E-Logistics Comparative Positioning Model: A Multi-National Enterprise Airline Study

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ABSTRACT

By capturing the hidden value in the multi-national enterprise's (MNE's) supply-chain in areas such as quality, value and innovation; logistics providers can increase the MNE's operating efficiency and enhance its capital utilization, within and enhanced competitive advantage framework. Today, many multinational enterprises (MNEs) use the global communication channels of the internet to strategically move their global activities to more competitive positions. The trend has been to outsource more and more of their non-strategic business functions, with their logistics providers acquiring these new sources of business. These logistics providers are classified as 1st to 4th party logistics providers [1]. A 4th party logistics provider (4PL) offers the complete supply side coordination solutions for the MNE, plus a degree of demand side coordination service [2].

At its peak, the MNE-logistics provider model activates the entire service value chain. Here the 5PL delivers a value chain level of both outsourcing and service. The complete integration of the value chain logistics provider with its vast array of 'added-value skills' and its block of partnered MNEs, yields a unique, innovative, flexible and highly agile partnership, whereby pathways towards 'sustainable' competitive advantage [3] may be developed, and possibly maintained. The MNE, whilst maintaining its final assembly, branding, research, and innovation functions, is increasingly becoming a service orientated, highly 'front-end' (or customer focused) operation.
This paper develops a technique to ascertain the positioning of MNE and logistics provider(s), and where the logistics provider – MNE integration level may be enhanced.

Key Words: logistics, airline industry, service industry, value, logistics provider, competitive advantage, strategy

1. INTRODUCTION

The role of logistics in business has developed over the past fifty years in both scope and strategic importance [4]. Logistics is the management of acquisition, storage, transportation, and delivery of goods throughout the supply chain (businessranks.com). Logistics strategies have influenced customer selection, product design, alliances and many other core business processes[5], and are closely aligned to the business supply side[6]. In the US the outsourcing of IT jobs has resulted in the creation of twice as many jobs as those displaced[7]. The Information Technology Association of America March 2004 report predicts that total savings of global logistics outsourcing policies will deliver total savings of US$20.9B by 2008 (up from US$6.7B in 2003, delivering new competitive realities within the business environment.

To be economically productive in the logistics arena the modern MNE should strategically utilize its service supply chain. Leading MNE's are steadily strengthening their 'front-end', downstream, customer-centric and 'innovative research' functions and supply chain structures[2]. They are aligning their key logistics provider(s) and supply chain(s) into a synergistic and globally competitive, strategic solution-set of operations [8]. Their intense, demand chain driven customer focus has yielded new methods of customization and 'one-on-one 'customerization' [9]. These leading MNE's have outsourced more and more of their non-strategic business coordination and functions to logistics providers [2],[10]. The logistics provider has been classified as either a 1st party logistics provider (1PL)) such as the mail room; or a 2PL – like the warehousing function; or a 3PL, [8] – like the full transport and storage system; or a 4PL [1] – like the full transport and storage system for several organizations. The logistics classification grouping is based upon the degree of complexity, and the number of business functions under the logistics provider's control, with the 4PL offering the most complex, integrated, cost efficient supply chain solutions.

Recent logistics developments have incorporated the customer driven demand chain into the peak logistics solution. As the required new metrics are unfolding [11], a 5PL progression pyramid [12] is developing with leading MNE's. This progression pyramid is displayed in Figure 1. The 5PL model may also be aligned with the customer relationship model [13] as displayed in Figure 2. The 5PL solution typifies the MNE's strategic vision to target and enhance its valuable, loyal customer relationship.

The 5PL level of outsourcing and service has been conceptualized as a fully activated demand-supply logistics model - termed the 5PL FADS model [6]. Here the supply chain responds to the customer driven demand chain delivering a value chain solution that moves the MNE and its 5PL to a new internationally

competitive position delivering both low cost and high operational efficiency [3]. The MNE is then able to focus on its core business – its final 'one-on-one' 'customerized' assembly; its innovations, its research; its super-efficiencies, its internal business processes, and/or its individually targeted marketing solutions.

The 5PL model remains the next step in the progression to total logistics integration. The move to increasingly sophisticated, highly-coordinated logistics outsourcing solutions is often driven by the short term focus of senior management personnel, who have short term tenured positions, and who must deliver rapid results for the shareholders. Companies like Dell, eBay, Amazon, Yahoo are moving down this path with great success.

