generate cash by transferring assets to the provider
- Revenue driven reasons
 - Gain market access and business opportunities through the provider's network
 - Accelerate expansion by tapping into the provider's developed capacity, processes, and systems
 - Expand sales and production capacity during periods when such expansion cannot be financed
 - Commercially exploit existing skills
- Cost driven reasons
 - Reduce costs through superior provider performance and the provider's lower cost structure
 - Turn fixed costs into variable costs
- Employee driven reasons
 - Give employees a stronger career path
 - Increase commitment and energy in non-core areas.

Almost always the MNEs driving forces to outsource are to satisfy its strategic aims, to respond to global

competition, to utilize technology, to focus on 'sustainable' competitive advantage, and/or to drive down costs. [13] [19] [25].

3.1 Levels of Outsourcing

Initially, legal firms and others outsourced single functions like the mail room to first party logistics providers (1PLPs). In the early 1990's large second party logistics network players (2PLP) like TNT and UPS, commenced global operations, and in the late 1990's third party logistics providers (3PLPs) like FedEx, emerged offering added value full web tracking services. In 1999, the US logistics industry was estimated to be USD 920 billion, whilst globally the logistics industry was estimated at over USD 2 trillion globally. Significantly, less than 5% of this industry was outsourced worldwide [32]. A skilled logistics provider, capable and experienced in operating within the global arena, has genuine new opportunities to successfully enter this broad area.

For example, the software MNE Oracle, now offers a wide range of computer packages to support the transport industry. These software solutions include: load tendering, ratings (TL, ocean, air and rail), transportation infrastructure (route, carrier and vehicle definitions), intelligence and reports (flexible shipping document generation), inbound freight management, freight payment and audit. Many unexpected players (for example, integrated IT suppliers, management consultants, financial services) have also entered the logistics market. Today, many integrated functional areas, especially those deemed non-core, are outsourced to 3PLPs including: transportation, sub-assembly, and the like. These 3PLPs share resources between their network members, sometimes outsourcing certain activities to second or third tier providers, (who join the value adding process as complementary providers). Thus, both horizontal and vertical integration develops between these optimized 3PLPs and their value chains. These value chains find new ways to generate efficiencies and profits. They utilize their innovative on-line and marketing talents, incorporate latest information and communication technologies, and create new drivers in their service delivery. In addition, the MNE, with its supply chain efficiently managed (and costs controlled) by its 3PLPs, can divert its attention to developing its own internal core business efficiencies, increasing its sales and revenues, and delivering its quality assured products to the marketplace in a rapid, reliable manner [4]. The Internet, along with its off-shoots - Intranets (communication and electronic links throughout and across the MNEs functions) and Extranets (communication and electronic links between and across the MNEs supply network), provides a new medium for detailed information sharing and collaboration throughout the MNEs partnership network. As such, the Internet is a key enabler of outsourcing processes.

3.2 The Affect of the Internet

The Internet has moved outsourcing processes into a new dimension. It has allowed the MNE and its supply chain partners to share information, rationalize components, 'stock-in-process', and stock holdings. Most of the large logistics companies have acquired software, such as warehouse management systems and transport management systems, to manage their warehouses, transportation and other activities.

More recently electronic data interchange and the Internet have allowed 3PLPs to provide higher value added services for their clients through the ability to support software systems like 'Vendor Managed Inventories', 'Supply Hubs' and 'E-fulfillment'. It has also enabled 3PLPs to bridge the gap between the private and the public sector, in areas such as customs procedures.

Services such as Profit Zone's GPS tracking, NetRaker's tracing, PeopleSoft's efficiency programs, and Vodafone's 'churn-rate' (loss of customer to another competitor) programs, deliver definite value to customers in planning their operations better and reducing their working capital locked up in unused inventory and work-in-progress.

The MNE may determine which functions may be treated like commodities and outsourced. The MNEs decision makers may choose to dissect each function into its components, and then decide which activities are strategic, and/or critical. Such activities normally remain 'in-house'. Other non-core options may then be defined and possibly outsourced to logistics providers.

