

The Impact of Container Shipping Consolidation on Service Quality, Brand Awareness, Customer Satisfaction, and Customer Loyalty: An Exploratory Study

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ABSTRACT

Purpose: This study aims to examine how various aspects of operational and service consolidation, in terms of mergers, acquisition and strategic alliance in container shipping lines, affect their service quality, brand awareness, and, eventually, customer satisfaction, and customer loyalty, upon which operational and management improvements are proposed accordingly.

Design/methodology/approach: This study employs method triangulation, combining qualitative and quantitative methods as its research strategy. In the first phase, based on the proposed conceptual model developed from the literature review, seven face-to-face in-depth interviews were conducted with five logistics service providers and two trade associations representing shippers as well as customs brokers and forwarders in Australia. In the second phase, a survey, which was designed based on findings from the interviews, was accordingly administered to customers of container shipping lines.

Findings: It was revealed that operational and service consolidation in container shipping negatively affects the service quality perceived by customers, particularly the outcomes (time, reliability, service customisation, etc.) and process (professional knowledge and behaviour, customer service, etc.) aspects. This in turn creates a mixed impact on brand awareness, customer satisfaction, and customer loyalty.

Research limitations/implications: This study is constrained by the low survey response rate at the time that this paper was written. Further replication in the future in other countries will help enhance the reliability and validity of its findings.

Originality/value: As there are at present not many studies on the effects of container shipping consolidation on service quality, brand awareness, customer satisfaction, and customer loyalty, further exploration needs to be conducted to enhance knowledge in this industry. This study is thus original, as it is the first study conducted in Australia which is a shipping country that relies heavily on foreign shipping lines for its foreign trade. Findings from this research can contribute to shaping more effective decisions relating to container shipping service quality and customer performance.

Keywords: container shipping, strategic alliance, shipping consolidation, service quality, customer satisfaction, Australia.

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1 INTRODUCTION

Shipping is the backbone of the world's economy, facilitating international trade and globalization. As widely acknowledged by various international organisations (e.g., International Maritime Organisation, 2021; OECD, 2021; International Chamber of Shipping, 2021), industry periodicals such as the Washington Post (Green, 2018), and numerous academic publications (for example, see Fratila et al., 2021), the shipping industry is pivotal, as more than 80% of global trade in terms of volume are moved by sea, thus contributing significantly to economic growth in many countries and regions of the world. It is the major transportation provider for large volume shipments over long distances at low costs. In recent years, container shipping has grown tremendously, bringing with it an expanded network of suppliers and customers, all the while being integrated more intensively into supply chains (Yang et al., 2014). Unlike other types of cargo ships, container ships sail according to published schedules to named ports and require huge logistics support from a wide network of agents, ports, and other suppliers, such as freight forwarders, bunker and parts suppliers, as well as other immediate customers (Stopford, 2009). Regardless of whether there is a sufficient amount of cargo or not in the next port of call, the container ship must still follow its published schedule, necessitating the maintaining of a plethora of interrelationships with both suppliers and customers. This gives rise to the importance of supply chain integration in container shipping. This is supported by Frémont (2009), who argued that containerisation prepares the ground for the full vertical and horizontal integration of transport chains, while Panayides (2006) also suggested integration to be a central tenet in maritime logistics, particularly of the transportation modes and organisations along the global supply chain. In recent years, shipping companies have integrated horizontally through mergers, acquisitions, strategic alliances, and vertically through operating dedicated terminals and by providing integrated logistics and intermodal services (Gao and Yoshida, 2013; Merikas et al., 2011; Agarwal and Ergun, 2010; Van De Voorde and Vanellander, 2008; Midoro et al., 2005; Notteboom, 2004; Panayides and Cullinane, 2002).

The characteristics of container shipping are different from other sectors of the shipping industry. Specifically, container ships carry various types of cargo which are of high value but low volume, and often time-critical within their supply chains. The performance characteristics are more focused on timeliness, reliability, connectivity, etc., rather than only low freight rate. In other words, customers using container shipping are more concerned with quality aspects of the service, as these may directly affect their commercial performance. Maintaining superior levels of quality management practices to ensure the delivery of service that assures customer satisfaction is essential in container shipping. This is reflected through the universal existence of ISO and other industry performance standards in container shipping companies.

Horizontal integration in container shipping, in the form of operational and service consolidation, has been widespread in the past few years, especially between 2016 and 2018. This has been happening not only on the main routes, but also regional/feeder routes (Louppova, 2018), in that "small players... marginalised by the wave of consolidation now shaking the industry, reducing the overcapacity in the market" (Paris, 2016). Meanwhile, there have been concerns that such consolidation can negatively affect customers. This concern has been raised by shipper councils globally, such as the European Shippers' Council and the Global Shippers' Forum (Anonymous, 2016). However, there has been little academic research on how the consolidation, reflected through strategic alliances in the container shipping industry, would affect the service quality of liner shipping operators, and subsequently their brand's awareness, customer satisfaction, and customer loyalty. This research, therefore, addresses the identified gap in the literature and also lays the background for further research on how container shipping companies can enhance their service quality and other customer performance aspects in the aftermath of consolidation. This paper therefore specifically examines (1) how container shipping consolidation may affect service quality of shipping lines, (2) how this consolidation may



impact brand awareness of shipping lines, and (3) whether customer satisfaction and loyalty have been influenced by the service quality and brand awareness which have been impacted as a consequence of container shipping consolidation.

The next section presents a review of relevant literature on container shipping, including the rationale for consolidation, recent developments, and its impact on shippers, as well as the relationships among important constructs in this research. This is followed by the methodology of investigations undertaken, the collection of data, and analysis thereof. The final section presents the findings, limitations of the current research, and suggestions for further investigations moving forward.