Warren Buffett[14], offers more cautious longer term solutions – and his business improvement and management strategies are equally successful. However, one of Buffett's recent strategies was to gamble (an unusual strategy for Buffett) against the US dollar and to move large billions of US dollars offshore. This typifies the dynamic nature of executive strategic management today – many avenues are explored, and logistics outsourcing is but one of these avenues for efficiency growth.

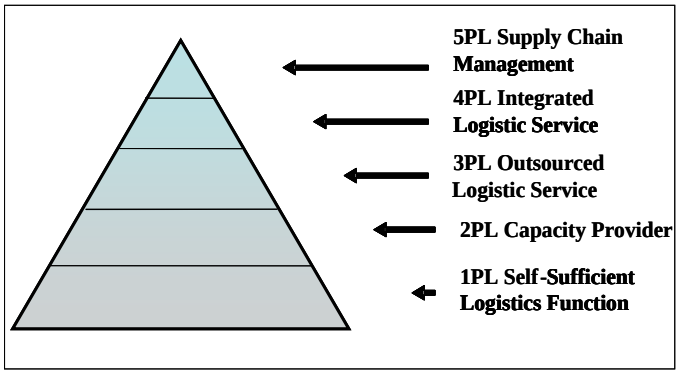

Figure 1: The Morgan Stanley 5PL Model, adapted from Morgan & Stanley[15]

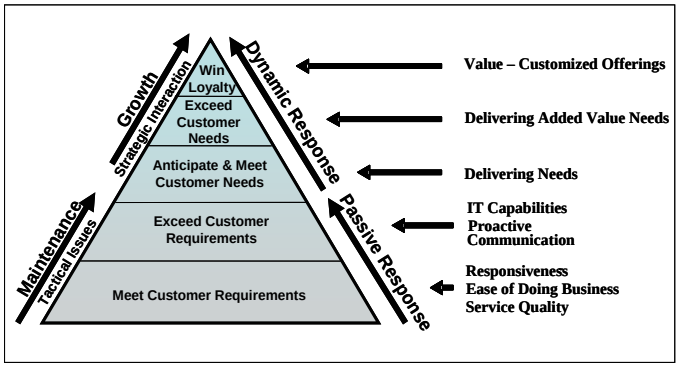

Figure 2: The Customer Relationship Hierarchy Model 5PL Model, adapted from Kuehne & Nagel [16]

The logistics outsourcing solution has been shown to deliver a wide raft of efficiencies, flexibility, cost savings and expertise. For example, thirty years ago FedEx (www.fedex.com) was just another start-up company. Today it is a US$25B reliable, responsive, relentless, and remarkable delivering the right mix of transportation, information, documentation and supply chain solutions in a wide variety of global customers in 215 countries (and often within 48 hours). FedEx (today a 4PL) has delivered great savings to its corporate partners. Hence for companies that encounter the customerized one-on-one information imperative logistics outsourcing is a means to create efficiencies.

The higher level PL systems deliver lean logistics solutions. Here the superior ability to design and deliver systems to control movement and geographical positioning of raw materials, work in progress and finished inventories at lowest cost[17] delivers a value stream[18]. These lean logistics systems work best for larger businesses with sufficient resources and bargaining powers to deliver such systems[19].

Successful logistics outsourcing can deliver great rewards. For example, in the US telecommunications industry the total logistics costs for companies regarded as 'best-in-class' logistics providers equate to 7.3% of revenue (the medium logistics cost for the industry is 14.3% of revenue). For a $1B company this equates to saving $70M annually[16].

Over the next five years, it is predicted that the rate of growth in logistics in the US will be between 15% and 20% per year. In 2003 the value of the US logistics industry was US$910 B (logistics institute). This paper explores ways for a MNE to recognize its current positioning; and to use this knowledge to move to closer to the apex of the logistics outsourcing model - the 5PL solution. It demonstrates how the MNE may tease out its key levers, into a relevant set of measures. It allows the MNE, its key logistics providers, and other service supply chain partners to determine where their solution set is currently positioned. It then suggests the areas in which the MNE should provide additional focus, and thus move to a more competitive and sustainable position.

Recent developments in networked internet linkages, intelligent database interrogation software, alliance partnerships, and outsourcing have moved the leading edge MNE's into the 4 PL arena (and towards the 5PL area). To measure their relative or comparative positioning tools like the Four Clusters Logistics Model [6] have been developed.