3.3 The Two Clusters of Logistics Outsourcing Skills Model

A rich aggregation of desirable skills has emerged for international logistics outsourcing. Voss [33] termed these 'logistics improvement skill levers' and divided them into two clusters. Voss's clusters are displayed in Table 1. These clusters encompass the outsourcing levers developed by others including [18] [35]. The 'technical' cluster encompassed the areas of supply chain management along with its recent interconnective developments. Whilst the need to enable powerful information technology and communication infrastructures (technical equipment), and technical skills has now become indispensable [6], technologies and technical skills on their own are not sufficient to attain economic success [3]. Consequently, Voss defined a second cluster – the 'soft skills' cluster. This 'soft skills' lever set is more complex than the technical lever set due to its immateriality [33] but it delivers hard results. For example, in logistics services, there is a need to interact and manage relationships, and for 3PLP's this requires the use of a broad range of soft skills [1], as reflected in areas such as the criteria (and requirements) for job candidates Voss's lever set clusters link to many of the Greaver 2nd [14] outsourcing drivers. For example, organization, improvement and employee drivers occur at both the technical level and the soft skills level, whilst

revenue, finance and cost drivers are embedded in the use and management of knowledge.

Today, MNEs and their associated 3PLP's, still primarily focus on the 'technical' levers, but the importance of soft skill levers is undeniable, [1] [28]. The world market is heavily intercultural [11] [28], stresses the importance clearly: 'while the technological advances allow an instantaneous global communication across enormous distances, there has been no comparable breakthrough in bridging psycho-cultural distance between people with different cultural frames of reference'. To reach such this market the 3PLP must acquire all the skills and abilities necessary to build bridges between people of different cultures [6]. This soft skill set uses personal, communicative, psychological and cultural sensitivity in conjunction with mental flexibility and corporate agility, thereby enabling intercultural encounters to be successfully negotiated. The MNE and its globally operating 3PLPs may then utilize these two clusters of outsourcing levers to enhance their competitive position.

Table 1: The Two Clusters of Logistics Outsourcing Skills Model (Adapted from Voss, [33])

Cluster 1: Technical Levers	Cluster 2: Soft-Skill Levers
<ul style="list-style-type: none"> • Information Technologies • Communication Technologies • DSS Technologies • Organization Technologies • IT-Infrastructure • Logistics Assets • Technical Ability • Logistics Knowledge / Know-how • SCM Knowledge • IT-Knowledge 	<ul style="list-style-type: none"> • Social Competency • Intercultural Competency • Interpersonal Competency • Communication Skills • Organizational Skills • Problem-Solving Skills • Leadership Skills • Team Orientation • Empathy • Integrity • Self-Assurance / Self-Awareness • Motivation / Creativity • Politeness / Diplomacy • Mobility / Flexibility

3.4 The Three Clusters of Logistics Outsourcing Skills Model

Voss's two clusters of logistics outsourcing skills may be further enhanced to include a third cluster with its own set of levers - the Institutional levers. The three clusters of logistics outsourcing skills model is displayed in Table 2. These additional levers encompass the drivers required to incorporate the rigorous business management, the Internet and its competitiveness into the logistics framework. The Institutional cluster of skills encompasses the legislative and governance frameworks within which the MNE operates. The logistics provider then integrates these into its operational frameworks, ensuring all external compliance related areas (financial, legal, operational,

regulatory and the like) are incorporated within its solutions.

The Institutional levers are important logistics considerations. For example, US MNEs wishing to trade in China must understand that the Chinese government and its sanctioned trading companies have blocked third-party foreign trading companies and distributors from direct participation in the Chinese market, and from providing a complete range of trading and distribution services [5]. This Chinese legislation greatly inhibits a logistical competitive advantage for non Chinese MNEs. Thus, a 3PLP company, working in China for a US MNE, must have detailed knowledge of the specific Institutional levers that apply, and must establish (or have) a mechanism within which it may operate competitively.