2 LITERATURE REVIEW AND RESEARCH MODEL

2.1 Consolidation in container shipping

Consolidation in container shipping, in the form of mergers, acquisitions and strategic alliances, has been recognised as a regular and expected phenomenon in this business sector, which is known for its very high operational costs and complexity of operations since its early days. UNCTAD (2018, p. 1) highlighted that "a wave of market consolidation has transformed the global container shipping industry, leading to mergers and acquisitions between container lines, a reshuffling of shipping alliances and the expansion of shipping companies into port operations", and that "container lines concluded various mergers and acquisitions and formed larger strategic shipping alliances – groupings where member container lines cooperate on strategic issues... resulted in greater market concentration, with a handful of container lines dominating the market."

An acquisition occurs when a container shipping line acquires all or part of the assets or business of another line, while a merger occurs when two companies combine into one entity. The merger and acquisition (M&A) strategy has been used by container shipping lines as an alternative for growth apart from the traditional method of growing organically through asset purchasing and business development (Brooks and Ritchie, 2006). Container shipping has witnessed numerous mergers and acquisitions, starting in 1977 when Malcom McLean acquired U.S. Lines, to the more recent deals in 2017 (COSCO purchased OOCL, Maersk acquired Hamburg Süd, and Hapag-Lloyd took over UASC), apart from several other transactions in 2016, e.g., the three Japanese lines of "K" Line, MOL, and NYK merged into ONE (Ocean Network Express), CMA CGM acquired NOL-APL, while COSO merged with China Shipping (Salisbury, 2017) and took over OOCL. The scale and scope of current container shipping conglomerates have become much bigger compared to those in the 1970s.

Strategic alliance refers to cooperation agreements on a global scale between liner companies which were mainly concerned with the coordination of prices and capacity in the past, but have been taking the form of slot sharing, vessel and other resource (e.g., containers, sailing schedules, terminals, etc.) sharing in the past two decades (International Transport Forum, 2018). The traditional reasons for strategic alliances are to take advantage of "operational synergies" between shipping lines, i.e., the ability to achieve a better allocation of vessels, and provide a greater frequency of service to customers but which also results in increased market presence from providers (Cariou, 2002). Today, the popularly cited important rationale for alliances is to generate operational efficiencies and broader service coverage through economies of scale (i.e., the deployment of bigger vessels) and scope (i.e., offering a more comprehensive global shipping network via the combination of member shipping lines' services) (International Transport Forum, 2018). With this rationale, container ships have progressively increased in size from the first generation (Kemp, 2019) of 500-800 TEUs to the current biggest container ship in the world, the *Ever Ace*, at 23,992 TEUs (MarineLink, 2021).

The first formal strategic alliances in container shipping can be traced back to late 1995 with the formation of Global Alliance (OOCL, MOL, APL, Nedlloyd), Grand Alliance (P & O, Hapag-Lloyd, NYK, NOL),

Maersk-Sea-Land and TRICON (DSR – Senator, Cho Yang). It is argued that alliances in container shipping have undergone four generations (Table 1), in which the latest generation includes three alliances which have been formed between 2016 and 2018 (i.e. 2M, Ocean, THE) and dominate capacity on the major East-West (Asia-Europe) container corridor. This is without mentioning the new K-Alliance, which is set to begin in 2021, with an agreement between HMM and four South Korean liner operators (Li, 2020). The formation of alliances was a means for container shipping to cope with depressed market conditions and the long-beleaguered financial returns since the 2008 financial crisis, as well as overcapacity brought about by the arrival of very large container ships that had been ordered several years earlier (UNCTAD, 2018) in a bid by owners to reduce the marginal costs of each container carried.

Table 1. Four generations of alliances in container shipping. (International Transport Forum, 2018)

Generation	Alliances	Period	Characteristics
First	Global, Grand, Maersk/Sealand	1996-1998	Ambitious.
Second	New World, Grand, CKHY	1998-2012	Stability, used by mid-sized and smaller carriers.
Third	G6, CKHYE, 2M, O3	2012-2017	Transition: the largest carriers also become part of alliances. Instable alliance constellation.
Fourth	2M, Ocean, THE	2017-?	No alliance has one dominate carrier. The carriers in alliances are the eight biggest carriers globally.

Table 2. Overview of the three strategic alliances in container shipping (as of September 12, 2021). (Authors' elaboration based on data from Alphaliner, 2021)

Alliance	Carriers	Global market share	Aggregate Share
2M	Maersk	17.1%	33.7%
	MSC	16.6%	
Ocean Alliance	COSCO Group	12%	29.8%
	CMA CGM	12.1%	
	Evergreen	5.7%	
THE Alliance	Hapag-Lloyd	7.2%	16.1%
	ONE	6.4%	
	Yang Ming	2.5%	



There is unanimous agreement in the literature that there has been a progressive increase in the level of consolidation in container shipping. The outcome has allowed fewer shipping lines to acquire an increasingly higher global market share in terms of container carrying capacity. In 1996, the top 10 shipping lines provided 45% of the global container carrying capacity. In 2017, the figure stood at 70% (Tuscor Lloyds, 2017). Table 2 shows that the top eight lines in the latest three alliances controlled nearly 80% aggregate global market share. In addition, it was also observed that the number of container shipping lines providing services per country has declined by 38% on average between 2004 and 2018 (UNCTAD, 2018).

2.2 The impact of container shipping consolidation on shippers

Consolidation in container shipping has many implications for shippers. On the one hand, it can be argued that such consolidation provides stability and may lead to less freight rate fluctuation, more efficient and extensive services, and lower rates if cost savings are passed on to shippers from the shipping lines (UNCTAD, 2018). On the other, Saxon (2017) derived from their extensive engagement with shippers that a remarkable amount of dissatisfaction exists, in which shippers found a "widening gap" between the service they want to receive and the service they actually receive, with decreasing schedule reliability. These findings are also in line with those reported by the International Transport Forum (2018), which cited the results from Drewry (2018), that transit times and reliability of booking were considered to have deteriorated since 2016, that over 60% of respondents in the survey noticed deterioration in the range of different carriers available, and that over 40% observed a decreasing availability of different services. It was also observed in these reports that alliances can be generally associated with less choice, less service differentiation, and less service quality for shippers.