2. THE FOUR CLUSTERS LOGISTICS MODEL

The Four Cluster Logistics Model developed by Gunesh & Hamilton, incorporates four clusters of outsourcing levers. These are presented in Table 1. The model is displayed in Figure 3. Logistics providers partner with MNE's and develop improved solutions to non-core outsourced MNE business units or functions. A simple

1PL solution may involve outsourcing of the staff canteen, the mail room, cleaning and the like.

Cluster 1: Technical Levers	Cluster 2: Soft-Skill Levers	Cluster 3: Institutional levers	Cluster 4: Characterization levers
• Information Technologies • Communication Technologies • DSS Technologies • Organization Technologies • IT-Infrastructure • Logistics Assets • Technical Ability • Logistics Knowledge / Know-how • SCM Knowledge • IT Knowledge	• 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	• 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	• 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

Table 1: Four Clusters Logistics Outsourcing Levers, from Gunesh & Hamilton[6].

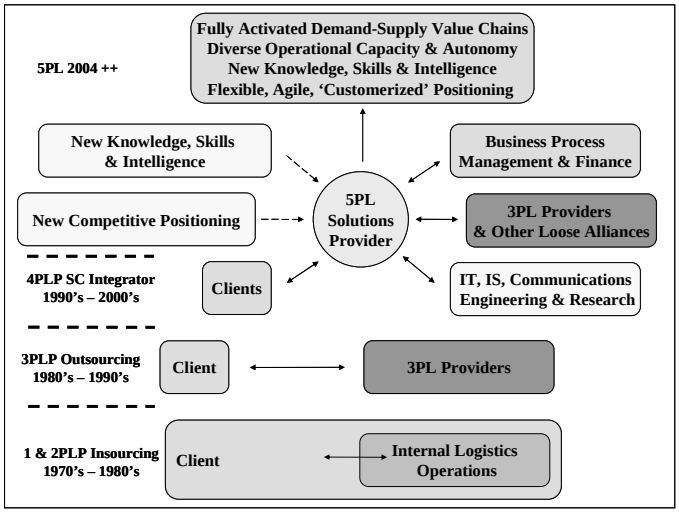

Figure 3: 5PL solutions provider model, adapted from Gunesh & Hamilton[6]

In delivering the various levels of logistics outsourcing, the logistics provider engages an array of levers. The levers displayed in Table 3 constitute ways in which the logistics provider may generate a more competitive position. Measuring the MNE's ability to activate these levers gives a measure as to the degree of logistics capability the MNE possesses. It is generally cheaper for the MNE to outsource its logistics functions. A 5PL utilizes all levers, combining and activating them to deliver responsive, value-adding, agile, personalized, competitive solutions to the 5PL-MNE partnership.
Gunesh & Hamilton's 5PL Logistics Model incorporates these four clusters of outsourcing skills into their current 'state-of-the-art' model. They propose that the 5PL opens the value chain pathways for possible 'sustainable' competitive advantage.

This model offers the conceptualization of how new value creation methods, lean supply networks, targeted value-adds, additional added value supplier networks, client side connectivity, customer responsiveness, demand driven value chains and the like may provide ways to increase overall profitability. Such a mix of skills provides a greatly reduced scope for direct competition, as it offers complete value chain solutions from the customer to the base level supplier. Some leading edge companies like Dell, IBM and Farmer's Info are approaching this level of value chain delivery.

3. RESEARCH FOCUS

The Director General of the International Air Transport Association (IATA), Giovanni Bisignani believes the industry must simplify the business [20]. He suggests the rules are outdates and often bilateral in nature, the cost flexibilities and labour structures are outdated, and the lowest cost solution is a non-viable one. He believes operational logistics must become highly automated and interconnected, and that with extensive use of efficient IT (and related technologies) future, flexible, agile solutions.

3.1 Overview

This research uses the Four Clusters Outsourcing Levers. It develops and tests the website interface as a logistics outsourcing tool for the international airlines industry.
Questions were addressed such as: 'Can the four cluster model levers be measured?' 'Do these levers provide a way to compare websites?' 'Does the four cluster model show the MNE where it may strategically arrange, or change website features to better enable its desired level of logistics?' 'What is the relative benchmarked position of the MNE?' and Should the MNE outsource its value chain logistics?'

