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Risk management and the stratification of logistics service provision

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1. Introduction

This paper stems from a research project undertaken between 2007 and 2010. It discusses the development of supply chain management together with the understanding of the impact of supply chain risk. It gives an overview of the increasing stratification of service provision from first part logistics to joint service consortia and proposes a model balancing risk with service provision.

2. Review of relevant literature

For definition purposes, Heywood (2001) suggests logistics outsourcing may be defined as 'the transferring of another business function or functions, plus any associated assets, to an external supplier or service provider who offers a defined service for a specified period of time, at an agreed but probably qualified price.' In this context, *risk* is the term given to the potential of failing to generate value and / or creating loss on behalf of the customer or service provider.

2.1. Outsourcing risks

The era of supply chain management supports the '4 R's' espoused by Christopher (2010) which include *reliability* and *responsiveness*, and rely on the modern supply chain being sufficiently agile to cope with unanticipated events. Christopher (2010) describes the concept of *co-makership* within outsourced relationships whereby the client no longer seeks abdication of responsibility (described by Rinsler, 2005) but rather a mutually beneficial relationship with the supplier.

Ritchie and Brindley (2007) describe how risk and supply chain performance are inter-connected and supply chain management (SCM) should evaluate the risk of changing structures and relationships prior to introducing change into the chain. As organisations rely to a greater degree on their supply chains as a platform for competitive advantage, so the presence of risk in the chain has an increasing impact and has led to the development of the supply chain risk management (SCRM) approach (Narasimhan & Talluria, 2009). The study by (Narasimhan & Talluria, 2009) illustrated the three organisational practices of *internal integration*, *external integration* with key suppliers and customers as well as *external flexibility* as being key to flexibility and supply chain agility and therefore risk mitigation. Subsequently, and as Stemmler (2010) notes, this increased level of integration and co-operation in the supply chain generates new risk categories forcing the traditional view of risk management to explore new areas outside of the historic boundaries of the traditional supply chain.

In terms of risk, (Lonsdale and Cox, 1998) describe nine typical risks to the client by outsourcing which include *loss of internal coherence* and *loss of strategic flexibility*. Staff (2004) illustrates some 40 outsourcing risks amongst four headings. The second heading 'outsourcing implementation risks' includes *not establishing an outsource relationship that has sufficient flexibility to deal with business fluctuations* and *initiating an agreement with a service provider that limits flexibility in the future*. Harland (2005) looked at the benefits and risks of outsourcing on an organisational, sector and national level and comments that one of the risks/disadvantages of outsourcing on an organisational level is the difficulty in *deciding how close to core* outsourcing should get. Aron, Clemons and Reddi (2005) took a different approach with their taxonomy of outsourcing risks, describing strategic risks which included the problem of *opportunistic behaviour*, *operational risks*, the *intrinsic risks of atrophy* and finally the *intrinsic risks of location*.

As Juttner (2005) states, supply chain strategies are inevitably trade-off decisions between supply chain performance and vulnerability. The identification and listing of risk in the outsourced supply chain serves to illustrate that supply chains are complex systems of inter-locking networks and as Peck (2010) suggests, mitigation strategies should call for a more holistic approach towards risk management.

The business process outsourcing risk management puzzle by Shi (2007), illustrated in fig 1, describes the bottom line impact to a client organisation that the outsourcing process could have.

