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Management guidelines for third-party logistics

Cover Page Footnote

The author wishes to acknowledge several 3PL professionals as well as Dr. Craig Carter of the University of Nevada, Reno for assisting with the direction and content of this paper.

MANAGEMENT GUIDELINES FOR THIRD-PARTY LOGISTICS

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ABSTRACT

There is a significant amount of useful yet fragmented research in third-party logistics (3PL). This article seeks to review, summarize, and structure this 3PL research to provide a reference guide for managers interested in exploring, building, or improving logistics outsourcing opportunities. Topics covered include reasons to outsource, functions to outsource, 3PL provider evaluation, implementation and relationship success factors, contracts, and performance measures.

INTRODUCTION

Third-party logistics (3PL) has become an effective tool for supply chain management. Synonymous with logistics outsourcing, 3PL involves external providers supplying multiple logistics functions to a user (Capgemini, Langley, and FedEx Supply Chain Services, 2003). Since its emergence in the 1980's, the concept has continued to grow as companies constantly seek to drive greater value from logistics in the form of lower costs and improved service levels (Lynch, 2004). Capgemini et al. (2004) indicate significant benefits from logistics outsourcing, including average reductions of 15 percent in costs, 16 percent in fixed assets, 7 percent in inventory, 5.4 days (from 12.2) in order cycle times, and 2.4 days (from 22.2) in cash cycles.

The 3PL industry is still rapidly expanding and maturing. Recent estimates put the North American 3PL market at around \$65-\$70 billion annually ("The North American 3PL Market," 2004). Multiple surveys indicate that approxi-

mately 80 percent of companies outsource at least some logistics functions, averaging 40 percent of their logistics expenditures (Capgemini et al., 2004; Lieb and Bentz, 2004a). It is clear that 3PL has established a strong foothold in industry.

Academic research in 3PL has also expanded over the last few decades, providing contributions across key topics of logistics outsourcing including drivers, services, success factors, and performance measurement. Despite this wealth of 3PL research, it is not easy to navigate, accumulate, and summarize the findings. 3PL relationships are too multi-faceted and complex to completely survey in a single study, so research projects tend to examine individual pieces of the 3PL puzzle. Some papers address reasons to outsource (Rao and Young, 1994; Bienstock and Mentzer, 1999), while others will investigate success factors or performance measures (Tate, 1996; Knemeyer and Murphy, 2004). Some examine service provider (i.e., seller) perspectives (Leahy, Murphy, and Poist,

1995; van Hoek, 2000), while others concentrate on user (i.e., buyer) views (Daugherty, Stank, and Rogers, 1996; Boyson, Corsi, Dresner, and Rabinovich, 1999). Even works that align in research focus do not always address the same variables due to the extent of potential considerations.

OBJECTIVES AND METHODOLOGY

Given the breadth and fragmentation of the 3PL literature, it is difficult to gain comprehensive insight into 3PL without a rigorous literature review. This potentially compromises the impact and usability of the 3PL research and may not effectively serve the needs of industry practi-

tioners who look to the literature for assistance with exploring, building, or improving 3PL opportunities. To address this problem, this article reviews and organizes more than 75 3PL published articles. It provides a structured summary of this previous research, organizing it by focus and findings to provide logistics managers with a centralized guide for exploratory consideration of key outsourcing topics.

The author has reviewed supply chain, logistics, and operations academic journals for 3PL related literature dating back to the origins of 3PL research in the early 1990's. The results are summarized relative to key 3PL topics (Table 1)

TABLE 1
DESCRIPTION OF TOPICS ASSESSED IN 3PL RESEARCH

Topic	Description	Sample Research Questions/Hypotheses
Reasons to Outsource	Motivations, drivers, and deterrents for outsourcing logistics functions	<ul style="list-style-type: none"> ▶ Why should (and should not) a 3PL user consider outsourcing logistics functions? ▶ What are the expected benefits of outsourcing logistics functions?
Services to Outsource	Logistics functions (e.g., transportation, warehousing, freight payment, etc.) that a 3PL user outsources	<ul style="list-style-type: none"> ▶ Which logistics functions could a 3PL user outsource? ▶ Which logistics functions do 3PLs offer? ▶ Which logistics functions are bundled together in outsourcing solutions?
Provider Evaluation	Process and criteria for selecting 3PL providers	<ul style="list-style-type: none"> ▶ Which factors should a 3PL user use to assess and select 3PL providers? ▶ How should a 3PL user assess and select 3PL providers?
Contracts	Important elements of 3PL contracts	<ul style="list-style-type: none"> ▶ What elements are critical to 3PL contracts? ▶ How should 3PL contracts be structured (e.g., duration, pricing, etc.)?
Success Factors (Implementation and Relationship)	Factors that affect the quality of the outcome (performance and satisfaction) of a 3PL relationship	<ul style="list-style-type: none"> ▶ What key elements support or deter the effective implementation (user and/or provider) of 3PL relationship? ▶ What key elements support or deter the effective performance and satisfaction (user and/or provider) of 3PL relationship?
Performance, Satisfaction	Measurement of performance and satisfaction outcomes related to a 3PL relationship	<ul style="list-style-type: none"> ▶ What measures of performance/satisfaction should a 3PL user use to assess 3PL relationships? ▶ What measures of performance/satisfaction should a 3PL provider use to assess 3PL relationships? ▶ What is the performance/satisfaction measurement process for a 3PL relationship?

including reasons to outsource (why and why not), services to outsource, 3PL provider evaluation, implementation success factors (including contracts), 3PL relationship success factors, and performance and satisfaction assessment.