To complement the content analysis, a survey and a set of interviews were conducted. The survey assessed consumer perceptions concerning travel industry websites and their service offerings. This survey data was collected from the travel industry and from the travel seeking (or participating) customer perspective. In addition a clutch of interviews helped to provide an understanding of the online travel business requirements from the perspective of their logistics outsourcing to other market players - be they low (1PL) or high level (5PL).

Drivers to activate the lever drivers in the four clusters model were identified, refined and added to the model. Multiple data capture methods included: websites and other electronic communications like email, FAQ's; company interviews (marketing and IT executives); and web based surveys of both potential and current customers were incorporated. These additional approaches added greater homogeneity [16] to the study. Mingers[21] and others also suggested that a multi-methodological approach, combining different research methods, yielded greater reliability, and richer research results. The developed drivers were coded, and used to measure the MNE's logistics potential.

3.2 Content Study

Content analysis was used to identify, code, refine and categorize primary patterns in the data[22]. A culling process was used, whereby constant comparative analysis refined the research delivering fuller descriptions and greater homogeneity. The coding of cluster levers was monitored and assessed. A focus group checked the coding of data at two levels – the manifest content level (physical presence of the data), and the latent content level (reading between the lines). Berger[23] suggested this approach is a communication media research technique based on quantitative means.

3.3 Data Coding

Based on prior studies[24], standard data-collection [25] and measurement criteria[26],[27] each MNE website lever feature was binary coded (present (1) or absent (0) against the predetermined model. A score of 1 meant the feature (driver) identified were present, whilst a score of 0 indicated absence. To help limit remaining subjectivity rules a range or a list of acceptable requirements were defined. The elements with performance within the accepted range or meeting the requirements were judged as '1', otherwise they were scored as '0'. . For example, page load speed was coded based on industry standards. Thus one ('1') indicated within standard and zero ('0') outside the standard. The major advantage of this coding is that it maintained objectivity. Each site was assessed three times in order to minimise or eliminate judgment variance. Microsoft Excel was used for coding. This research was conducted during May, 2004.
Interpretation of the data offered a mechanism whereby competitive advantage adjustments and/or added-value solutions could be assessed and possibly incorporated into future MNE strategies. Using the above criteria, thirty different, IT-skilled, data-collectors rated each website. Their results were averaged. The relative position of the MNE against its competitors was determined. Major travel agencies (airline website logistics providers) were evaluated and also benchmarked.

3.4 The Four Cluster Outsourcing Levers

The four clusters, displayed in Table 1, each encapsulate several levers, which, in turn consist of different features (drivers). 100 drivers were identified across the four cluster analysis, and 79 significant measurable drivers were utilized. A sample of the lever drivers identified for cluster 2 is displayed in Table 2.

4. STUDY METHODOLOGY

In this research a predefined logistics comparative positioning model was developed. It was adapted from earlier research[6], regarding virtual benchmarking of website design features and the four clusters outsourcing levers. This model incorporated techniques adopted by worldsbestnetwork.com, w3c.org; and others[6],[24],[26], [27],. These content analysis component techniques provided the basis from which the four cluster logistics driver model may be developed. A multiple lever, multiple feature model, capable of comparing, rating and benchmarking selected websites is developed. Data collection used 34 of the 340 global MNE airlines, and 5 of the 50 high-level global travel logistics companies. These thirty nine websites were systematically analysed to refine, and test this new logistics comparative positioning model.

Greaver's[28] twenty logistics outsourcing factors, and selected elements from Whiteley's 14 parameters model, were used to cross reference Gunesh & Hamilton's lever drivers model. All twenty logistics outsourcing factors, and Whiteley's parameters were suitably incorporated into this study. Hence a tailored comparative positioning model was developed. This model consisted of 79 drivers representing 42 levers.