Table 2: The Three Clusters of Logistics Outsourcing Skills Model (© Gunesh and Hamilton, 2003)

Cluster 1: Technical Levers	Cluster 2: Soft-Skill Levers	Cluster 3: Institutional levers
<ul style="list-style-type: none"> • Information Technologies • Communication Technologies • DSS Technologies • Organization Technologies • IT-Infrastructure • Logistics Assets • Technical Ability • Logistics Knowledge / Know-how • SCM Knowledge • IT Knowledge 	<ul style="list-style-type: none"> • Social Competency • Intercultural Competency • Interpersonal Competency • Communication Skills • Organizational Skills • Problem-Solving Skills • Leadership Skills • Team Orientation • Empathy • Integrity • Self-Assurance / Self-Awareness • Motivation / Creativity • Politeness / Diplomacy • Mobility / Flexibility 	<ul style="list-style-type: none"> • Government Legislation • Industrial Policies • Company Laws • Financial Services regulation • Intellectual Property and Copyrighting Policies • Competition and Antitrust legislation • Corporate Governance and Transparency • Transport Policies (Road, sea, air & Rail) • Political Stability • Economic Growth

3.5 The 3PLP Model and Sustainability

The third party logistics provider absorbs all the three clusters of levers into their logistics solution(s) for the MNE. They then use their specialist skills to enhance the overall operations of the MNE and themselves. The 3PLP aims to position itself with a unique set of competitive and reverse logistics skills [22], thereby allowing an avenue towards sustainable competitive advantage. Companies like, Menlo worldwide (www.menloworldwide.com), Ryder (www.ryder.com), SmartSearch (www.SmartSearch.com.au), and Schneider (www.apldirectlogistics.com) each utilize combinations of technical, soft-skill, and institutional levels to develop their unique competitive solutions[2] [12].

3.6 The 4PLP Model

Over the past few years, key MNEs have sought to outsource some (or all) non-core supply chain areas of their business to a series of 3PLPs or even to one master PLP, termed a 4PL™ by Andersen Consulting. Andersen Consulting's model [10] for the evolution from a single function MNE outsourced task, such as the mail room (to a 1PLP), up to complex, fully integrated MNE outsourced solution delivered by a 4PLP is displayed in Figure 3.

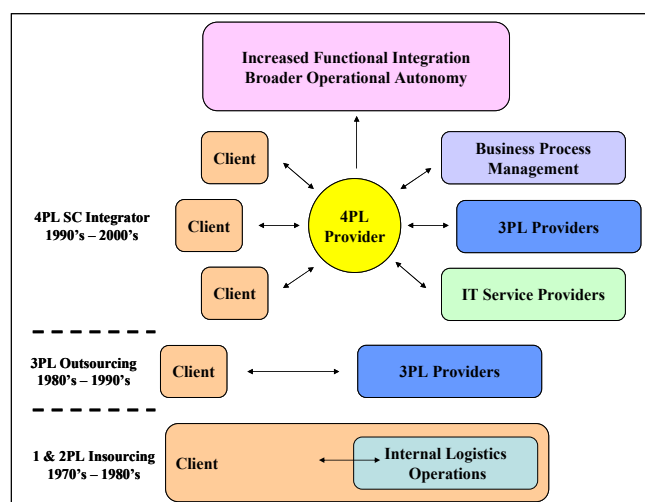


Figure 3: Evolution from First to Fourth Party Logistics Providers (Adapted from Docherty [10])

The range of activities undertaken by the 4PLP is almost identical to the role of a consultant on a long-term contract. In addition to business process reengineering; systems support and supply chain management planning; relationship management between 3PLPs and the client; and design, implementation, management and operation of the logistics facilities; the 4PLP can assist the MNE with entry into unfamiliar markets, especially those where it has extensive expertise. The 4PLP also offers a one-stop shopping experience for supply chain planning, systems selection/integration, project management, operational expertise, combined with the very latest in solutions and execution technologies. The 4PLP often works with a series of MNEs. In this environment it learns from its various MNEs and incorporates these skills into its knowledge base. It then applies this acquired knowledge to create and enhance the competitive positioning of itself and its MNEs.