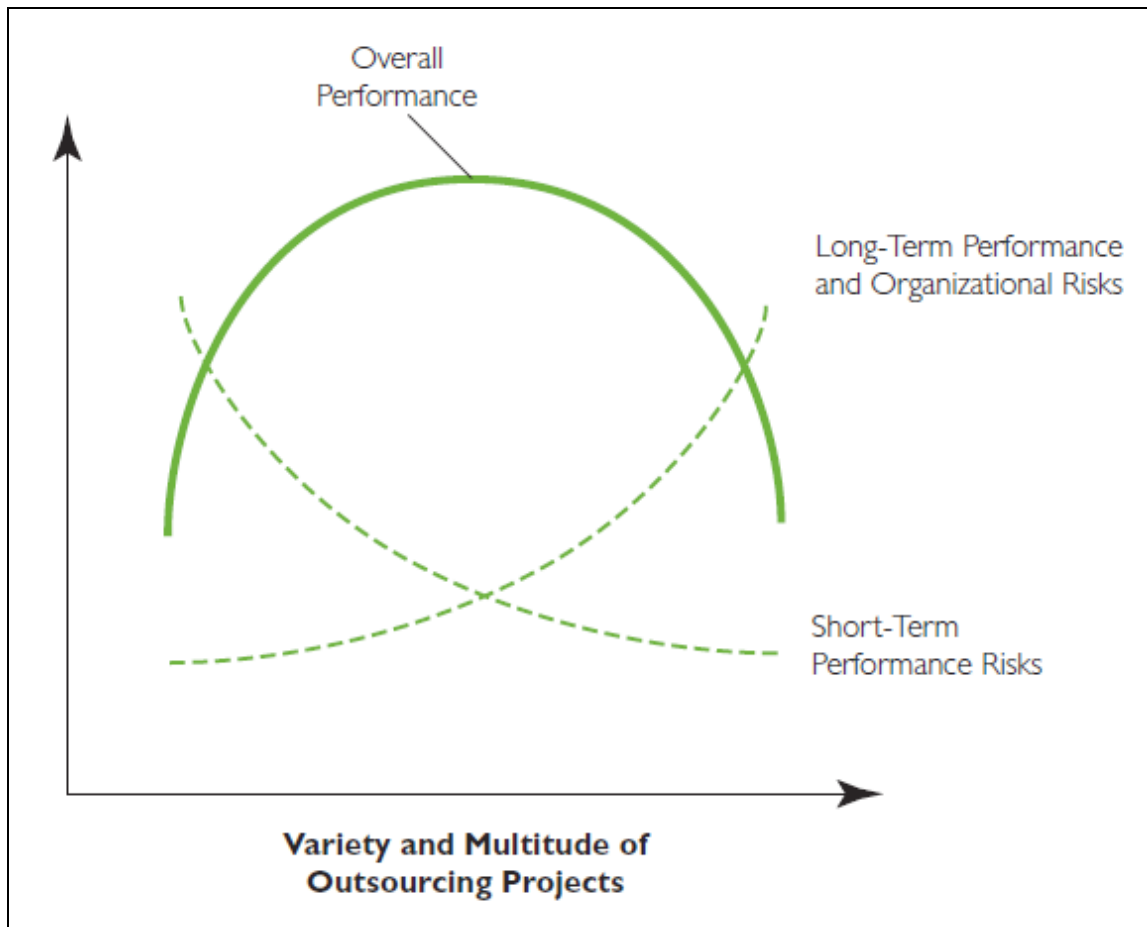


Figure 1 the BPO Risk Management Puzzle and Client Firm Performance, Shi (2007)

The risk management puzzle reminds the client that the impact of outsourcing extends into the future and that *today's solution* may be *tomorrow's problem*.

Harland et Al (2005) notes that it is the responsibility of the client to ensure their management teams are trained, experienced and empowered to develop agile, risk averse collaborative management approaches but there remains little guidance for organisations over *what* and *how much* to outsource and a general lack of skills and expertise to do it. The logistics sector is an unregulated selling space, which supports Harland's views which are further evidenced by a lack of specific logistics contract management qualifications nor textbook logistics style contracts.

2.2. Outsourcing options

The logistics outsourcing market offers a range of solutions to clients, ranging vertically from 1st party logistics (1PL) through to Joint Services Companies (JSC) requiring an equally diverse horizontal set of solutions and implications for asset management from fully own account through to complete external management solutions.

During the 1980's, third party logistics (3PL) services emerged as a business solution offered by providers and heralded the beginning of the era where service providers classified and stratified their commercial offerings. 1PL, 2PL and Prime Asset Provider solutions were swiftly defined and fig 2 illustrates the plethora of logistics solutions available from a sector that has developed markedly in the intervening period to present day.