Cluster 2	
Levers	**Drivers**
Social Competency	About us
Intercultural Competency	Multilingual, Copyright/trademark
Interpersonal Competency	Returns policy/cancellation
Communication Skills	Email/SMS, Phone, Fax, Contact us
Organizational Skills	ISO, Economic value
Problem-Solving Skills	Calculators/totals/order processing, Customerization
Leadership Skills	Management experience, CIO/Bios
Team Orientation	# Employees presented
Empathy	Treat customer as 1st person, Auto response
Integrity	Guarantee, Delivery time guarantee
Self-Assurance / Self-Awareness	ISO, International stds/awards
Motivation / Creativity	Customer service
Politeness / Diplomacy	Language, Multi-cultural language
Mobility / Flexibility	Tailormade product

Table 2: Lever Drivers for Cluster 2 – Soft Skills Levers, adapted from Gunesh & Hamilton, 2003[6]

Within the second soft skills cluster, 'social competency' is portrayed on the website by 'about us'. This incorporates 'treatment of company info'[27] and organization reasons[28]. Interpersonal competency is exemplified by the returns / negotiation / cancellation policy and communication skills. Mobility/flexibility is viewed via tailor-made product capabilities, incorporating functions like customer seat mapping, and superior provider performance[15]. Similar comparisons

were developed for each driver. Similarly, survey data was added in an effort to further enhance the model.

5. DISCUSSION

5.1 General

This exploratory research suggests many airlines pay little attention to utilizing their websites as a customer relationship tool. Indeed many rarely update their sites, some even refuse to allow email contact, suggesting phone calls offer better direct contact solutions. Many sites are poorly secured, poorly coded, and make little attempt to deliver a customer-centric approach. The core business should be to win customers, deliver the services they want, offer alternatives, and make websites user friendly. In numerous sites the customer must specify day and hour of flying, there is no option for 'anytime' to capture all options on that day. The realm of transactions is also poorly constructed. This area offers considerable opportunities to develop value-added packages, but little attention is focused in this direction.
This research adopts a present ('1') or absent ('0') approach, so that a computer benchmarking program for logistics outsourcing may be developed. This program will incorporate the cluster model lever drivers approach.

5.2 Data Analysis

Data collected from 34 MNE airlines and 5 major logistics providers (travel agents) websites, was tabulated in excel. A summary of this data collection is displayed in Tables 3 and 4, and Figures 4 and 5. Table 3 uses a '1' to indicate the feature was represented, and a '0' to show the feature was not present.
Table 4 summarizes the four cluster analysis. Means, standard deviations and ratings were determined. Overall ratings were displayed graphically using spider charts (refer Figures 4 and 5).
The top 10 world airlines were included in this study, as were the top travel providers. Emirates, a growing privately operated airline, and other smaller MNE airlines were sampled. The best rating airline websites were deemed to be the Qantas and Singapore airlines websites, whilst a sample of weaker websites included: Yeti, Cebu Pacific, Australian and NZ airlines.
The relative benchmarking position for each NME airline and for each airline travel logistics provider indicated that the MNE travel logistics providers indeed activated more lever drivers than did the MNE airlines. In every case the MNE logistics providers rated more highly than the MNE airlines analysed in this logistics analysis.

Some weaknesses within the MNE airline website industry lie in the areas of customer recognition and customer added value offerings. In many instances MNE airline websites do not allow for rapid change, depth of search, or rapid customer related response. This is, in-part, due to the way tracking tools are utilized, and a lack of intelligent knowledge management, and suitable interpretation structures used throughout these airline-related websites.

Table 3 indicates a range of approaches towards MNE websites. Some sites are rarely updates, lack high level security at least in parts of their sites, are not well programmed, do not allow ready communication, do not incorporate added-value solutions, and the like. It may be argued that these features do not fit the strategic objectives of the MNE. For example, a focus on airline ticketing may be the primary purpose of some sites. However, neglecting other website dimensions means another MNE may deliver a far better service. Thus a competitive strategic positioning by another airline may result.

The lever driver presence for each cluster is expressed as a percentage, totaled and compared via a relative rating scale and a mean rating scale. The best website logistics performing MNE's were found to be the large airline travel agents. These operations activated between 82% and 97% of the available logistics related website lever drivers, whilst the best airlines – Qantas, Cathay and Singapore activated 85% and 86% respectively. Most airlines rated well below these figures.