Almost all existing studies on the impact of container shipping consolidation on service quality and other customer performance aspects have been conducted by industry associations, consultancy firms, or occasional reports in industry magazines. Thorough, rigorous, and structured academic research is scant. Further, there has been no research in Australia to examine how container shipping consolidation may affect the service quality of shipping lines and the resulting impact on their customer satisfaction and loyalty, despite the criticality of maritime transport to the country in that nearly 99% of Australia's foreign trade in terms of volume go through her ports (Department of Infrastructure, Transport, Cities and Regional Development, 2019). Given the importance of this topic for relevant policy development, theory building, and management practice, it deserves formal investigation.

As seen from this section, the number of studies carried out to examine the effects of consolidation in container shipping is limited. With this background, the investigation in this research takes an inductive and deductive approach to discover and explain the issues through discussions with industry practitioners.

2.3 Research model and hypotheses

In the extant literature, there has been various research on consolidation in container shipping which tends to focus more on the dynamics and rationale of shipping consolidation from the economic perspective (using game theory, for example). Numerous studies have been conducted to explain the key rationale for consolidation in container shipping, namely, operational efficiency, which can be achieved through the synergy of various activities such as the expansion of geographical coverage, the scope of services, service frequency, and carrying capacity of participating shipping lines (for example, see Ryoo and Thanopoulou, 1999; Evangelista and Morvillo, 1999; Slack et al., 2002; Cariou, 2002; Panayides and Wiedmer 2011; Notteboom et al., 2017; Crotti, Ferrari and Tei, 2020). These, therefore, can be used as proxies for the measurement of container shipping consolidation.

Meanwhile, like in many other industries, service quality, which is an essential component of business success, plays a critical role in the maritime industry (e.g., shipping and port sectors) in maintaining customer satisfaction and loyalty (Thai, 2008; Jang et al., 2013; Thai et al., 2014; Yeo et al., 2016; Thai, 2016; Yuen and Thai, 2017; Phan et al., 2021). Service quality of container shipping has received considerable attention over years. Many researchers adopted the SERVQUAL model (Parasuraman et al., 1988), while others have argued that different industry sectors have their own distinctive characteristics, and thus deserve tailor-made models of measuring their own service quality. In the current study, the ROPMIS model of maritime transport service quality (Thai, 2008), upon which the impacts of container shipping consolidation are examined, was adopted. Container shipping service quality is reflected through factors relating to *resources* (e.g., ships and containers, etc.), *outcomes* (e.g., time and cost, etc.), *process* (e.g., experience with shipping line's staff, etc.), *management* (e.g., shipping line's efficiency, etc.), *image* (e.g., shipping line's reputation, etc.) and *social responsibility* (e.g., shipping line's safety and environmental operations, etc.). This model has been replicated in various sectors of the maritime industry, such as container shipping (Tepe, 2015; Tuan et al., 2018), tramp shipping (Thai et al., 2014), passenger shipping (Thamrin, 2012), freight forwarding (Gil-Saura et al., 2018), as well as container terminals and ports (Thai, 2015; Yeo et al., 2016; Chang and Thai, 2016; Pham and Yeo, 2019; Phan et al., 2021) with high validity and reliability.

As evidenced in the literature, service quality may affect brand equity, measured by brand awareness and loyalty, not only in general business sectors (for example, see Kao and Lin, 2016), but also in the maritime industry (e.g., referring to Lee et al., 2014). In this research, it is argued that consolidation in container shipping affects the brand awareness aspect of brand equity, given that the identity of a liner shipping company may be submerged in a new merger or strategic alliance. Meanwhile, the extent of brand awareness may be influenced by how well the shipping company delivers the promised service to their customers, and thus it is argued that these constructs are related to each other.

In the general business context as well as in that of the maritime industry, customer satisfaction and customer loyalty are some of the most important and well-studied research constructs. In this connection, there have been numerous studies on the antecedents and outcomes of satisfaction and loyalty. In the context of this research, these constructs are measured using items developed by Anderson *et al.* (2009), Pantouvakis (2010), and Cao and Chen (2011) and have been repeatedly employed in previous maritime related literature. Meanwhile, it is widely argued in the literature that there is a well-established relationship between brand awareness (as part of brand equity) and customer satisfaction (for example, see Tran et al., 2021), as well as between customer satisfaction and customer loyalty even in the context of shipping (for instance, see Shin and Thai, 2015).

It is therefore hypothesised that:

- H₁: There is an association between consolidation and service quality in container shipping.
- H₂: There is an association between consolidation and brand awareness in container shipping.
- H₃: There is an association between consolidation and customer satisfaction in container shipping.
- H₄: There is an association between service quality and brand awareness in container shipping.
- H₅: There is an association between service quality and customer satisfaction in container shipping.
- H₆: There is an association between brand awareness and customer satisfaction in container shipping.



H₇: There is an association between service quality and customer loyalty in container shipping.

H₈: There is an association between brand awareness and customer loyalty in container shipping.

H₉: There is an association between customer satisfaction and customer loyalty in container shipping.

Figure 1 illustrates the conceptual model while Table 3 describes key research constructs and measuring items adopted for this research.