For each topic, findings from the literature are presented comprehensively in a table with the most frequently cited items highlighted in bold to help readers focus attention within the extensive lists. While the volume of information precludes a complete discussion of each table, selected key items from each table are assessed and, subsequently, emerging trends are presented. Each section (and each table) is designed to stand alone if necessary to support each reader's individual interests. As an additional tool, Appendix A presents a summary of all the assessed research, facilitating further reader exploration into any of the conclusions presented.

The material presented can be used in several ways. For one, 3PL users can customize the lists and subsequent discussions as reference for their own outsourcing situations and opportunities. Likewise, 3PL providers can utilize the insights to both provide assistance to potential customers and support evaluation of relationships with their existing partners. Finally, industry and academic researchers can employ this paper as a centralized foundation to launch and direct future 3PL research.

RESEARCH IN THIRD PARTY LOGISTICS

The term "third-party logistics" evolved in the late 1980's (Sheffi, 1990) as an extension of contractual relationships between companies and external logistics providers. The delineation between a contractual and third-party relationship is somewhat unclear, but Murphy and Poist (2000, p. 121) offer a definition of 3PL as,

A relationship between a shipper and third party which, compared with basic services, has more customized offerings, encompasses a broader number of service functions, and is characterized by a

longer-term, more mutually beneficial relationship."

Research indicates that 3PL relationships reach beyond an arms-length, transactional basis to include key elements such as trust (Bowersox, 1990; Leahy, Murphy, and Poist, 1995) and interdependence (Zineldin and Bredenlow, 2003) that tend to be identified in partnership-like relationships.

Appendix A demonstrates that academic literature on third-party logistics has expanded to a significant volume. It is worthwhile to first highlight two initiatives that stand out due to scope and approach. The first, conducted by Bob Lieb of Northeastern University in association with Accenture, assesses 3PL industry views with both user and provider surveys on an annual basis. The user survey (Lieb and Bentz, 2004a) evaluates logistics executive perspectives of provider evaluation, services used, value, and satisfaction, while the provider survey (Lieb and Bentz, 2004b) analyzes 3PL provider outlooks of financials, selling, operational issues, and industry developments. The second primary 3PL research project is led annually by John Langley of Georgia Institute of Technology in conjunction with Capgemini and FedEx Supply Chain Services (Capgemini et al., 2004). Focusing on primary global logistics markets, this research evaluates market trends, services, challenges, value, and future directions. In their 10th and 9th consecutive years respectively, both the Lieb and Langley studies provide strong macro perspectives of 3PL industry trends and maturation. The following sections of this paper will incorporate these and other 3PL research papers to evaluate the individual key topics of logistics outsourcing.

Reasons to Outsource

As depicted in Table 2, many detailed, inter-related drivers influence the outsourcing decision (with the reasons most frequently identified in the literature distinguished in bold). This decision, however, is most often primarily driven by a combination of performance, cost, and

TABLE 2
REASONS TO OUTSOURCE

<p><u>Corporate Effectiveness, Productivity</u></p> <p>Capability range Control of processes, assets Expertise and experience JIT enablement Operating performance, productivity improvements Processes improvement, updating Productivity, resource sharing Time-to-market speed Supply chain re-design Supply chain visibility</p> <p style="text-align: center;"><u>Cost and Return</u></p> <p>Capital reduction, asset transfer, fixed to variable cost transfer Cost reduction Inventory reduction</p> <p style="text-align: center;"><u>Customer Service</u></p> <p>Customer contact control Delivery cycle times reduction Delivery reliability Service quality improvements</p> <p style="text-align: center;"><u>Corporate Focus</u></p> <p>Complexity reduction Centralized capability Focus on core business, competencies</p>	<p style="text-align: center;"><u>Expansion, Globalization</u></p> <p>Capacity increase Complexity of global network Expansion acceleration Geographic location</p> <p style="text-align: center;"><u>Flexibility</u></p> <p>Demand fluctuations, peaks accommodation Flexibility, response to change Risk reduction, sharing</p> <p style="text-align: center;"><u>Labor</u></p> <p>Corporate restructuring Inadequate resources Labor problems reduction Headcount reduction Personnel deployment (to provider) Personnel productivity</p> <p style="text-align: center;"><u>Qualitative Improvements</u></p> <p>Commitment, energy increases in non-core area Credibility and image improvement Innovation generation Organization transformation</p> <p style="text-align: center;"><u>Technology</u></p> <p>Data security Information quality improvement Technology, integration improvements</p>
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Bold indicates items most frequently cited by literature base.

service. Can an external provider do it better at higher service levels and/or at lower costs? From an operations perspective, users pursue improved logistics performance and productivity with the 3PL provider's focus and expertise (Greaver, 1999) as well as advanced functionality such as just-in-time (JIT) (Lynch, 2004). 3PL users also seek improved service levels for their customers (Sink, Langley, and Gibson, 1996; Sink and Langley 1997; Lambert, Emmelhainz, and Gardner, 1999) from factors such as delivery reliability (Maltz, 1994b) or cycle time reduction (Bot and Neumann, 2003). From a cost perspective, users look to lower the operational costs of the function as well as transfer assets to

the provider, allowing them to reduce fixed costs (Greaver, 1999; Zineldin and Bredenlow, 2003; Lynch, 2004). Often, a major focus of the cost reduction is on employee headcount (Daugherty, Stank, and Rogers, 1996; Sink, Langley, and Gibson 1996).