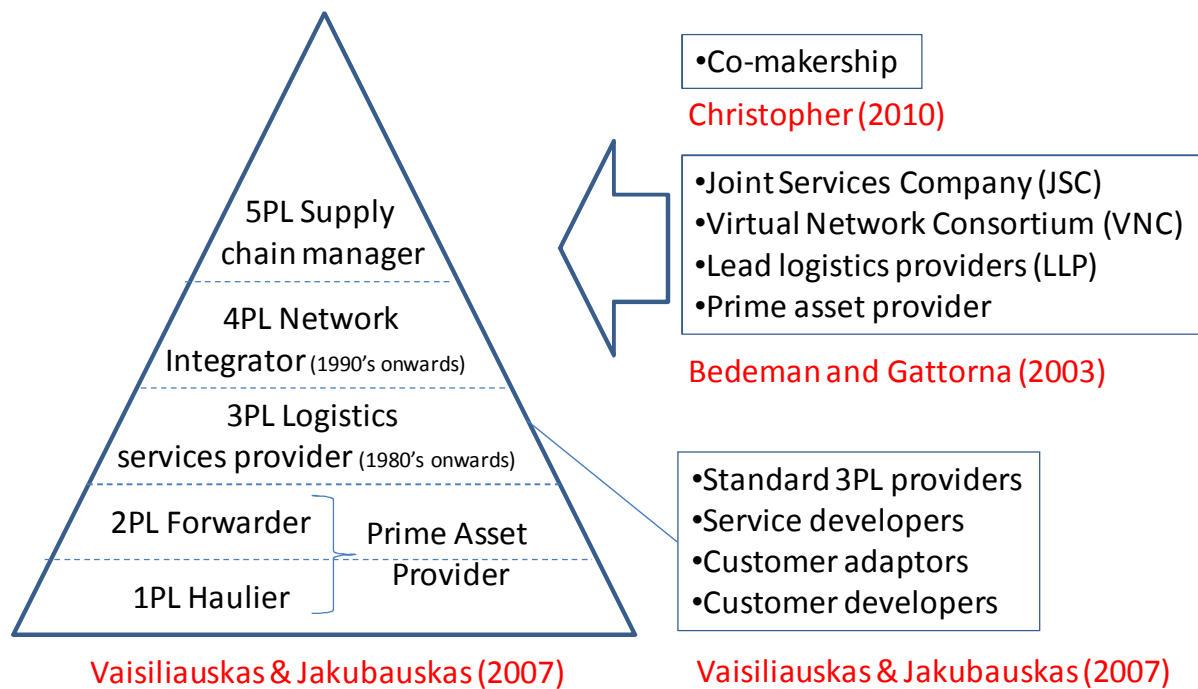


Figure 2 Types of supply chain outsourcing arrangements

There are several iterations of 3PL as Vaisiliauskas and Jakubauskas (2007) describe; the *service developers*, the *customer adaptors* and finally the *customer developer*.

In the late 1996, Accenture registered the trade mark term *fourth party logistics* (4PL) and defined it as 'an integrator that assembles the resources, capabilities, and technology of its own organization and other organizations to design and run comprehensive supply chain solutions' (Bauknight and Miller, 1999).

Gattorna (2006) describes other models such as *Managed Supply Chain Operations*, *Vertical Network Consortia* (VNC) and *The Joint Services Company* (JSC). Each of these represents a new business model for the pursuant parties. In a JSC, the model is jointly owned with mutual shared growth and offers capability at speed enabled by common objectives. The JSC sits above the 4PL in the LSP hierarchy and requires greater forethought and commitment from the parties involved in the agreement. It should yield a positive-sum gain and therefore reflect a more balanced model than the traditional LSP/Client relationship.

The *5PL* variant coined by Vasiliauskas and Jakubauskas (2007) also sits at the top of the service pyramid and describes an overall logistics solution for the entire supply chain, a form of supply chain management (SCM) based on close, collaborative and well coordinated network relationships. The principles this requires are similar to the Virtual Network Consortium described by Gattorna (2006).