In 2000, Andersen Consulting applied its 4PL™ model to Sears Roebuck's US equipment repair centres [10]. They utilized GIS, Simulation, and other tools to study the supply chain. They developed iso-cost curves, and determined regions of high and low total service cost and profitability. They used these graphic displays to establish the best US locations for the Sears Roebuck repair facilities. This model has since been adapted to many leading organizations.

The true 4PLP provider is really a super-service, cyber-corporation. For example, Nistevo (www.nistevo.com) sources and delivers the world's best items or pre-assembled component blocks. These globally

sourced items are then assembled by the MNE, and efficiently delivered to the customer. This allows the MNE to retain its competitive advantage. The UPS Logistics Group (www.ups.com/bussol/logistics) can also deliver a similar service, (and not just ship the MNEs products). Ian Chong, UPS Logistics Group's Business Development Manager estimated over 50% of CISCO's product was never touched by its employees in 2002. Thus, the MNEs 4PLP provider coordinates the timely component sourcing, manufacture, and delivery. The 4PLP functions like a virtual enterprise. It uses the global communications networks to minimize the barriers developed by geography, and sources world's best practice ingredients for the MNE, and delivers competitive advantage. [27] explains the uptake of outsourcing. In 2002, 75% of the Fortune 100 companies and approximately 45% of the Fortune 500 companies in the US used a 4PLP solution.

Currently, many MNEs like IBM, Phillips, Newscorp, and Sears Roebuck, use 3PLPs or 4PLPs, to innovate, and revolutionise their business solutions. Innovation is encapsulated via the seamless, vertical and horizontal integration of processes, and generally involves several players. This has led to increased competitiveness, particularly production, service and response speeds.

Many 4PLP 'end-to-end' management issues are related to time reductions [9]. An on-line business approach assists these improvements. For example, rapid electronic fund transfers speed-up the 'cash-to-cash' cycle [13] [30]. If interconnected with a demand-chain driven, fully networked, supply-chain enabled, integrated, on-line e-business system, a faster, more flexible, efficient service may be provided. The utilization of the embedded ordering and office automation systems facilitates a more economical, 'continuous' replacement system, where small, frequent orders permit supply chain members to hold reduced inventory levels. In addition there is direct, quick, efficient interaction between suppliers, the 4PLP, and the MNE. By analysing and connecting additional customers, appropriate 4PLPs. and appropriate suppliers, dedicated, service-related e-business sites including, www.epiphany.com, www.peoplesoft.com, www.seibel.com www.oracle.com, www.salesforce.com, and www.commerceone.com, can provide additional value to the on-line service business system. Thus, the web enabled 4PLP has several key competitive tools - time, flexibility, efficiency, cost, inventory, connectivity, customer analysis, and the like, by which it may enhance its value creation and positioning – and each is related to its on-line presence via the Internet.

3.6.2 Profitability

MNEs competing in the global environment face pressures to improve value and profitability. Investors expect MNEs to adopt value-based management frameworks where its activities and resources focus on increasing shareholder value. The MNE may identify and improve their key 'services and facilities' value drivers by enhancing operating performance (to increase quality

and productivity, shorten cycle times, and the like). The MNE may incorporate revenue management and dynamic pricing strategies, as well as development of new services (reverse logistics, service chain management and design for logistics). It may develop new expertise, skills, and technologies that were not otherwise available. It may develop new cost management, control and risk management systems, or it may outsource non strategic functions to 3PLPs or to a 4PLP [32].