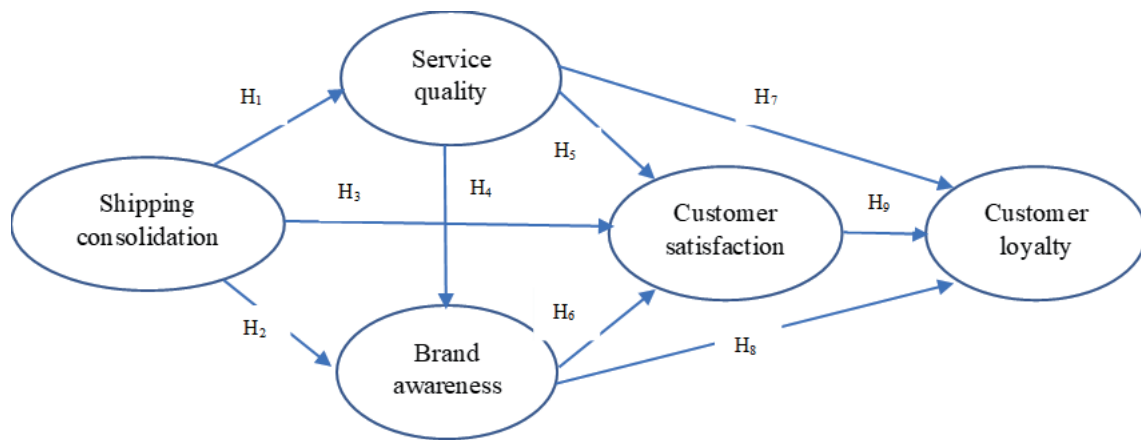


Figure 1. Conceptual model.

Table 3. Research constructs and measuring items.

Constructs	Measuring items	References
Shipping consolidation	Geographical coverage (SAC1)	Ryoo and Thanopoulou, 1999; Evangelista and Morvillo, 1999; Slack et al., 2002; Cariou, 2002; Panayides and Wiedmer 2011; Notteboom et al., 2017; Crotti et al., 2020
	Scope of service (SAC2)	
	Service frequency (SAC3)	
	Carrying capacity (SAC4)	
Resource-related service quality	Availability of ships and containers of choice (RES1)	Thai, 2008; Tepe, 2015; Tuan et al., 2018; Thai et al., 2014; Thamrin, 2012; Gil-Saura et al., 2018; Thai, 2015; Yeo et al., 2016; Chang and Thai, 2016; Pham and
	Condition and functionality of ships and containers (RES2)	
	Financial stability (RES3)	
	Track and trace capability (RES4)	
Outcomes-related service quality	Speed of service (OUT1)	Thai, 2016; Pham and
	Service reliability (OUT2)	

Constructs	Measuring items	References
	Service consistency (OUT3)	Yeo, 2019; Phan et al., 2021
	Shipment safety and security (OUT4)	
	Error-free documentation (OUT5)	
	Price of service (OUT6)	
	Service customisation (OUT7)	
	Professional attitude and behaviour of staff (PRO1)	
	Speed of handling customer inquiries (PRO2)	
Process-related service quality	Knowledge of customer needs and requirements (PRO3)	
	ICT application in customer service (PRO4)	
	ICT applications in operations and management (MAN1)	
	Efficiency in operations and management (MAN2)	
Management-related service quality	Management's knowledge and competence, including incident-handling capability (MAN3)	
	Management's understanding of customer's needs and requirements (MAN4)	
	Handling of customer feedback for improvement (MAN5)	
	Continuous improvement of customer-oriented operations and management processes (MAN6)	
	Relationship with other shipping lines and land transport service providers (IMA1)	
	Reputation for reliability in the market (IMA2)	
Image and social responsibility-related service quality	Record of operations and work safety (IMA3)	
	Implementation of environmentally responsible initiatives (IMA4)	
	Brand familiarity (BRA1)	Kao and Lin, 2016; Lee et al., 2014
	Recognition of service provided (BRA2)	
Recognition of brand (BRA3)		
Customer loyalty	Referral of service (LOY1)	Shin and Thai, 2015;
	Continuity of service usage (LOY2)	Anderson et al., 2009;
	Preferred choice of service (LOY3)	Pantouvakis, 2010; Cao
	Service preference despite of price (LOY4)	and Chen, 2011
Customer satisfaction	Satisfaction with the service (SAT1)	Anderson et al., 2009;
	Service meeting expectation (SAT2)	Pantouvakis, 2010; Cao
	Difference between service expectation and provision (SAT3)	and Chen, 2011



3 METHODOLOGY

An inductive approach to theory building is suitable for exploring the research issues via a qualitative approach (Creswell, 2013). In the current context, explanatory research is also required to examine the relationship between container shipping service quality and customer satisfaction. Therefore, a positivist study with a static design was considered appropriate to help gain rich insights on this potential causal relationship by using quantitative analysis of cause and effect, based on understanding, explanation, and prediction. The validity and reliability of variables and models can be derived from a quantitative study (Dinasarapu et al., 2011; Creswell, 2013). A deductive approach is thus also necessary to address the research questions in this study. This research aims to explore the effects of container shipping consolidation on service quality, brand awareness and subsequently customer satisfaction and loyalty, and thus is of an exploratory and explanatory nature. Therefore, a sequential mixed method research design, combining qualitative and quantitative methods, was employed to collect data to answer the research questions and address the objectives. A qualitative method provides a better understanding of the experience of participants, explores areas not yet thoroughly researched, discovers relevant variables that can be used in the quantitative method, and offers a comprehensive approach to study the phenomena (Creswell, 2015). The qualitative approach helps to overcome limitations in the literature of container shipping consolidation, service quality, brand awareness, and customer satisfaction. Meanwhile, the quantitative approach validates results from the qualitative method, and analyses how container shipping service quality and brand awareness may affect customer satisfaction and loyalty as a result of consolidation.

For the qualitative phase of this research, the main method of data collection was in-depth semi-structured interviews. As shippers and logistics service providers are the key customers of container shipping lines, the target population consisted of senior managers working in freight forwarding/logistics services and manufacturing/trading (shippers) firms who were responsible for operational transactions with container shipping lines. The geographical boundary for these participants is within Australia. Interview participants were approached by contacting relevant trade associations i.e., the Australian Peak Shippers Association (APSA) and Chartered Institute of Logistics and Transport Australia (CILTA). These became the sampling frames for this research stage. Their assistance was gained to forward the invitation letter to their members. The semi-structured interview allowed interviewees to express their views and ideas. They also allowed the researcher to collect in-depth information on how container shipping consolidation affects service quality and customer satisfaction. The interviews were conducted face-to-face at the participants' workplaces and recorded with the participant's prior consent. Before the face-to-face sessions, a cover letter detailing the project's background, objectives, and research questions was sent to each interviewee to obtain their consent to participate in the research project.