Cluster 1: Technical Levers	• Information Technologies		• Communication Technologies		• DSS	• Organization Technologies				• IT-Infrastructure		Assets	• Technical Ability		• Logistics	• SCM Knowledge			• IT Knowledge	
	Prop Platform - IBM, etc	proprietery software	security	time to respond<10	disclaimers	services	flow	links	processes	pages to order =< 3	links to source info	time to source info	best delivery time	coding	auto response	tracking items	invoicing	ebiz	ecom	database	tracking
Companies																					
Air France	1	1					1	1	1	1	1						1		1	1	
Air NZ	1	1						1									1		1		
Australian Airlines	1	1			1			1		1	1										
Cathay Pacific	1	1		1	1	1	1	1	1	1	1	1			1		1	1	1	1	1
Emirates	1	1		1	1		1		1	1	1						1		1	1	
Garuda	1	1			1		1	1	1	1	1						1	1	1	1	
JAL	1	1		1	1	1	1	1	1								1		1	1	1
Malaysian Airlines	1	1			1	1	1	1	1		1			1			1		1	1	1
Qantas	1	1		1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1
Singapore Airlines	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1
United Airlines	1	1	1	1	1	1	1	1	1	1	1	1					1	1	1	1	1
Virgin Blue	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1	1
Korean Airlines	1	1		1	1		1	1	1	1	1	1	1	1			1	1	1	1	1
zuji.com	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
trailfinders.com	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
travelcity.com	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
American Airlines	1	1		1	1		1	1	1	1	1	1					1		1	1	1
Southwest Airlines	1	1		1	1	1	1	1	1	1	1						1		1	1	1
Northwest Airlines	1	1		1	1		1	1	1	1	1						1		1	1	1
British Airways	1	1		1	1		1	1	1	1	1				1		1		1	1	1
US Airways	1	1		1	1		1	1	1	1	1			1	1		1	1	1	1	1
Ryanair	1	1		1	1		1	1	1	1	1	1		1	1		1		1	1	1
Lufthansa	1	1					1	1		1	1						1		1	1	
Go Fly	1	1		1	1		1	1	1	1	1	1			1	1	1		1	1	1
EasyJet	1	1		1	1		1	1	1	1	1	1			1	1	1		1	1	1

Table 3: Cluster 1 Technical Lever Drivers

Companies	Clusters 1	2	3	4	Total	Max	Total Rating	Mean Rating
Air France	47.6	52.2	57.9	56.3	213.9	400.0	53.5	80.7
Air NZ	23.8	30.4	57.9	37.5	149.6	400.0	37.4	56.5
Australian Airlines	28.6	30.4	63.2	37.5	159.7	400.0	39.9	60.3
Cathay Pacific	81.0	78.3	89.5	68.8	317.4	400.0	79.4	119.8
Emirates	52.4	56.5	52.6	62.5	224.0	400.0	56.0	84.6
Garuda	57.1	47.8	63.2	43.8	211.9	400.0	53.0	80.0
JAL	57.1	56.5	68.4	50.0	232.1	400.0	58.0	87.6
Malaysian Airlines	61.9	56.5	78.9	56.3	253.6	400.0	63.4	95.7
Qantas	90.5	78.3	94.7	81.3	344.7	400.0	86.2	130.1
Singapore Airlines	95.2	78.3	94.7	75.0	343.2	400.0	85.8	129.5
United Airlines	81.0	69.6	73.7	75.0	299.2	400.0	74.8	112.9
Virgin Blue	90.5	73.9	94.7	62.5	321.6	400.0	80.4	121.4
Korean Airlines	81.0	69.6	78.9	68.8	298.2	400.0	74.6	112.6
zuji.com	90.5	82.6	73.7	81.3	328.0	400.0	82.0	123.8
trailfinders.com	95.2	91.3	78.9	81.3	346.7	400.0	86.7	130.9
travelcity.com	100.0	100.0	94.7	93.8	388.5	400.0	97.1	146.6
American Airlines	66.7	65.2	73.7	50.0	255.6	400.0	63.9	96.5
Southwest Airlines	66.7	52.2	57.9	31.3	208.0	400.0	52.0	78.5
Northwest Airlines	66.7	56.5	73.7	50.0	246.9	400.0	61.7	93.2
British Airways	61.9	65.2	73.7	56.3	257.1	400.0	64.3	97.0
US Airways	66.7	73.9	63.2	62.5	266.2	400.0	66.6	100.5
Ryanair	76.2	65.2	63.2	43.8	248.3	400.0	62.1	93.7
Lufthansa	76.2	65.2	31.6	31.3	204.2	400.0	51.1	77.1
Go Fly	42.9	60.9	78.9	50.0	232.7	400.0	58.2	87.8
EasyJet	76.2	60.9	78.9	56.3	272.3	400.0	68.1	102.8
				Mean	265.0			
				SD	60.6			

Table 4: Airline & Travel Agents Web Summary Data

The airlines averaged activation of 63% of possible lever drivers. Consequently, the large logistically focused travel agents were delivering better logistics solutions than those of their MNE airlines. It may be asked 'why do airlines bother with their websites when they could divert customer traffic to airline travel sites?'