3.6.3 Lean Supply Networks

The 3PLPs and 4PLP endeavour to maximize efficiencies throughout the MNEs supply chain. This has led to a shift towards leaner supply networks [13]. It has made MNEs more vulnerable. With fewer inventories in the system to 'buffer' against interruptions in supply, any disruption can have significant impact on the supply chain. For example, outsourced logistics services such as cargo delivery and postal services (which generate tangible savings of at least 10%), are possible terrorism targets. Other types of disruptions include external factors like the Kobe earthquake or foot and mouth disease, or business related factors like employee strikes, or operational breakdowns. These risks must be assessed and minimized. Thus the MNE may require logistics service providers to have special certification as 'secure' deliverers. Hence, when outsourcing the MNE must consider, the robustness of the supply chain to handle disruptions, risk management capabilities, particularly those relating to public health and safety [32]. In developing such 'risk' strategies the MNE may require the logistics providers to incorporate its latest innovative ideas in a cost conscious manner, and to create relationships with credible and sometimes superior providers.

3.6.4 Value

Without value, sales and market share don't happen [8] [19]. As businesses become more and more connected through the Internet customers may buy from anyone around the globe. Price differentials begin to disappear, with many buyers aware of the 'best' prices. Product quality differentials disappear and those with inferior products often lose market share. Customers talk to each other via chat rooms, email and bulletin boards, and the like. They are well informed as to which products and services offer the best value. Geographical location doesn't matter in today's globally connected world, as the next service provider is only one 'click' or phone call away, and global shipping networks are able to move items rapidly. Hence, the market consists of businesses with similar prices, and products, trying to differentiate themselves through whatever value attributes remain for differentiation. For many businesses this difference is their 'service' component, and the processes their customers must go through to obtain their desired outcomes [17].

3.6.5 Supplier Relationships

[20] recognises the relationship focussed customer does not engender the supplier to be stringently price conscious, whilst the price conscious customer, who does not readily perceive product value, may leave the supplier feeling abused, resentful and less focused on product quality. He links customer cooperation and a commitment to lower prices, suggesting the ‘balanced sourcing’ (high-high) quadrant should be the key target area. Thus, for maximum competitiveness, a 4PLP and its MNE’s should position themselves within this area. This requires high levels of collaboration between all parties. The 4PLP must seek to maximize the capabilities of each component of the supply chain, whilst minimizing overall ‘end-to-end’ risk. Laseter [20] suggests the ‘balanced sourcing’ (high-high) quadrant, as displayed in Figure 4, offers the best option in today’s highly competitive market.

Today, the MNE and its logistics partner(s) increasingly concentrate on delivering customer satisfaction. The MNE is acting more as a service organization with its core functions shifting from full manufacturing towards final assembly, sales, strategic positioning, and research and development conceptualization. It has generally outsourced its logistics costs (normally around 15% of the finished product cost) to 3PLPs or a master 4PLP. The logistics provider then instils innovation throughout sections of the supply chain. The vested interests throughout this virtual corporation act together chasing competitive advantage for the entire alliance team.

Commitment to cooperative relationship	Commitment to competitive pricing	
	Low	High
	Trust Based Partnerships	Balanced Sourcing
	Supplier dominated Unclear rationale for improvement Assumes congruence of supplier goals Supplier may capture all of the value creation	Uses supplier capabilities fully Drives improvement at customer and supplier Requires high capability customer
Low	Unleveraged Purchasing	Darwinian Rivalry
	Unmotivated, unstructured Traditional ‘clerical’ mentality of purchasing ‘Price taker’ Leaves lots of money on the table	Adversarial Customer dominated Requires purchasing clout Eliminates lethargy, but may cause resentment Does not result in improvement

Source: Laseter, 1998

Figure 4 Supplier Relationship Matrix (Adapted from Lasseter [20])

Today, the MNE and its logistics partner(s) increasingly concentrate on delivering customer satisfaction. The MNE is acting more as a service organization with its core functions shifting from full manufacturing towards final assembly, sales, strategic positioning, and research and development conceptualization. It has generally outsourced its logistics costs (normally around 15% of the finished product cost) to 3PLPs or a master 4PLP. The logistics provider then instils innovation throughout sections of the supply chain. The vested interests

throughout this virtual corporation act together chasing competitive advantage for the entire alliance team.