As for the role of the LSP in the design of the logistics solution, Casale (2007) and Vitasek (2010a) both describe a move away from the traditional and prescriptive style of outsourcing specification to a collaborative method, in some instances adopting the *what's in it for we* (WIIFWe) approach.

3. Description of the problem or challenge

The academic world of logistics outsourcing defines several iterations and the stratification of logistics and supply chain outsourcing solutions. There are many service offerings and the nature of the logistics service provider industry allows for bespoke solutions that endeavor to avoid a *one size fits all* option. Commentators are prescriptive when describing the responsibilities that the customers of service providers have to control and specify their businesses successfully and the ongoing role they have in managing an outsourced relationship. It is not clear what degree of risk each service offering entails for both the customer and the service provider over the short and long term.

4. The research work

The research project was undertaken between 2007 and 2010 and focussed on the role of solution design within the process of logistics outsourcing amongst customers, own account operators, logistics service providers and other specialists in the logistics field. Three primary research methods were chosen case studies, interviews and a Delphi survey which were further supported by the secondary techniques of questionnaires, action research and observation.

The UK Chartered Institute of Logistics and Transport (CILT) supported the compilation and identification of the target research population and the CILT Outsourcing and Procurement forum allowed the author to use their contact database as the basis for the Delphi survey panel. Case study of UK manufacturing organisation

The research commenced with a case study of an organisation which expended over 2,000 hours of project management time in changing logistics service providers engaged in UK bulk tanker distribution. The case study defined how the organisation approached the change process from the perspective of a number of themes:

- Operational safety
- Strategy and functional specification
- Cost, value chain and defining success
- Outsourcing approach

During the course of the case study, the lead author led the change management team which gave a rarely documented insight into the process but also presented the risk of bias entering the academic results. To mitigate this risk, a focus group was held at the end of the project with all the principal organisation stakeholders, to capture their views on the processual and operational challenges presented by the project and this balanced the feedback from the research diary.

4.1 Interviews

A list of 36 potential interviewees was drawn up representing the public and private sectors, logistics service providers and customers, both own account, mixed and fully outsourced. Of the initial 36 contacts, 14 interviews took place in the first half of 2010. Ethically, issues of confidentiality were at the fore with some interviewees requesting both confidentiality and anonymity throughout each of the semi-structured sessions.

During each interview, interviewees were guided towards one common set of solution design questions. Some of the answers given were *convergent* with the answers from the rest of the group and did not require further challenge, however there were areas where the interviewees did not agree and these were recorded as areas of *divergence* and used for further investigation in the next stage of the research process.

The interviews were good for face to face research as Bell (1999) observes but on the negative side they were very time consuming and involved a large amount of travelling across the UK and beyond. From an environmental impact perspective, the interviews had the greatest carbon footprint of all the research techniques employed in the study.

4.2 Delphi Survey

A three round Delphi survey was conducted between April 2010 and September 2010 with the initial panel comprised of the CILT Outsourcing and Procurement database and some further inclusions recommended by the CILT Knowledge Centre team. In total, the initial contact panel size included

1,002 individuals who worked in various capacities within the logistics sector and throughout the world.

A web enabled survey platform was used to present each of the three surveys, capture respondent's answers and collate the responses for further analysis. From the outset, four stakeholder groups were identified within the panel group and the survey tool allowed for these groups to be presented with common questions written in an appropriate style to them. The stakeholder groups were:

- Own account operators
- Operators who outsource part or all of their supply chains
- Logistics service providers
- Specialists in the logistics sector

Each of the three surveys heeded the advice extended by Fredericks (1982) and were written very much as a conversation not an interrogation, with a logical sequence and a clear introductory section at the beginning. The guidelines described by Linstone and Turoff (1974) were observed for the first and subsequent rounds of the Delphi survey.