By the cut-off date for the 1st phase of this research, seven semi-structured interviews were conducted, followed by a few follow-ups via emails. On average each interview lasted for about 90 minutes. Among the five interviewees, five were senior managers in various logistics service companies and two held senior management positions at a couple of trade associations representing shippers and freight forwarders. The interview protocol consisted of 11 open-ended questions categorised in four sections:

- I. personal information for classification,
- II. operational and service aspects of container shipping consolidation that may affect customers,
- III. how service quality of container shipping lines is influenced by various operational and service aspects of consolidation, and
- IV. how customer satisfaction may be affected by the impacted service quality and brand awareness as a result of consolidation in container shipping.

Upon completion, interviews were transcribed and analysed using thematic analysis. Table 4 provides a summary of the profiles of interviewees who participated in the first phase of this research and who qualified to provide insights into the research questions.

Table 4. Summary of interviewees' profiles.

Interviewees	Designation	Experience	Organisation profile
LSP1	Director, Air and Ocean, Australia and New Zealand	30 years in freight forwarding	Air freight, contract logistics, ground transport, ocean freight, supply chain solutions, vehicle logistics
LSP2	General manager, chairman of a state logistics committee	27 years in logistics industry	air freight, sea freight, LCL, FCL, service consolidation
LSP3	Import & customer service supervisor	14 years warehouse operations, import seafreight customer service	Bonded warehouse, freight forwarding, quarantine
LSP4	Branch manager, air & sea freight	24 years in freight forwarding, customs brokerage and logistics	Sea & air freight forwarding, inland transport, customs brokerage, logistics solutions
LSP5	Operations manager, contract logistics	5 years in current position, 15 years in the industry	Sea & air freight forwarding, inland transport, customs brokerage, contract logistics
PA-S	Secretariat of the trade association & director of an industry supply chain association	More than 20 years in freight forwarding and logistics	Representing cargo and shipper owners in respect to liner services
PA-F	Branch manager of the association	Many years of experience in customs quarantine, import and export forwarding	Representing freight forwarders, logistics service providers, customs brokers; offering and promoting education and training for members e.g., conferences, etc.

Notes: LSP – Logistics Service Providers; PA-S: Trade Association (shippers); PA-F: Trade Association (freight forwarders)



For the quantitative phase of this research, the main method of data collection was a survey targeting respondents who are relevant managers in charge of booking shipping services with container shipping liners in cargo-owning and logistics service providing firms. The survey questionnaire contains three main sections. Section 1 asks respondents to indicate the level of change in container shipping services that they have experienced corresponding to aspects of shipping consolidation identified in the literature on a categorical scale (i.e., 1 = significantly decreasing; 5 = significantly increasing). On this note, another aspect of shipping consolidation, *business process standardisation*, was added following the interview analysis. In this respect, it was repeatedly mentioned by interviewees that the automated and semi-automated process of customer service, such as the deployment of automated telephone answering services, is what they have experienced across the container shipping lines which are members of alliances. Section 2 of the questionnaire addresses the respondents' perception of various aspects of service quality, brand awareness, customer satisfaction, and customer loyalty of the container shipping lines that are members of an alliance which they most often work with. These are measured on a Likert scale (1 = strongly disagree; 5 = strongly agree). Meanwhile, Section 3 asks demographic information of respondents, such as the sector they work in (i.e., logistics service provider or shipper), their job designation, and years of work experience.

The survey participants were approached by contacting the Australian Peak Shippers Association (APSA), which is a trade association body of shippers and freight forwarders in Australia. An email cover letter, containing the URL to the online survey questionnaire designed in Qualtrics, was sent to the APSA Secretariat, for further forwarding to their members. By the cut-off date for the 2nd phase of this research, 32 responses were received. Table 5 provides a summary of the demographic information of survey participants. As 72% of respondents currently hold managerial positions (e.g., logistics manager, supply chain manager, operations manager, CEO, general manager, etc.) and 72% also possess 6 to 10 years or more of work experience, it can be concluded that they are qualified to provide reliable and valid information on the consolidation and its impact on service quality, brand awareness, customer satisfaction, and customer loyalty in the context of container shipping in Australia.

Table 5. Demographics of survey respondents.

Business sector	
Logistics service providers	44%
Shippers	56%
Designation	
Managers	72%
Staff	28%
Experience	
Less than 1 year	3%
1 to 5 years	25%
6 to 10 years	28%
More than 10 years	44%

4 FINDINGS AND DISCUSSION

4.1 Choice of qualitative and quantitative analyses

For the qualitative data collected through the semi-structured in-depth interviews, the cross-interview thematic analysis, which compares views, perceptions, and shared experiences derived from interviews with respect to the same three research questions, was employed. Findings are interpreted by comparing these views, perceptions, and shared experiences with their equivalents in contemporary literature. Analysis results show some similar patterns, but also differ quite significantly among the 3PL service providers themselves. There are similarities between the trade associations and 3PL service providers with respect to (1) which aspects of container shipping consolidation may affect the service quality of shipping lines, (2) how these aspects of consolidation impact various dimensions of service quality, and (3) whether customer satisfaction has been influenced by the impacted service quality as a consequence of container shipping consolidation.