3.7 The 5PLP Model

Hai and Yirong [16] present the Morgan Stanley Consulting Co. Ltd. China Logistics 5PLP model as the apex of a logistics relationship with the MNE. This model is displayed in Figure 5. They believe the 5PLP model focuses on providing overall logistics solutions for the entire supply chain. They further define the supply chains management (SCM) as a truly integrated approach managing flow and transforming goods in respective logistics networks. This supply chain management hinges on a common collaborative performance measurement framework that yields close, collaborative and well coordinated network relationships. The aim is to establish a competitive advantage across the supply (and demand chain) by constantly exchanging information with alliance partners, and driving further reductions in cycle times, life-cycle turns, and the like[1]. Hai and Yirong assert this delivers what consumers want, where and when they want it, and it does so in an efficient manner. They, like Morgan Stanley believe that by linking outsourcing to strategic alliances ‘win-win’ productivity situations (encapsulating faster running loops) arise for supply chain members.

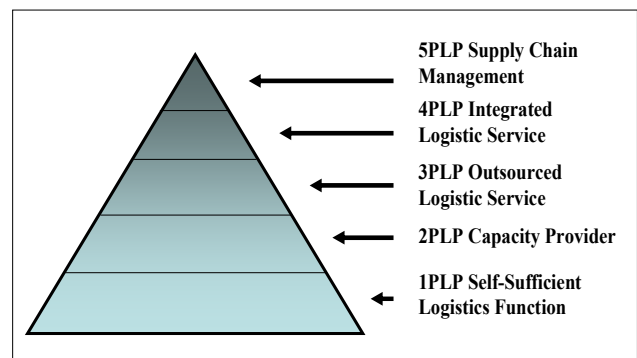


Figure 5 – The Morgan Stanley 5PLP Model (Adapted from Hai and Yirong, [16])

The Morgan Stanley’s 5PLP model is merely a re-badged 4PLP. It is not a ‘customerized’ or ‘characterized’ logistics solution. It does not provide targeting to specific individual customers needs. Thus the demand chain is not seen as a key logistics driver. For example, a current 4PLP model offers a complete set of supply side solutions for the MNE. It covers the logistics of entire supply chain, and even some basic demand chain parameters. This is the same as the Morgan Stanley 5PLP model. Without the full integration of both the demand and supply chain, and this structure being both highly flexible and agile, the apex of a logistics relationship cannot be reached. Hence the Morgan Stanley model does not represent the ultimate logistics solution, and it cannot be conceived as the apex of the logistics relationship with the MNE.

3.8 The Four Clusters of Logistics Outsourcing Skills Model

The three Cluster model developed from Voss, and incorporated into the previous (1PLP to 5PLP) models can be further expanded to include a final cluster with its associated set of levers. This additional cluster is termed the ‘characterized’ cluster. Here, for example, the web site’s ability to adapt and modify itself (based on tracking information and business intelligence software) is used to provide the customer with the impression of a made-to-order site that targets the customer’s requirements. This allows a new set of levers to be activated. This set of levers specifically targets the individual customer in an approximate ‘one-on-one’ relationship. The four clusters of logistics outsourcing skills model is displayed below in Table 3.

Table 3: The Four Clusters of Logistics Outsourcing Skills Model (© Gunesh and Hamilton, 2003)

Cluster 1: Technical Levers	Cluster 2: Soft-Skill Levers	Cluster 3: Institutional Levers	Cluster 4: Characterization Levers
<ul style="list-style-type: none"> • Information Technologies • Communication Technologies • DSS Technologies • Organization Technologies • IT-Infrastructure Assets • Technical Ability • Logistics Knowledge / Know-how • SCM Knowledge • IT Knowledge 	<ul style="list-style-type: none"> • Social Competency • Intercultural Competency • Interpersonal Competency • Communication Skills • Organizational Skills • Problem-Solving Skills • Leadership Skills • Team Orientation • Empathy • Integrity • Self-Assurance / Self-Awareness • Motivation / Creativity • Politeness / Diplomacy • Mobility / Flexibility 	<ul style="list-style-type: none"> • Government Legislation • Industrial Policies • Company Laws • Financial Services regulation • Intellectual Property and Copyrighting Policies • Competition and Antitrust legislation • Corporate Governance and Transparency • Transport Policies (Road, sea, air & Rail) • Political Stability • Economic Growth 	<ul style="list-style-type: none"> • Agile Customer Relationship Management • Reliable Communication Technologies • Integrated Organizational Technologies • Database, Web Interface and Knowledge Management Technologies • Responsive Database, Web Interface and Activated Business Intelligence • On-line ‘Customerization’ and Management • Responsive Flexible Demand Chain