To gauge that the surveys were reliable and sufficiently robust to deliver consistent findings at different times and under different conditions, the *test* and *re-test* approach was used in preference to the *internal consistency* and *alternative form* tests. In terms of the approach to analysing the responses to the survey, Jankowicz (2000) provided guidance at an early stage and the principle for the analysis of the answers was simply:

1. Is there a trend?
2. Is there a similarity amongst the answers when comparing across streams?
3. Is there a trend to contrasting answers?

The trends and most importantly the areas of divergence or contrast amongst the data set formed the basis for each subsequent Delphi round and the headline results were reported under the following classifications:

- Strategy and functional specification
- Cost, value chain and defining success
- Safety
- Outsourcing
- Environment and the future supply chain
- Stability and relationship management

Finally, full anonymity was preserved amongst the respondents. Only the author had sight of the contact details left (voluntarily) by the panel members and these were not published or circulated. This is a strength of the Delphi technique, which by preserving anonymity, allowed for the experts to express their views freely.

4.3 Final case study

The final element of the research programme was a case study looking at the impact of strategy and control on the commercial relationship between a logistics service provider and a large UK high street retailer. This allowed both divergent and convergent aspects of the Delphi survey output to be verified.

The case was derived from direct observation and documents, relating to a logistics facility operated by a logistics service provider on behalf of a leading UK supermarket. The supermarket retailer enjoyed a distribution cost as a percentage of sales revenue of 3.5% (IGD, 2008), and on this basis was perceived as having a best in class logistics network. The study demonstrated how this best in class retailer exerted control on its supply chain and its logistics partner.

The objective of this case study was to explore, describe and explain the techniques involved in contractor management and illustrate the who, what, where, how and why of the environment under study.

5. Results / Analysis

The research yielded results from two case studies, 14 interviews and the three round Delphi survey. Delphi attrition (a weakness of the approach) saw a response rate of 25% to the initial invitation to complete the first survey and the three rounds generated 12,000 pieces of data with respondents leaving over 500 comments.

5.1 Outsourcing process

Throughout the active research process, there was general agreement that correctly scoping an outsourcing agreement was fundamental to ensuring its success and that new stakeholders were becoming engaged in the acquisition of logistics services however, there was indecision in the area of who was best suited to manage the process i.e. client or service provider.

On the client's side it became apparent that it would be unlikely that those engaged in the outsourcing activity would have received appropriate training and they might be ill-equipped to manage contracts with service providers. It could be assumed that this inexperience was also brought to the process of solution specification, service provider selection as well as negotiating and agreeing the final commercial arrangement.

The Delphi survey suggested that the client was likely to be in a weaker position to manage the commercial agreement than the service provider who was working for them. The customer could themselves become the *slave* and the service provider the *master* within the commercial arrangement.

The next stage in this avenue of research was the assumption that service providers *knew what they were doing*, but this research has shown ironically that they were less likely to look externally and prove their worth using external measures than their customer.

5.2 Contract management

In terms of contract management, the first case study described a customer with a weak contract management position, whilst the second case described a very strong and prescriptive style of management. Typically the literature identified describes the hazards and guidelines to managing contract relationships; none of the available literature makes the link between a prescriptive contract management style on behalf of the client and the best in class performance that might be delivered as a result.

For the issue of contract variation the interview output suggested that logistics services contracts were written on the basis they would succeed and failure was unlikely. The Delphi survey continued this theme by asking respondents if they had contract variation mechanisms and if they used them. The results suggested there was confusion over the mechanism and the contract was unlikely to be formally varied across the term thus introducing further risk into the (increasingly inflexible) commercial relationship which could result in contract failure as the organisations involved pursuant in the agreement mature and might actually evolve away from each other.

In terms of relationship strength, feedback from the interviews demonstrated a divergence amongst respondents over who had the higher ground in the logistics purchasing process; the customer or the service provider. The results from the Delphi survey suggested the customer may be in a weaker position to manage the commercial agreement than the service provider who is working for them.

Asking interviewees who was best suited to managing the outsourcing process raised the theme of the wide ranging competencies that customers had in purchasing logistics. It became apparent that customers of logistics service providers were unlikely to be formally trained in logistics services procurement and relied heavily on their own personal experiences when working in this field. It might be assumed that this inexperience would be reflected at the negotiating table as well. The Delphi survey corroborated these results.