While performance, service, and cost remain primary outsourcing drivers, additional factors are emerging as important considerations. Global expansion is identified in the literature base as one key motivator of outsourcing (Razzaque and Sheng, 1998; House and Stank, 2001) in that 3PL providers can offer swift penetration to new markets, especially in high economic

growth areas such as China and India (Lieb and Bentz, 2004a). Users also cite enhanced flexibility with 3PL providers, enabling adaptation to rapidly changing demand and capacity events (Fernie, 1999; Skjoett-Larsen, 2000). Finally, technology presents another driver for outsourcing as users rely on providers' best practice technology to enhance information flow, quality, and security given rapidly and unpredictably changing technology options (Lieb and Randall, 1996; Gutierrez and Duran 1997; House and Stank 2001).

Even if many of the above, as well as additional conditions for outsourcing are identified, the decision is still not necessarily clear. Table 3 presents reasons to maintain logistics services in-house. Primarily, companies may be concerned with the loss of control over a function, especially one that is customer facing (Sohail and Sohal, 2003; Capgemini et al., 2004) or considered core (Greaver, 1999). Readers should note that increased control is also paradoxically listed in Table 2 as a reason to outsource. Also, outsourced processes are difficult to bring back in-house (Greaver, 1999), and users face anxiety regarding uncertainty of 3PL capabilities, effectiveness, and cost (Sohail and Sohal, 2003; Capgemini et al., 2004). Furthermore, since outsourcing generally leads to headcount reassignment and reduction, users should be aware of employee morale and job preservation issues (Greaver, 1999), which in some cases can lead to reduced commitment and increased likelihood of sabotage. Finally, users

who do not currently have control of logistics costs and processes (Greaver, 1999) should realize that outsourcing may not provide an effortless panacea for their problems.

Ultimately, the decision to outsource or not is generally made at the highest corporate levels (Mottley, 2005). Bearing in mind the numerous intentions to pursue and not pursue logistics outsourcing, achieving awareness, consensus, and communication of the reasons remains paramount both during initial decision-making and the provider evaluation processes. Users must systematically identify and address all outsourcing drivers, both positive and negative, then develop a documented position to guide internal resources. Some reasons can be addressed with a business case or ROI model, though qualitative considerations must also be weighed. Failure to consider and address all outsourcing reasons may lead to a lack of commitment and create a negative outsourcing implementation environment that will doom the project before it begins.

Services to Outsource

The decision to outsource or not corresponds directly with an assessment of which services to potentially outsource. Table 4 presents a list of logistics functions that a company may consider for outsourcing. Early outsourcing efforts focused on transportation and warehousing. Outsourced warehouse solutions have evolved from basic use of contract storage facilities to include not only

TABLE 3
REASONS TO NOT OUTSOURCE

<p style="text-align: center;"><u>Uncertainty, Anxiety</u></p> <p>Confidentiality compromise Difficulty to reverse Uncertainty of provider capabilities, service Uncertainty of change Uncertainty of estimating true provider costs Lack of understanding of existing costs, processes</p> <p style="text-align: center;"><u>Control</u></p> <p>Logistics a core function Loss of control</p>	<p style="text-align: center;"><u>Labor</u></p> <p>Employee commitment/morale loss, culture change Job preservation</p> <p style="text-align: center;"><u>Relationships</u></p> <p>Customer impacts Desire to maintain vendor relationships Relationship building difficulty</p>
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Bold indicates items most frequently cited by literature base.

TABLE 4
LOGISTICS FUNCTIONS/SERVICES TO OUTSOURCE

<p style="text-align: center;"><u>Transportation</u></p> <p>All functions (outbound and/or inbound) Carrier contracting Carrier performance measurement Fleet operations, maintenance Freight audit, payment Freight rate negotiations, carrier selection Freight, shipment consolidation Shipment planning, tendering, routing, scheduling Tracking, tracing</p> <p style="text-align: center;"><u>Inv. Mgmt, Warehousing</u></p> <p>Inventory control, replenishment Inventory ownership Kitting Slotting, layout Warehousing, warehouse management</p> <p style="text-align: center;"><u>Manufacturing, Assembly</u></p> <p>Assembly, configuration Contract manufacturing Customization</p>	<p style="text-align: center;"><u>Order Mgmt., Distribution</u></p> <p>Cross-docking Distribution communication Expedited delivery Merge-in-transit Order fulfillment Order entry, processing Order picking, packing, fulfillment Packaging, labeling Pickup and delivery</p> <p style="text-align: center;"><u>Customer Service</u></p> <p>After-sales service Billing Customer installation Customer service Returns, reverse logistics Spare parts, repairs</p> <p style="text-align: center;"><u>Network, Facilities</u></p> <p>Distribution network strategy, design Facility financing, construction Facility location</p> <p style="text-align: center;"><u>Supply Chain Management</u></p> <p>4PL, lead logistics services All supply chain functions Consulting Performance reporting Supply chain integration</p>	<p style="text-align: center;"><u>International</u></p> <p>Bonded warehousing Export licensing assistance Export operations, freight forwarding Import operations, customs brokerage, clearance Intl. distribution Intl. shipping Intl. sourcing Intl. communications Letter of credit compliance</p> <p style="text-align: center;"><u>Technology</u></p> <p>eCommerce initiatives EDI Systems, technology operations Software selection Wireless communications</p> <p style="text-align: center;"><u>Other</u></p> <p>Financial services Forecasting Materials procurement MRO purchasing Packaging design Product life-cycle mgmt. Product testing Relocation Value-added services Vendor-managed inventory</p>
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Bold indicates items most frequently cited by literature base.