By incorporating the four sets of levels into a MNE and its 4PLP supply chain, a flexible, agile, demand chain driven, supply chain supported, system may be developed. Here sets of ‘fully activated demand-supply’ chains, termed ‘FADS’ chains offer a means to sustainable competitive advantage.

FADS offer a means to move beyond the current proposed models to a 5PLP level. They incorporate improvement levers, competencies or skills, and important new achievements concerning ‘sustainable’ competitive advantages [18] [24]. They can absorb the current reasons for outsourcing as proposed by many authors including [13] [14] [32] [33].

4. The 5PLP FADS Logistics Model

To develop sustainable competitive advantage the MNE and its 4PLP must acquire and utilize unique intelligence. They derive this sophisticated intelligence by concentrating on the customer and tracking their interactions. For example, by tracking a customer’s activities, weaknesses in communication, understanding, time wastage, and the like, better communication solutions may be developed. Provided this rectification is rapid a reduction in ‘churn’ rate (loss of customer) may be achieved. These changes require the 4PLP to move into a new relationship across the entire demand–supply chain, and to work intelligently with ‘fully activated demand-supply 5PLP FADS chains.

A new logistics model – the 5PLP FADS logistics model, is proposed. The 5PLP FADS logistics model incorporates the four clusters of logistics outsourcing skills into the current ‘state-of-the-art’, or ‘revised’ 4PLP Model. This new logistics model is displayed in Figure 6. The current 4PLP brings its own specific values and skills to the business equation, thus providing a new competitive edge to the MNE. For example, the 4PLP may be a highly skilled on-line web operator with outstanding IT innovation, network skills, and on-line marketing skills. This may add an entirely new dimension to the MNEs operational skills set, or it may be a superb financial negotiations house that seeks to expand its sphere of influence. The combination of these specific skills, along with an agile, flexible, individual customer activated sensory system, opens new pathways for possible ‘sustainable’ competitive advantage. Such a mix of skills provides reduced scope for direct competition. This solution is delivered by a 5PLP FADS logistics provider.

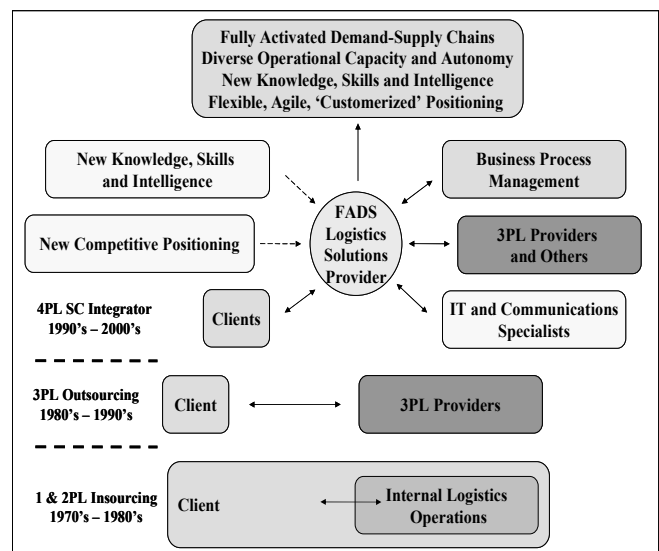


Figure 6: The 5PLP FADS Logistics Provider Model (© Gunesh and Hamilton, 2003)

The 5PLP FADS logistics provider and its MNEs are singularly focused to deliver ‘customerized’ (one-on-one) products such as a uniquely combined or ‘customerized’

set of web site pages, and helpful hints, combined with intelligent expert system software support to adapt to the customer's changing views.