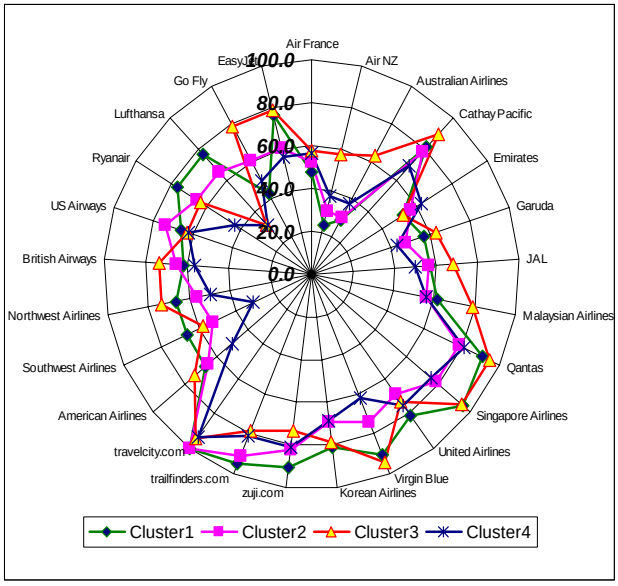

Figure 4: 4 Clusters Logistics Comparison Spiderweb

Figure 4 offers a visual presentation of the relative website logistics performance of various airlines and travel agents to deliver well planned logistics solutions. This study shows that airlines do not plan their websites in a logistically strategic manner. For example, the low level lever drivers are not developed first. There is scant indication of a logistics strategy in most airline websites, and little focus on a transition of relative outsourcing. Many websites appear to be delivered in an ad-hoc manner. Some airlines do not get the basics right, and others attempt to tackle higher levels of logistics in a poor manner.

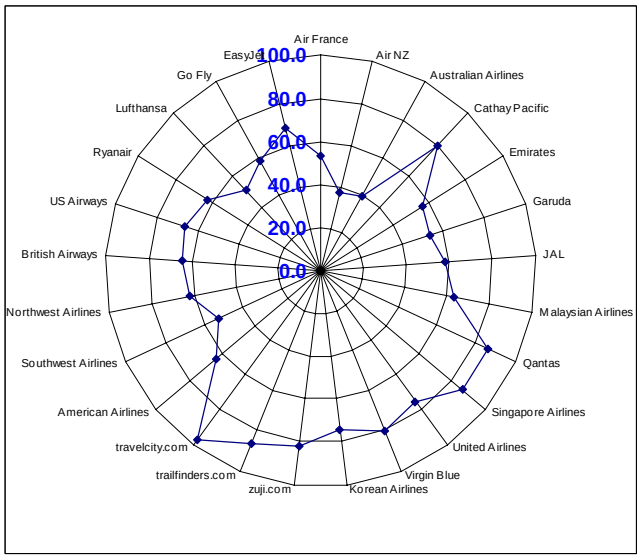

Figure 5: Overall Cluster Rating for selected MNE airlines and airline travel logistics providers

Figure 5 summarizes the logistics presence of the four cluster lever drivers. In this study, only one MNE – Travelocity.com is on-track to progress to a 5PL solution, and two others Zuji.com and Trailfinders.com are operating as 4PL's. The airlines studied generally rate lower and in the 3PL range, with Qantas, Cathay and Singapore airlines operating in the 4PL area.