inventory planning and control but also distribution functions such as order management, picking, packaging, and delivery (Murphy and Poist, 2000; Sohal, Millen, and Moss, 2002). Related to transportation, some users opt to outsource specific steps in the process such as rate negotiations, shipment consolidation, planning and tendering, and freight audit and payment (Gunasekaran and Ngai, 2003; Caggemini et al., 2004; Lieb and Bentz, 2004a). Users may also opt for a fully outsourced (outbound and/or inbound) transportation solution (Caggemini et al., 2004; Lieb and Bentz, 2004a), including procurement,

planning, and execution. Fleet management is another transportation function frequently mentioned in the 3PL literature (Sheffi, 1990; Rabinovich, Windle, Dresner, and Corsi, 1999). The 2004 Lieb/Accenture (2004a) study indicates that warehouse management, rate negotiations, and shipment consolidation are the highest impact outsourced logistics services relative to cost, with warehouse management and order fulfillment delivering the best service improvements.

Looking beyond warehousing and transportation, several niche areas of logistics have gained

prominence for outsourcing recently. Freight-forwarding and customs brokerage activities (Sink, Langley, and Gibson, 1996; Murphy and Poist, 2000) are targets due to the growing regulatory complexity of international trade. Reverse logistics activities, including returns, repairs, and disposal (Sink and Langley, 1997; van Hoek, 2000) offer opportunities to minimize costs associated with these often overlooked cost-centers. Furthermore, companies have sought to jumpstart technology through outsourcing (Sheffi, 1990; Piplani, Pokharel, and Tan, 2004), especially relative to eCommerce channels (Sink, Langley, and Gibson, 1996; Gunasekaran and Ngai, 2003) and radio frequency identification (RFID) (Lieb and Bentz, 2004b). Finally, 4th party logistics (4PL), also referred to as lead logistics provider (LLP), involves outsourcing the entire management of all or most logistics suppliers and providers (Marino, 2002; Lieb and Kendrick, 2003). The concept has not seemed to gain significant traction in industry, however.

As Table 4 reveals, the literature base has essentially identified any and all logistics functions as candidates for 3PL. The big concern is to develop a clear understanding of how outsourcing some functions will impact the control and effectiveness of other functions. Even if users are only considering outsourcing a few functions, they should review a complete list to assess potential synergies and drawbacks with other in-house functions. To capture the value of supply chain integration, there is currently a movement towards larger scale solutions that incorporate numerous functions (Lieb and Bentz, 2004a), especially related to door-to-door delivery of international shipments. Likewise, the Langley study (Cappemini et al., 2004) indicates that users expect a wide, comprehensive set of functionality and advises that the providers are not keeping up with user demands for services. In a cautionary tone, Murphy and Poist (2000) found that providers and users were not aligned in services offered versus used.

3PL Provider Evaluation

Given a decision to outsource, companies must carefully assess potential 3PL partners. Table 5 catalogs provider evaluation factors and, similar to the reasons to outsource, cost (Boyson et al. 1999; Laarhoven, Berglund and Peters 2000) and service (Menon, McGinnis, and Ackerman, 1998; Hong, Chin, and Liu 2004) generally dominate selection criteria. The most recent Lieb/Accenture (2004a) study indicates that cost most often governs initial selection of 3PL providers, but service most influences contract renewals. Maltz (1994b) found that outsourcing of warehousing tends to be driven more by service than cost. Beyond cost and service, users must consider 3PL provider capability from multiple perspectives such as range and customizability of services offered (Bhatnagar, Sohal, and Millen 1999; Sohail and Sohal 2003), size (Boyson et al., 1999), facilities and equipment (Lynch 2004), technology (Sink and Langley 1997; Razzaque and Sheng 1998), and quality improvement processes (Razzaque and Sheng, 1998). Since management expertise and depth are important, the experience, strength, and structure of provider management will also influence evaluation (Menon, McGinnis, and Ackerman, 1998; Laarhoven, Berglund, and Peters, 2000). Finally, users should evaluate the potential future success of the relationship by looking at key factors such as strategic direction, financial stability, culture, and compatibility (Boyson et al., 1999; Lynch, 2004).