To attain 5PLP FADS level logistics support the 'characterization' [15] cluster, must be fully incorporated. This fourth cluster of skills levers occurs when the MNE and its FADS logistics team are directly connected to the customer. Here the demand-driven customer-focused MNE combined with its logistics partner becomes instantly and highly responsive (agile and flexible) to the specific need of its individual customers. It requires its 5PLP FADS logistics partner to develop features specifically targeting 'what' each customer wants, along with the 'when's', the 'how's', and the 'specific' product personalization of 'where' and 'for whom'. This new economic focus has positive implications and demands across the entire demand-supply chain. In contrast, a 4PLP and its supply chain can capably deliver tangible products in a tightly managed way. Indeed, with MNEs moving more to a final assembly and a front-end, or customer sales focus this has been achieved – consider firms like UPS (www.ups.com). However, such a structure only partly satisfies the customer's demands. In addition, in the service related, or intangibles area there is great benefit, and competitive positioning possibilities, if a logistics provider can deliver a true 5PLP FADS logistics system. To deliver a 5PLP FADS logistics system the 4PLP must move to a higher level of logistics provision. It must master each of the four clusters. It must have a broad skills base and must overcome its own inadequacies including - knowledge and understanding deficiencies; appropriate IT, software and communication integration; web interface 'customerization', and the like. A 5PLP FADS logistics provider must bring new knowledge to the partnership, and the partnership must be lean, efficient and profitable for all parties.

In the future, logistics and outsourcing will approach the total logistics provider solution. The authors suggest this to be a 5PLP FADS model that delivers all the MNEs non-strategic (and even some strategic) requirements. In Australia, the major airline Qantas is one of many businesses that is segmenting their MNE, with each strategic business unit (SBU) capable of being outsourced, or being a logistics provider in itself. The 5PLP FADS model offers a new model applicable to such a move. It offers a future integrative and development path for logistics.

5. XYZ.com.au – An Example of a FADS Logistics Solution

The Australian company, termed XYZ.com.au for confidentiality reasons is a highly skilled Australian web portal company, founded in 1998. It is currently producing a leading edge FADS logistics solution for a major printing firm. It is now offering a new solution to an Australia-wide magazine. This on-line company has taken on all aspects of the magazine, and has added 'value' by combining it with its own leading edge web infrastructure and knowledge, on-line marketing and

distribution network and innovative flair. It now runs all aspects of this magazine, providing both the printing firm and the magazine shareholders with their required returns. XYZ.com.au is using its great skills mix to enhance the magazine, its reach and its on-line presence, and the shareholder body is seeing the benefits of a greatly enhanced, focused product.

6. Conclusion

A new age of global competition confronts the MNE and other large global businesses. MNEs must find new avenues to maintain competitive advantage. Past outsourcing moves have generated savings, but, as more and more businesses move along this path, opportunities for sustainable competitive advantage appear to diminish. There will always be logistics outsourcing improvements, especially in international settings, and by reviewing and clustering related skills levers, and relating these to logistics models, further advances to the development of logistics may be defined. The current 3PLP and 4PLP models alone will not provide 'sustainable' global competitiveness, as such options are readily copied. A new model is required. This paper suggests that development of a four cluster set of skills levers, and the combination of these levers into an enhanced 4PLP model for logistics outsourcing – may allow the development of a fully activated demand-supply 5PLP FADS chain logistics model to be realized.

The 5PLP FADS logistics provider must bring a unique, comprehensive skills-set (covering the four clusters of skills levers) to the MNE. A pathway towards 'sustainable' competitive advantage may then be forged between the 5PLP FADS logistics provider and its MNE partners. The 5PLP FADS logistics model is the next step in the progression to total logistics integration.

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