Meanwhile, given the small sample collected through the survey by the time this paper was written and the scales of measurement, it was decided that non-parametric statistics would be more suitable for the analysis. To confirm this, scatter plots were performed to examine the relationship between variables in the hypotheses. It was found (for example, see Figure 2 for the relationship between shipping consolidation and service quality) that their relationship is monotonic, which justifies the employment of non-parametric techniques, such as the use of Spearman's rank-order correlation rather than Pearson product-moment correlation. Due to the limitation in sample size, traditional techniques such as factor analysis and Structural Equation Modelling could not be used, and this is acknowledged as a limitation in this paper. Meanwhile, for analyses conducted at the construct level, the item parceling technique (Matsunaga, 2008) was employed to provide psychometric and modeling-related benefits, including parsimony.

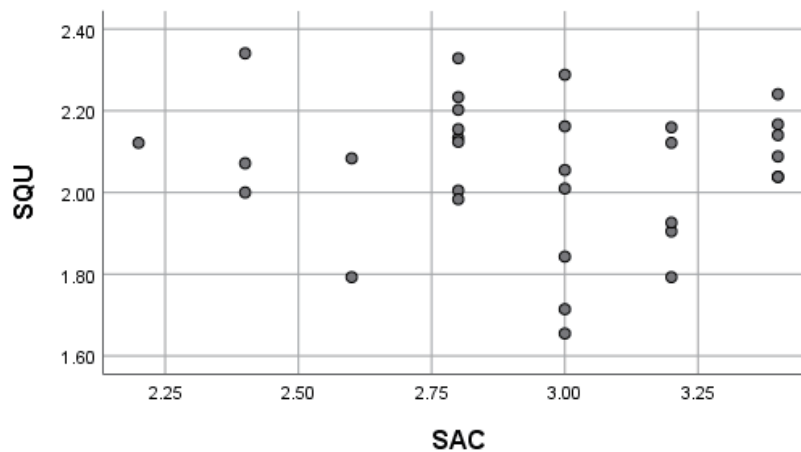


Figure 2. Relationship between shipping consolidation (SAC) and service quality (SQU).

4.2 Relationships between shipping consolidation, service quality, brand awareness, customer satisfaction, and customer loyalty at the construct level

Table 6 and Table 7 present the results of Spearman's rank-order correlation analyses between shipping consolidation, service quality, brand awareness, customer satisfaction, and customer loyalty as perceived by survey respondents. It can be seen that there is a negative correlation between shipping consolidation and the service quality of shipping lines, whereas all other correlations—i.e., those between consolidation and brand awareness and customer satisfaction, between service quality and brand awareness, as well as between these two constructs with customer satisfaction—are all positive, although the strength of their relationships are weak



and not statistically significant. Meanwhile, there is also a positive correlation between customer satisfaction and customer loyalty. The correlations between customer loyalty and service quality and brand awareness are negative, which implies that mediation analyses should be conducted in the future to further explore these relationships. Nevertheless, the strength of their relationships is weak and not statistically significant.

Table 6. Relationships between shipping consolidation, service quality, brand awareness, and customer.

Spearman's rho		Shipping consolidation	Brand awareness	Customer satisfaction	Service quality
Shipping consolidation	Correlation	1.000	0.088	0.090	-0.054
	Coefficient				
	Sig. (2-tailed)		0.633	0.623	0.770
Brand awareness	Correlation	0.088	1.000	0.214	0.134
	Coefficient				
	Sig. (2-tailed)	0.633		0.239	0.464
Customer satisfaction	Correlation	0.090	0.214	1.000	0.177
	Coefficient				
	Sig. (2-tailed)	0.623	0.239		0.333
Service quality	Correlation	-0.054	0.134	0.177	1.000
	Coefficient				
	Sig. (2-tailed)	0.770	0.464	0.333	

Table 7. Relationships between service quality, brand awareness, customer satisfaction, and customer loyalty.

Spearman's rho		Brand awareness	Customer satisfaction	Service quality	Customer loyalty
Brand awareness	Correlation	1.000	0.214	0.134	-0.084
	Coefficient				
	Sig. (2-tailed)		0.239	0.464	0.646
Customer satisfaction	Correlation	0.214	1.000	0.177	0.023
	Coefficient				
	Sig. (2-tailed)	0.239		0.333	0.900
Service quality	Correlation	0.134	0.177	1.000	-0.116
	Coefficient				
	Sig. (2-tailed)	0.464	0.333		0.526
Customer loyalty	Correlation	-0.084	0.023	-0.116	1.000
	Coefficient				
	Sig. (2-tailed)	0.646	0.900	0.526	

The negative relationship between consolidation and service quality, as well as the weak correlation between these constructs and customer satisfaction, are also reflected in the interviews. Given the impacts of container shipping consolidation on various aspects of service quality, interviewees commented that customer satisfaction could be negatively influenced as a consequence. This is expected given that consolidation gives more negotiating power to shipping lines and less to customers. In addition, as the service outcomes are more commoditised and less customised to each customer's expectations, it is becoming harder for shipping lines to meet the requirements of specific groups of customers (LSP3 interviewee). This may differ for big logistics service providers who have large cargo demand and many people and systems to integrate with shipping lines and their own customers (LSP4 interviewee).

Meanwhile, when asked to comment about these five components of service quality, all 3PL service providers and trade associations agreed that they are all important, valid, and currently being used by customers to measure the service quality of container shipping lines in practice. All the interviewees confirmed that container shipping lines need to have "equipment available and in good condition" (LSP2, LSP4), "good quality of containers" (LSP5) "shipping schedule reliability" (LSP2), "reliability" (LSP3), "vessel leaving on time", "make as few errors as possible prior to vessels arriving" and "transparency in the booking process" (LSP4), "the attitude of the container line's staff" (LSP5), "interaction with the customer when dealing with problems" (PA-F), "good relationship with customers" (PA-S), "environmental awareness" (LSP3). These comments clearly connect with the six dimensions identified above.