Given the multitude of evaluation factors that span the scale from quantitative to qualitative, identifying the best 3PL partner can be a complex process, requiring a thorough understanding of the 3PL marketplace and a meticulous selection approach (Razzaque and Sheng 1998). Uncertainty of 3PL capabilities will constantly overshadow the selection process. Thus, 3PL providers must not only educate potential customers on expected benefits

TABLE 5
3PL PROVIDER EVALUATION FACTORS

<u>Price</u>	<u>Staff</u>
Performance incentives	Ethics
Price of services	Experience, staff quality
ROI	HR policy
	Management structure, strength, depth
	Professionalism
<u>Provider Capability</u>	<u>References, Reputation</u>
Certification	Current customer base, references, and lost customers
Customer service capability	Industry reputation
Customized services	Personal knowledge of provider
Facilities, equipment	Prior relationships with provider
International capability	Reputation
Operating model (remote, on-site)	
Operational Capability	<u>Technology</u>
Project management	Data detail, quality
Quality improvement process	Systems flexibility, capacity, compatibility
Security	Technology, information systems
Range of services	
Best practice, knowledge sharing	<u>Flexibility</u>
Size	Operating flexibility
Support services	Pricing flexibility
	Problem-solving creativity
<u>Service</u>	Responsiveness to contingencies
Service compatibility	
Service quality	<u>Direction</u>
Service reliability	Corporate fit, culture compatibility
Service speed	Financial stability
	Growth potential
<u>Logistics Network</u>	Long-term relationship opportunity
Asset vs. non-asset model	Risk
Capacity	Strategic direction, vision
International scope	
Location	
Network/coverage	

Bold indicates items most frequently cited by literature base.

(Razzaque and Sheng 1998) but also demonstrate verifiable capabilities. Internal documentation and client references are extremely important. Providers should also realize that the user options often include keeping the process in-house as the user is essentially comparing internal capabilities with that of the 3PL market. When the decision path is not clear, the user firm will frequently default to keeping the services in-house. As a final note, users should maintain a thorough and documented evaluation methodology, including selection criteria, weigh-

ing of this criteria, and subsequent assessments of providers. For aspects that may be difficult to measure, such as fit or service levels, it may be helpful for multiple resources at the user company to qualitatively evaluate potential providers relative to a minimally acceptable level. Like assessing the decision to outsource, building a time-phased return on investment model (ROI) can also help identify leading provider candidates, but users should be wary of over-focusing on cost.

Contracts and Implementation Success Factors

Implementation success factors and contracts go hand-in-hand, so these topics are discussed together. First, critical success factors for implementing 3PL relationships are presented in Table 6. To start, a joint, rigorous definition of requirements and service levels is paramount for setting the performance baselines and expectations (Sohal, Millen, and Moss, 2002; Capgemini et al., 2004). This is complemented by definition of roles and responsibilities (Bowersox, 1990; Lieb, Millen, and Van Wassenhove, 1993) and operations processes and standards (Razzaque and Sheng 1998; Lynch 2004). Communication of accurate promises of capabilities is also critical (Ackerman, 1996). Furthermore, focus and timing are complex issues as the literature points to both a limited initial roll-out (House and Stank, 2001) that focuses on core competencies (Leahy, Murphy, and Poist, 1995; Murphy and Poist, 2000) and a long-term focus (Stank and Daugherty, 1997; Gunasekaran and Ngai 2003) with a migration plan towards advanced services (Capgemini et al., 2004).

The contract defines the basis for the relationship between the 3PL provider and user. While most providers will have a standard contract template, some customers push for their own version. Regardless of who establishes the contract, many key elements must be present to protect all parties (Table 7). For one, responsibilities for both sides, not just the 3PL, must be clear (Boyson et al., 1999; Lynch, 2004), as should the scope of services and performance metrics with target levels (Greaver, 1999). Standard financial factors, including prices and payment, are a necessity (Boyson et al., 1999), but an unbiased methodology should also be included to account for price modifications given uncontrollable market supply/demand conditions (Lynch 2004). Since conflicts and issues may emerge, the contract should also include dispute mechanisms, a thorough termination clause, and allocation of liabilities (Boyson et al., 1999).

Given the complexity of the contract and success factors, the implementation of outsourced logistics functions must be a mutual and coordinated process (Greco, 1997), especially given that it sets the tone for the future operating relationship. Since the provider

**TABLE 6
CRITICAL IMPLEMENTATION SUCCESS FACTORS**

<u>Requirements Alignment</u>	<u>Focus and Timing</u>
Accurate capability promises, communication	Focus on core competency
Clear operating standards, procedures, rules, policies	Limited initial roll-out
User systems understanding	Limited, defined scope of operations
User understanding of provider operations	Long-term focus
Definition of requirements, expectations, service levels	Migration toward advanced services
Definition of roles, responsibilities and boundaries	Reasonable timing (relative to business, market conditions)
	Sufficient implementation time
	<u>Training</u>
	Process training
	Technology training
	<u>Contract</u>
	Accurate, complete contract
	Separation, change options and strategy
	<i>See Table 7</i>

Bold indicates items most frequently cited by literature base.

TABLE 7
KEY 3PL CONTRACT CONSIDERATIONS

<u>Responsibilities</u>	<u>Term</u>
Provider responsibilities, obligations	Contract length, term
User responsibilities	
Decision rights	<u>Financial</u>
Description of processes	Cost, price of services
Description of scope of services	Cost, price changes
Factors of production (people, facilities, equipment, technology, other assets)	Gain-sharing
Reporting	Payment method, terms
Technology, intellectual property	Under, Overcharges
Volume commitments	<u>Dispute, Termination</u>
<u>Performance</u>	Arbitration
Non-compliance penalties	Dispute mechanisms
Performance metrics, service levels	Termination clause (with rights, ownership)
	<u>Risk, Liability</u>
	Loss, damage
	Insurance, allocation of liabilities

Bold indicates items most frequently cited by literature base.

generally retains more implementation expertise than the user, the onus falls on the provider to guide the process. Key phases will often include discovery (during which the provider collects detailed requirements), solution development, testing, training, and rollout. To guide these phases, the 3PL should maintain repeatable and standardized yet customizable documentation that defines implementation processes, timing, deliverables and roles and responsibilities. The provider must also prepare documentation to guide both provider and the user through the discovery phase to explore current operating procedures, gather historical data, and determine service baselines. Although the 3PL may drive the implementation process, the user must maintain significant participation with a committed, open attitude.