6. STRATEGIC INTERPRETATION

Considering the growing global role of e-business, airlines need to consider what they hope to achieve from their web sites. Do they use their site to sell airline seats? If so they should reinvestigate what their core business is, and were are they focusing. From this research, it is apparent that MNE airline travel agent providers offer better solutions via their websites than do the individual airlines. This may be seen as expected, and as a justification for outsourcing! The MNE airline travel agent providers must enhance the customer value proposition, and do so in a cost effective way, in order to compete. They do this by offering added-value products, flight discounts, price and travel comparisons, travel packages, incentives, fast efficient services, and the like. Consequently the airlines have, in the past, used them to save costs and to source more customers - particularly those domestically-based customers, and home country international tourists who intend to travel internationally. Today, the major airline alliances deliver new ways to code share and to strategically move passengers between alliance partners. They have seen their overall passenger numbers grow. However, in the background, the scale and scope of MNE airline travel agents has been increasing. A new problem is emerging – the super MNE

airline travel booking brokerage house (or portal). This super brokerage house strategy is a high risk strategy to the airline industry in the long term. Qantas and other MNE Asian airlines have developed a travel brokerage house (or portal) to help control this situation – 'Zuji.com' is their model. This provider offers cheaper fares than can be obtained via the airline's own website, and also offers comparisons between participating airlines.

This solution could allow Qantas to move all its customer bookings to zuji.com. Qantas website customers would then be diverted to this one central booking site, and a further leveling of the travel booking competition would arise. This may then change the nature of Qantas's strategic website focus.

The zuji.com website is almost anti-competitive, and appears to be an attempt to block others in the airline travel businesses from capturing this brokerage house domain. It will not stop others, and in time, at least one key logistics brokerage house will emerge.

The zuji.com solution is still small scale when compared to Sabre's 'Travelocity.com' solution. In both cases the airlines are being moved into higher levels of competition, and ultimately the industry will become more low-price driven, with less options for differentiation.

Whilst Qantas, Cathay and Singapore airlines deliver a quality travel service, they do not deliver the same levels of service as those provided by Sabre via its Travelocity.com website.

All large successful travel agent logistics providers are working at above the 4PL level. Hence, for MNE airlines to compete with their own MNE travel agents they must operate at similar levels, or concentrate on improving their supply line efficiencies and outsource these service functions.

The question remains for these MNE airlines where do they choose to focus – on improving their internal logistics, on outsourcing or on improving their core business. This research shows that these large MNE airlines have all selected to move individually and have left gaps in the market. Large scale, globally-connected logistics suppliers have moved in, created a market, and are delivering better solutions than those offered by the individual airlines. Consequently, the airlines are missing an opportunity. To rectify this situation the airlines may choose to:

1) reduce the commissions available to travel agents, and control ticketing through their websites
2) form a major regional conglomerate and out-compete the logistics suppliers
3) concentrate purely on transporting passengers in a cost effective, efficient manner
4) outsource all ticketing and related functions to a large 4-5PL like travelcity.com, thereby relinquishing their sales packages and follow Porter's[3] 2001 model of cost minimization and efficiency.

This research infers many airlines who are operating without a tight strategic focus, may be more likely to encounter website related passenger ticketing logistics problems. They may become price-driven transporters, and the large MNE 4PL and 5PL logistics-focused airline travel agents could influence their marketspace.

7. CONCLUSIONS

The airline industry operates at a number of virtual levels, and their websites epitomize customer strategy – and none deliver highly customized or 'one-on-one' customerized sales-service related solutions.

The airline industry is highly competitive, yet it has not delivered on its prime purpose – to move the maximum number of people it can through its operational spheres of influence. By July 2004 no airline in the world has delivered a quality web-based logistics service to its customers. Each airline maintains a web presence, but this site is often outdated, modified in part at best, and not designed to actually make the passage of winning customers easy. Many sites evaluated, were somewhat user 'unfriendly'. They were slow to load, some required cookie dumps before one could access them, some do not provide easy customer response avenues, and some did not allow for online bookings. This state of affairs has created a new business opportunity – one where airline travel agent logistics providers can move in, and possibly capture, an additional share of the MNE airline customer sales market. Hence, instead of the MNE airlines controlling, and working with, their chosen logistics providers, the logistics providers may quietly grow in size and develop a small degree of control within the industry.

These airline travel agents have positioned themselves to deliver greater levels of logistics related offerings that those offered by the airlines, hence justification for their existence can be argued as they deliver value added services to the customer, and do so in a more customer-centric manner.

This research indicates that the four cluster model levers can be effectively measured. It shows that airline website drivers can be developed for these levers, and that these may be used to develop a comparative positioning between MNE airlines.

Finally the strategic question still remains - Should the MNE outsource its value chain logistics, and does the size of a business give it protection from being moved towards a lowest price provider?

8. FURTHER STUDIES

On-going research aims to development both a refined computerized logistics model, and a scalable competitive positioning matrix [29].

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