4.3 An anatomy of the impact of shipping consolidation on service quality

Further analyses were conducted to examine the relationship between container shipping consolidation and various dimensions of service quality. The results of Spearman's rank-order correlations between these constructs are presented in Table 8. It can be seen that shipping consolidation is negatively related to the *outcomes* and *process* dimensions of the service quality of container shipping lines. This means, as the extent of consolidation increases, customers would experience decreasing outcomes in service delivery as well as in the level of customisation, or the personalised approach in customer service. Meanwhile, there are positive correlations between shipping consolidation and other aspects of service quality, although the strength of these relationships are weak and are not statistically significant.

It is worth noting, however, that there is a significant positive relationship between these two constructs (*outcomes* and *process*) of service quality. This can be interpreted as meaning that any improvements in the training of shipping line staff to be more professional in addressing customer requirements, to demonstrate good knowledge of their needs and requirements, and to take care of customers with a personalised approach, would lead to great outcomes in what the shipping line has to offer in terms of service speed, reliability, and price. This interesting finding highlights the importance of paying attention to the traditional way of handling customer service, despite the need to standardise the business process for efficiency as pursued by container shipping lines in joining strategic alliances. In other words, shipping is still very much a "people business", and it is essential not to neglect this "human touch" aspect if service quality is to be preserved and enhanced.



Table 8. Relationship between shipping consolidation and aspects of service quality.

Spearman's rho		Shipping consolidation	Resource	Outcomes	Process	Management	Image & social responsibility
Shipping consolidation	Correlation Coefficient	1.000	0.181	-0.111	-0.197	0.178	0.236
	Sig. (2-tailed)		0.320	0.544	0.279	0.329	0.194
Resource	Correlation Coefficient	0.181	1.000	0.004	0.042	0.078	0.007
	Sig. (2-tailed)	0.320		0.984	0.820	0.672	0.972
Outcomes	Correlation Coefficient	-0.111	0.004	1.000	.365*	0.233	0.274
	Sig. (2-tailed)	0.544	0.984		0.040	0.199	0.129
Process	Correlation Coefficient	-0.197	0.042	.365*	1.000	-0.042	-0.229
	Sig. (2-tailed)	0.279	0.820	0.040		0.819	0.208
Management	Correlation Coefficient	0.178	0.078	0.233	-0.042	1.000	.403*
	Sig. (2-tailed)	0.329	0.672	0.199	0.819		0.022
Image & social responsibility	Correlation Coefficient	0.236	0.007	0.274	-0.229	.403*	1.000
	Sig. (2-tailed)	0.194	0.972	0.129	0.208	0.022	

Note: *. Correlation is significant at the 0.05 level (2-tailed)

Table 9 and Table 10 present the results of Spearman's rank-order correlation analyses of the relationships between shipping consolidation and various areas of the outcome-related and process-related dimensions of service quality. Interestingly, it can be seen that shipping consolidation is negatively correlated with the speed of providing service, reliability, safety and security, and error-free documentation areas of service outcomes. Meanwhile, shipping consolidation is also negatively related to shipping line staff's professional attitude, their knowledge of customer requirements, and ICT application in customer service. Nevertheless, the strength of these relationships is weak and not statistically significant.

Table 9. Relationship between shipping consolidation and outcomes-related service quality.

Spearman's rho		Speed	Reliability	Consistency	Safety & security	Error-free documentation	Price	Customisation
Shipping consolidation	Correlation	-	-0.080	0.181	-0.218	-0.194	0.038	0.292
	Coefficient	0.273						
	Sig. (2-tailed)	0.131	0.664	0.322	0.230	0.288	0.836	0.105

Table 10. Relationship between shipping consolidation and process-related service quality.

Spearman's rho		Professional attitude	Speed of handling enquiries	Knowledge of requirements	ICT application in customer service
Shipping consolidation	Correlation	-0.165	0.119	-0.164	-0.200
	Coefficient				
	Sig. (2-tailed)	0.366	0.515	0.370	0.273

The above statistical findings are also echoed by qualitative data, although conclusions about hypothesis testing could not be made due to the limitation in sample size. Across the 3PL service providers, interviewees shared some common opinions on how container shipping consolidation may affect their business. Firstly, it is felt that consolidation may bring about some benefits to customers. In this connection, a 3PL service provider (LSP1) indicated that logistics service providers and shippers may enjoy lower *freight rates* as a result of container shipping consolidation if this is stabilised by shipping alliances. This view was echoed by the interviewee who worked for the freight forwarding association (PA-F) who agreed that freight rate is not an issue, although he also warned that shipping lines could negotiate amongst themselves to fix freight rates and surcharges because they are permitted to do so in Australia. Specifically, Part X (Ten) of the Competition and Consumer Act 2010 (Department of Infrastructure, Transport, Regional Development and Communications, 2021) set up a system for regulating international liner cargo shipping services and indicates that "the parties to a conference agreement are required to negotiate with, and provide information to, representative shipper bodies who are registered under Part X" and that "if the conference agreement is registered, the parties will be given partial and conditional exemptions from cartel conduct, contracts that restrict dealings or affect competition and exclusive dealings". However, it is worth noticing that the Australian Competition and Consumer Commission (ACCC, 2019) issued a discussion paper in December 2019 seeking comments on a possible class exemption for ocean carriers providing international liner cargo shipping services to and from Australia. This is following the 2015 Competition Policy Review (the Harper Review) which recommended that Part X be repealed and that the ACCC develop a class exemption for liner shipping agreements that meet a minimum standard of pro-competitive features. He added that *capacity* may not be an issue for shipping lines as "they bring big capacity to Australia", a view which is not shared by the other interviewees. In this respect, the key argument is that arrangements such as "slot sharing" may limit customer access to a shipping service, as a shipping line's capacity is now spread across other alliance members. A 3PL service provider (LSP3) commented:



... *Space is a main issue. If they are not consolidating with other lines, perhaps 100% of the space of that vessel is for our customers; but now they are sharing with others, so some get more options while others will lose slots.*

3PL firms agreed unanimously that there are other negative impacts of consolidation on customers. First of all, interviewees in both the shipper trade association and 3PL firms agreed that *freight rate* becomes an issue of concern as it is now consolidated and controlled by container shipping alliances. Indeed, while freight rate is generally decided by demand and supply factors, it can be controlled since larger but fewer shipping lines are now in the same alliance and stabilised freight rate can be a common practice among them on some shipping routes. Even when this is not legally possible in some trading areas, shipping lines in alliances may still influence the pricing in terms of common surcharges applied on shipping routes and port areas within the alliance's networks where they provide their services.