Success Factors - 3PL Relationships

Once implementation is complete, there is a multitude of critical success factors for maintaining effective 3PL relationships (Table 8). Many of the most frequently cited 3PL relationship success

factors deal with alignment between the 3PL and user. Examples include benefit and risk sharing, commitment honoring, cultural fit, and goal congruence (Bowersox, 1990; Knemeyer, Corsi and Murphy, 2003; Zineldin and Bredenlow, 2003). The provider must not only maintain a complete understanding of requirements and be responsive to the user, but also adapt as these needs change (Leahy, Murphy, and Poist, 1995; Murphy and Poist, 2000). On the user side, employee sabotage instigated by layoffs and reassignments will prove detrimental to the 3PL relationship, so management must preserve worker morale, cooperation, and commitment (Bardi and Tracey, 1991; Ackerman, 1996). Top management support (Razzaque and Sheng, 1998) and subsequent involvement at all levels (Bowersox, 1990) will provide valuable support here.

While technology should be both best practice and customizable (Sohal, Millen, and Moss, 2002; Capgemini et al., 2004), two-way as well as internal communication (including feedback) information sharing, and dispute resolution are also

TABLE 8
SUCCESS FACTORS FOR MAINTAINING 3PL RELATIONSHIPS

<u>Provider Capability</u>	<u>Working Relationship</u>	<u>Alignment</u>
Clear advantage	Compatibility	Benefits, risks sharing
Economies of scale	Commitment	Commitment honoring
Expertise	Conflict resolution, friction points identified	Cultural understanding and fit
Financial strength	Convenience	Expectations communication (internal, external)
Flexibility, innovation	Dependability, reliability	Goal, objective alignment, strategic fit
Localization	Empathy, attachment	Investment (non-retrieval resource commitment)
Network coverage	Fairness, reciprocity	Symmetry, equity
Number of services	Interdependence	
Responsiveness to user	Knowledge transfer	
Understanding user operations, needs	Lack of opportunism	
	Loyalty	
	Mutual integrity	<u>Tools</u>
<u>User Capability</u>	Mutual respect	Timely information, data
Clear outsourcing strategy	Openness, honesty	Two-way, consistent, rich communication and feedback
Cooperation, commitment (no sabotage)	Trust	User control
Deployment of buyer personnel	Willingness to make relationship work	Employee empowerment
Involvement at all levels		Internal communication
Management strategy, process for provider	<u>Performance, Effectiveness</u>	Joint operating controls
Personnel motivation, reward	Provider profitability	Joint planning
Processes in order	Cost savings realization	Joint process improvement
Top management support	Ease of doing business	Performance measurement, criteria
	Effective financial arrangement	
<u>Technology, Data</u>	Focus on user	
Data quality, usability	Service consistency	
Proprietary info. sharing	Service quality	
Best practice technology		
Technology integration, customization, fit		

Bold indicates items most frequently cited by literature base.

critical to the relationship (Leahy, Murphy, and Poist 1995; Zineldin and Bredenlow, 2003). Likewise, cooperative processes should be in place to manage operational controls, planning, process improvement (Lambert, Emmelhainz, and Gardner 1999; Capgemini et al., 2004), and performance measurement (Lieb and Randall, 1996; Sohal, Millen, and Moss, 2002). Although specific performance measures will be discussed in the next section, the literature addresses several important general performance outcomes led by cost realization as well as service quality and consistency (Leahy, Murphy, and Poist,

1995; Razzaque and Sheng, 1998). Many qualitative relationship factors are also cited in the literature with trust (Tate, 1996; Knemeyer, Corsi, and Murphy, 2003) being the most prominent. Reliability (Murphy and Poist, 2000), fairness (Tate, 1996), loyalty (Lynch, 2004), integrity (Zineldin and Bredenlow, 2003), respect (Bot and Neumann, 2003), and openness (Razzaque and Sheng, 1998) are also among the cited qualitative aspects.

With many diverse critical success factors, 3PL relationships can be difficult to manage. Active

participation is required at multiple levels on both the provider and user sides. Since the provider's business thrives on pleasing the customer, their motivation is clear. Participation on the user side can be a concern, however. While the effectiveness of the user's business relies on the success of the provider's operations, users still may not provide required levels of participation due to the aforementioned problems of support and commitment. Another significant challenge in a 3PL relationship is for both parties to understand the relative importance of the success factors. Alignment of expectations, operations, performance, and the relationship are crucial to an effective 3PL environment, yet this congruence is often difficult to measure. While Murphy and Poist (2000) find a high degree of similarity of goal congruence between providers and users, partners should not overlook the need to assess mutuality of success factors, however, since all 3PL relationships are unique.