6. Discussion and conclusions

The Delphi survey demonstrated that customers obtained their knowledge of outsourcing from an unstructured range of sources and a large proportion did not seek training or knowledge in the subject; however they still felt service providers were an enabling factor in the supply chain.

There was also indecision over who was best suited to manage the outsourcing process; on the customer's side it was unlikely that those engaged in the activity would have received appropriate

training in outsourcing and managing service providers. The second case study demonstrated the success that a customer can drive from a supply chain by assuming a prescriptive relationship with its service provider.

There is an over stratification of service provision which makes it confusing for clients. The views expressed by McKinnon (2003), Casale (2007) and Vitasek (2010) all rely on an empowered and informed customer to balance the power of the service provider in the commercial relationship.

This research suggested that both the customers and service providers felt it was important to adhere to an outsourcing process, but each felt they were best in managing the process despite a background of little specialist training provision on the part of the customer. Once in a commercial relationship, the contractual agreement was generally written for a one-sided outcome (success) and was unlikely to be varied as the commercial environment flexed over time. This suggests it is unlikely customers are sufficiently empowered or informed to support a collaborative method of outsourcing.

As Bravard and Morgan (2000) postulate, that the client has a significant responsibility to manage the relationship and the presence of contract variation mechanisms and governance structures would signify an attempt to fulfil these aspects. The second case study demonstrated how a customer's prescriptive service management regime for their service provider utilised outsourcing in some areas of their supply chain to deliver a best in class logistics *cost to serve* as a percentage of sales revenue.

Respondents from the Delphi survey agreed that correctly scoping the contract was fundamental to ensuring the commercial relationship was successful and that new forces and stakeholders were becoming engaged in the acquisition of logistics services. It is significance that the research results suggested the customers of service providers in the logistics and supply chain market are poorly informed and ill at ease with writing, managing and varying contracts over the contract term.

6.1 Model

The academic world of logistics outsourcing defines several iterations and stratifications of logistics and supply chain outsourcing solutions. There are many service offerings and the nature of the industry allows for bespoke service offerings with an eagerness to avoid a *one size fits all solution*. Commentators are prescriptive in their responsibilities for customers of service providers to control and specify their businesses successfully and the ongoing role they have in managing the outsourced relationship. It is not clear what degree of risk each service offering entails for the customer and the service provider.

This risk based approach is illustrated in fig 3 which describes a pyramid of outsourcing solutions balancing them with the degree of control and risk inherent to the parties involved.