The second visible negative impact is that customers now have *limited choice of shipping lines* as well as *negotiating power*, since there is reduced competition between these lines, as typically highlighted by LSP2. This view is in line with a finding in the literature in which the eight largest container shipping lines now control about 80% of the global market share in terms of the container carrying capacity. Having limited competition among service providers puts customers in a disadvantageous position when negotiating freight rates with shipping lines. This also works negatively for customers when it comes to *risk management*, as seen clearly in the case of Electrolux (Schoer, 2016), which reported an accident in November 2014 in which two vessels collided and caught fire at Port Kelang in Malaysia. In this incident, it was found that while only 15 containers had been booked with one of the involved vessel operators, in fact, 98 containers were on the same vessel, although sent with different carriers, and all those containers made up more than half of the Christmas sales to Brazil.

There is also a high level of consensus among interviewees of 3PL service providers and trade associations on how container shipping consolidation affects other aspects of service quality of shipping lines. While acknowledging that the usage of technology by container shipping lines, e.g., faster processing due to 100% electronic Bill of Ladings now used in Australia, and some automated systems (LSP4), such consolidation also results in some negative outcomes in service quality. Firstly, there are constraints to *resources* as customers are limited in their choice of ships and access to containers (which is linked to the *capacity* and choice issues mentioned above). Secondly, the biggest negative impact is on *outcomes*. Interviewees noted that services are now increasingly becoming commodities; not much service customisation and differentiation can be provided due to the structure of alliances (LSP3, PA-S). In addition, another outcome is the possible longer delivery time. Although not being popularly indicated in the literature, this may be derived from the analysis that, as fewer but larger shipping lines dominate in an increasingly smaller number of alliances, deploying increasingly bigger ships, containers may have to wait longer so that the necessary load level can be achieved. This is especially true in the case of Australia, as a majority of containers coming to Australian ports are for local import and export demands. A 3PL service provider (LSP5) commented:

... *When consolidating, the shipping lines instead of putting containers daily onto different vessels to spread them over Australia, it already annoys customers because the containers now spend one week longer than it should have to since they have to wait for each other...*

The most significant negative impact on the *process* aspect of service quality is the loss of "human touch" in doing business with shipping lines. This is pointed out by almost all interviewees (LSP2, LSP3, LSP4, LSP5, PA-S and PA-F), who comment that since consolidation dictates a more efficient process through automation and cost-cutting with less staff, it becomes more stressful for customers dealing with shipping lines, especially when they need help in customising a shipment or have specific issues to discuss. They want someone in the shipping lines to talk to, who in many cases are "very depressed, angry and grumpy" (quote from an LSP5 interviewee). This also leads to issues with the *management* of shipping lines, as illustrated by an LSP4 interviewee:

... Flexibility of shipping lines is limited because, in some situations, their departments are far from the dock/ port, which results in the fact that they don't have the experience to handle the problems (e.g. their container load team is not at port, they are in Singapore).

5 CONCLUSIONS

This study examined the impacts of consolidation in container shipping on service quality, brand awareness, customer satisfaction, and customer loyalty in Australia. A method triangulation of both qualitative (in-depth interview) and quantitative (survey) methods was employed, which helps to provide an insight into the research questions. In this connection, experienced industry professionals who represent logistics service providers and relevant trade associations were interviewed, followed by a survey with members of the Australian Peak Shippers Association. Thematic and non-parametric statistical analyses were performed to derive answers to the research questions.

Although the statistical findings among research constructs are not significant due to the small sample size, it was found from interviews that consolidation among container shipping lines can result in mixed (both positive and negative) influences on the service quality and brand awareness of container shipping lines, and subsequently their customer satisfaction and loyalty, thus addressing research questions. The positive effects may be experienced through more stable freight rates and services, provided by bigger service providers, although the COVID-19 pandemic has recently caused havoc to both supply and demand and thus freight rate. This, to some extent, covers the risk of a smaller provider changing service patterns at short notice in response to changing market conditions. Even if service customisation for special needs of commodities is sacrificed, the service remains available. The negative effects are experienced primarily as a consequence of factors such as *available capacity, choice, process automation*, and commoditisation constraints. The interviewees were largely in agreement that consolidation has not helped in enhancing the ease of business or in managing risk for them. This was particularly true for smaller operations who had to change their systems of operations to comply with the business processes of large ship operators. These findings were also supported by those of the survey, although they were not statistically significant, which showed the negative impact of consolidation on key areas of the outcome- and process-related dimensions of service quality. As a consequence, brand awareness, customer satisfaction, and customer loyalty may be negatively affected.

This research provides important academic and managerial implications. On the one hand, this research is perhaps one of the first studies which look into the relationship between shipping consolidation and its effects on various customer performance metrics from the academic perspective. The research model designed in this study, once statistically validated by larger samples, can potentially reveal interesting and meaningful information on the interplay between key constructs in this research, thus contributing to knowledge building in the domain of container shipping consolidation. On the other hand, this research can provide insights for marketing and operations managers in container shipping lines in designing and implementing appropriate customer service strategies in order to enhance their service quality and other customer performance indicators.



Nevertheless, this research is constrained by its small sample size. It is recommended that future work collect a larger sample for more robust statistical analyses, such as Structural Equation Modelling, to provide a more detailed understanding of the impacts of consolidation on a range of customer performance. In addition, future studies should also be conducted in other shipper and shipping countries to enhance the reliability and validity of the research model.

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