Performance and Satisfaction Assessment

The last critical topic of 3PL is the assessment of performance and satisfaction. As discussed in the previous section, performance measurement is cited frequently in the literature as a 3PL critical success factor. Table 9 organizes performance measures cited by the literature based on the ability to quantify these measures. The literature tends to focus on logistics effectiveness and return. Key items, including customer service levels (Boyson et al., 1999; Lambert, Emmelhainz, and Gardner, 1999), geographic coverage (Hong, Chin, and Liu, 2004; Knemeyer and Murphy, 2004), labor (Hong, Chin, and Liu, 2004; Knemeyer and Murphy, 2004), capital investment (Sohal, Millen, and Moss, 2002; Capgemini et al., 2004), and supply chain performance (Sohail and Sohal, 2003; Lynch, 2004) may be relatively straightforward to quantify and can become part of corporate-wide measures. Other items, such as logistics flexibility and expertise (Lieb and Randall, 1996; Sink and Langley, 1997), are more difficult to quantify as are focus (Sink and Langley, 1997) and technology (Capgemini et al., 2004;

Knemeyer and Murphy, 2004). The literature also suggests numerous indicators of 3PL provider service quality to the user, some of which revolve around proactive handling of service exceptions and mistakes (Daugherty, Stank, and Rogers, 1996; Knemeyer, Corsi, and Murphy, 2003; Hong, Chin, and Liu, 2004).

Performance is a major but not comprehensive component of overall relationship satisfaction, so user satisfaction should also be measured. Macro indications of 3PL industry satisfaction tend to be mostly positive as several studies indicate that users appear to be relatively satisfied with their 3PL use (Murphy and Poist, 2000; Capgemini et al., 2004; Lieb and Bentz, 2004a). However, the Langley study (Capgemini et al., 2003) warns of a gap between actualized versus expected success and indicates that generally users desire more enhanced offerings than what is currently available for global solutions and supply chain integration. The 2004 Lieb/Accenture (2004a) study reports declining levels with some 3PL user performance measures including cost, service, satisfaction, morale, and supply chain integration. While no definite trends of problems have been identified, 3PL outsourcing participants should remain alert to the potential escalation of problems as their relationships become more sophisticated. As a final note, measurement of 3PL provider satisfaction should not be ignored since it may impact commitment to the user. The Lieb/Accenture (2004b) study indicates 3PL providers are becoming more selective of customers due to eroding profitability driven in part by significant pricing pressures.

Several key inferences may be drawn from the above discussion of performance and satisfaction measurement. For one, performance measures should at least initially be closely tied to the original reasons for outsourcing. Focus should be placed both on quantitative and qualitative measures as appropriate to recognizing the outsourcing goals. The quantitative measures should be automated as much as possible, and the qualitative factors can be assessed periodically with surveys or focus groups. Like

TABLE 9
3PL PERFORMANCE MEASURES

Area	Highly Quantifiable	Moderately Quantifiable	Difficult to Quantify
Logistics Effectiveness	Cash cycles Customer service levels Geographic coverage Inventory levels Logistics system responsiveness Loss and damage Operational efficiency Order cycle time Product, service availability Supply chain performance	Cost control Customer satisfaction Flexibility, change Movement from push to pull Post-sales customer support Risk Specialized services	Competitive advantage Logistics expertise, market knowledge
Service (to User)	Error rates Notification of service issues Performance reporting Service exception handling	Mistake recovery Responsiveness Transition satisfaction Value analysis assistance	Personnel quality
Return, Cost	Capital, asset investment Labor base, cost Price stability Total cost	Return on investment (cost, service) Technology cost	
Focus		Ability to focus on core business Employee morale Reduced time spent on logistics	
Technology		Access to data eBusiness capability, support Logistics systems, technology capability	

Bold indicates items most frequently cited by literature base.

the relationship success criteria in the previous section, it is critical for the provider and user to be aligned relative to the importance of the performance measures and actively engage in joint performance reporting and review, regardless of who owns responsibility for the measurement process. Furthermore, performance results should be communicated relative to expectations on both sides and should also drive formalized, joint continuous process improvement efforts.

CONCLUSIONS

The 3PL industry continues to grow (Capgemini et al., 2004; Lieb and Bentz, 2004a), and academia has offered valuable research to support this expansion. Given its spread, however, this literature is not necessarily easily usable for practitioners. This article has sought to address this opportunity by reviewing and organizing the 3PL literature base, focusing on key topics including outsourcing reasons,

services to outsource, 3PL provider evaluation, implementation success factors, contracts, relationship success factors, and performance measurement. It fundamentally provides a centralized reference for readers to better navigate the findings from the wealth of academic research. Although this paper has comprehensively summarized the literature base, readers should be aware that the tables and discussions presented here still do not exhaust all possible considerations.

Selecting and implementing 3PL is a long and complex process that can potentially lead to significantly rewarding or disastrous results. Details can make or break the success of a 3PL relationship, so users must be extremely thorough throughout the process to enable the

best chance of success. While there is some degree of replicability among 3PL relationships across different companies, each will be unique to some extent. To maximize the potential success of their 3PL endeavors, users should gather as much intelligence as possible to customize their own requirements. Readers should consider this paper as one source of such intelligence and use it as a gateway to more than 75 other academic 3PL works.