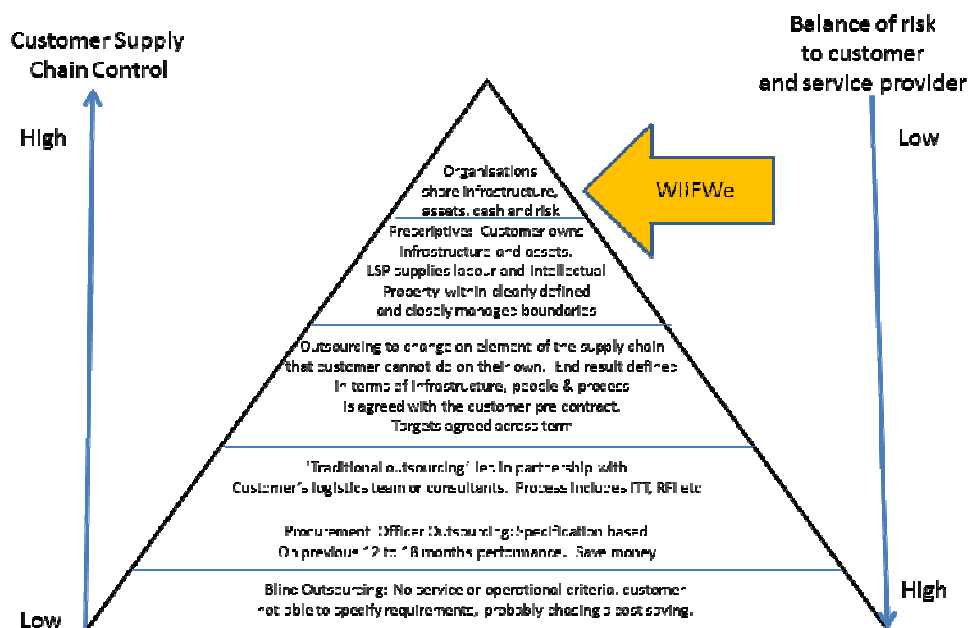


Figure 3 Control vs. risk of outsourced solutions

At the base of the pyramid lies 'buying' the *blind outsourcing* decision where customers aspire to a better state of affairs and see outsourcing as a route to a better way of working. There are little or no criteria and the solution is left to the incoming service provider; therefore the balance of risk is high to both parties in the absence of agreed success criteria. In this environment the LSP may typically encounter a dynamic environment with a high degree of scope drift and this poses a significant risk to any long term commercial arrangement.

The next step on the pyramid has been classed as *procurement officer outsourcing* which is focused on saving money using performance over the previous 12 to 18 months as a benchmark from which to make logistics procurement decisions. This commoditisation of logistics procurement does not rely on a high degree of ongoing control from the customer supply chain team, if indeed there is one in situ. There is a high risk that this commodity based purchase will move to another provider at contract term and this is not a basis for the long term success of such an agreement.

Traditional outsourcing is the tried and tested formula developed in the post WW2 era. The familiarity with the process and pitfalls ranks this element a medium risk to the customer and service provider, and on the other hand requires a medium level of supply chain control on behalf of the customer. Concepts such as 3PL 3¹/₂PL, 4PL and 5PL sit in this element.

The next step on the pyramid is using *outsourcing to change* an element of the supply chain, this is when the activity moves from functional to transformational and warrants a higher degree of control from the customer. Because this is *transformational outsourcing*, it may be assumed it will be part of the customer's overall supply chain management strategy with clearly defined objectives. The service provider becomes a means to an end with a specific remit and timescale to follow as they execute part of the customer driven project.

The *prescriptive step* sees the balance of power in the longer term relationship moving from the service provider to the customer. Requiring a greater degree of control, the customer typically owns the infrastructure and assets, while the service provider supplies labour and intellectual property within clearly defined and closely managed boundaries. The customer benefits from having a service provider for short term flexibility in other parts of their supply chain and for speedy supply chain access to new markets as well as territories. This step is very much a *master servant* relationship and because it is prescriptive, the balance of risk to both the customer and service provider is low.

The top step of the pyramid moves the relationship into an equity sharing arrangement, where both organisations share assets, cash and risk in delivering the supply chain solution. Customer and supplier are locked in a mutual arrangement with a common suite of brand delivery objectives.

The model links some iterations of outsourced logistics service provision with the *degree of control* expected from the customer and a *risk of engagement* profile for the logistics service provider.

7. Summary

The findings from the interviews, delphi survey and case studies illustrated the behaviours and activity at work within outsourced logistics arrangements. The parties involved all felt they were individually the best suited to manage the process but the lack of appropriate training meant they were ill suited when it came to scoping, negotiating and managing logistics services contracts.

Benchmarking service provision was apparently not seen as an option to define and confirm what 'good looked like' in supply chain terms and further illustrated the wide range of competencies involved in purchasing and managing logistics services.

The final case study illustrated the degree of control the client exercised with their service provider in operating a 'best in class' supply chain.

A model in the shape of a pyramid was presented which illustrated a stratification of service provision alongside the perceived risk to the parties involved. The pyramid may be used to define and assess the risk profile of a logistics outsourcing strategy. The risk is defined in terms of 'low to high' for the parties involved in the activity and looks at the process as a whole and is thus not blinkered to one point of view.

Further development of the pyramid and the general approach would explore why the logistics sector is so unwilling to *compare and contrast* activity within supply chains and also who is best suited to manage the outsourcing process whilst focussing on the skill set of the individuals involved.

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