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APPENDIX A SUMMARY OF 3PL RESEARCH

Paper	Year	Methodology	Reasons to Outsource	Services to Outsource	Provider Evaluation	Contracts	Success Factors	Performance, Satisfaction
Ackerman	1996	Conceptual					Y	
Aertsen	1993	Conceptual		Y				
Aghazadeh	2003	Case					Y	
Bardi and Tracey	1991	Survey (Buyer)	Y	Y			Y	
Bask	2001	Conceptual					Y	
Bhatnagar et al.	1999	Survey (Buyer)	Y	Y	Y		Y	Y
Bolumole	2001	Conceptual	Y					
Bolumole	2003	Conceptual	Y					
Bowersox	1990	Case(s)	Y				Y	
Boyson et al.	1999	Survey (Buyer)	Y	Y	Y	Y	Y	Y
Capgemini et al.	2003	Survey (Buyer)	Y	Y	Y	Y	Y	Y
Capgemini et al.	2004	Survey (Buyer)	Y	Y	Y	Y	Y	Y
Choy and Lee	2002	Case(s)			Y			
Dapiran et al.	1996	Survey (Buyer)	Y	Y	Y	Y	Y	Y
Daugherty et al.	1996	Survey (Buyer)					Y	Y
Daughtery and Droge	1991	Survey (Buyer)	Y	Y				
Fernie	1999	Survey (Buyer)	Y	Y	Y	Y		Y
Foggin et al.	2004	Conceptual			Y			
Gunasekaran and Ngai	2003	Case(s)		Y			Y	
Gutierrez and Duran	1997	Survey (Buyer)	Y	Y				Y
Halldorsson and Skjott-Larsen	2004	Conceptual	Y		Y		Y	
van Hoek	2000	Survey (3PL)		Y		Y	Y	Y
van Hoek	2001	Survey (3PL)	Y	Y				Y
Hong et al.	2004	Survey (Buyer)		Y	Y	Y	Y	Y
House and Stank	2001	Case(s)	Y	Y			Y	
Knemeyer et al.	2003	Survey (Buyer)		Y			Y	Y
Knemeyer and Murphy	2004	Survey (Buyer)		Y			Y	Y
Knemeyer and Murphy	2005	Survey (Buyer)		Y			Y	Y
Laarhoven et al.	2000	Survey (Buyer)	Y	Y		Y	Y	Y
Lambert et al.	1999	Case(s)	Y				Y	Y
Leahy et al.	1995	Survey (3PL)		Y			Y	Y
Lieb	1992	Survey (Buyer)	Y	Y	Y	Y	Y	Y
Lieb et al.	1993	Survey (Buyer)	Y	Y	Y	Y	Y	Y
Lieb and Randall	1996	Survey (Buyer)	Y	Y	Y	Y	Y	Y
Lieb and Randall	1999	Survey (3PL)		Y		Y	Y	
Lieb and Kendrick	2003	Survey (3PL)	Y	Y			Y	
Lieb and Bentz	2004	Survey (Buyer)		Y			Y	Y
Lieb and Bentz	2005	Survey (Buyer)		Y		Y		Y
Logan	2000	Conceptual				Y	Y	
Maltz et al.	1993	Survey (Buyer)		Y				
Maltz (a)	1994	Survey (Buyer)	Y					
Maltz (b)	1994	Survey (Buyer)	Y					Y
Maltz and Ellram	1997	Conceptual	Y					
Maltz and Ellram	2000	Survey (Buyer)	Y	Y				
Meade and Sarkis	2002	Conceptual			Y			
Menon et al.	1998	Survey (Buyer)			Y			Y
Millen et al.	1997	Survey (Buyer)	Y	Y	Y	Y	Y	Y
Moberg and Speh	2004	Survey (Buyer)			Y			
Moore	1998	Survey (Buyer)					Y	
Murphy and Poist	1998	Survey (Buyer)		Y				
Murphy and Poist	2000	Survey (Buyer, 3PL)		Y			Y	Y

Paper	Year	Methodology	Reasons to Outsource	Services to Outsource	Provider Evaluation	Contracts	Success Factors	Performance, Satisfaction
Piplani et al.	2004	Survey (3PL)		Y	Y		Y	
Rabinovich et al.	1999	Survey (Buyer)	Y	Y				
Rao et al.	1993	Case(s)	Y	Y				
Rao and Young	1994	Case(s)	Y					
Razzaque and Sheng	1998	Conceptual	Y		Y		Y	
Sankaran et al.	2002	Case(s)				Y		
Sauvage	2003	Survey (3PL)					Y	
Sheehan	1989	Case(s)	Y		Y			
Sheffi	1990	Conceptual	Y					
Sink et al.	1996	Case(s)	Y		Y			
Sink and Langley	1997	Survey (Buyer)	Y	Y	Y		Y	Y
Sinkovics and Roath	2004	Survey (Buyer)					Y	Y
Skjoett-Larsen	2000	Case(s)	Y				Y	
Sohail and Sohal	2003	Survey (Buyer)	Y	Y	Y	Y	Y	Y
Sohal et al.	2002	Survey (Buyer)		Y			Y	Y
Stank and Daugherty	1997	Survey (Buyer)					Y	
Stank et al.	2003	Survey (Buyer, 3PL)					Y	Y
Sum and Teo	1999	Survey (3PL)			Y		Y	Y
Tate	1996	Case(s)					Y	
Vaidyanathan	2005	Conceptual	Y					
van Damme and Van Amstel	1999	Conceptual	Y		Y		Y	
Vickery et al.	2004	Survey (Buyer, 3PL)					Y	Y
Virum	1993	Case(s)	Y				Y	
Wilding and Juriado	2004	Survey (Buyer)	Y	Y			Y	Y
Zineldin and Bredenlow	2003	Case(s)					Y	

AUTHOR BIOGRAPHY

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