




The extent of logistics outsourcing among small and medium-sized manufacturing enterprises in Nairobi



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Background: Small and medium-sized manufacturing enterprises (manufacturing SMEs) can facilitate economic growth and development by creating employment and spurring economic activities at low levels of the economy. The performance of SMEs in Kenya has, however, been poor, despite their significance. This poor performance is attributed to the high costs of logistics operations in the country. Manufacturing SMEs can, however, improve the performance of their logistics operations by adopting appropriate logistics outsourcing strategies.

Aim: The purpose of this study is to determine the extent of logistics outsourcing among manufacturing SMEs in Nairobi.

Setting: Manufacturing SMEs in Nairobi operate from the industrial zones of the Nairobi City County. The enterprises' logistics operations are characterised by long cycle times, high transportation costs and limited resources. The high operational costs experienced by the SMEs threaten their survival, and they are therefore required, among other things, to manage their logistics more efficiently to improve overall performance.

Method: A quantitative research design was used in this study. Data were collected from 163 manufacturing SMEs using a structured questionnaire. Descriptive statistics and (a one-way analysis of variance) ANOVA were used to analyse the data.

Results: Most (94%) of the manufacturing SMEs opted to outsource their logistics operations, although the extent of outsourcing was limited (1% – 50% of logistics operations were outsourced). Logistics outsourcing by the SMEs is intended to reduce logistics costs and supplement the limited in-house capabilities. In addition, there were significant differences in the extent of outsourcing of operational, information processing and value-added categories of logistics activities.

Conclusion: The results motivate SME owners and managers to acquire logistics resources and capabilities that are lacking in-house through logistics outsourcing to achieve the required efficiencies. Although the majority of SMEs have embraced logistics outsourcing, the low extent of its usage within the enterprises might have limited the ability to achieve high efficiencies.

Introduction

The definition of small and medium-sized enterprises (SMEs) varies from one country or region to another (Buculescu 2013:106). In Kenya, a manufacturing SME is considered to be an enterprise that transforms raw materials as input into finished products, employs 11–100 people and generates less than \$10 million in annual sales (Government of Kenya 2012:7–8; Organisation for Economic Cooperation and Development 2016). Small and medium-sized enterprises are regarded as drivers of economic development, industrialisation and job creation, and are considered to be critical in addressing the high poverty rates in developing economies (Buculescu 2013:104; Nasr & Rostom 2013:4; Okpara & Wynn 2007:24).

In Kenya, the SME sector is known for improving the livelihoods of the poor by offering sustainable employment as well as through the production of affordable goods that meet the needs of local communities, thereby reducing extreme poverty levels (Katua 2014:466; Smit & Watkins 2012:6325). Despite the fundamental role played by the SME sector in resolving a number of the country's unemployment and poverty-related problems, these enterprises have consistently underperformed over the years, with about 70% closing down within five years (Kangethe 2016). Chege, Ngui and Kimuyu (2016:21) argued that the underperformance of manufacturing SMEs in Kenya can be attributed to inappropriate managerial decisions, inconsistent deliveries, high inventory costs and poor logistics infrastructure, as well as other traditional challenges that include limited access to capital, and competition. In addition, Okpara and Wynn (2007:29) claimed that limited managerial

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skills, poor inventory control practices, the high cost of production, operational problems in logistics and poor infrastructure drive SMEs out of business during the early stages of operation. Poor managerial decisions from SME managers lead to the inappropriate allocation of limited resources among the various core and non-core business areas, resulting in suboptimal performance, which can inevitably cause business failure if left unrestrained (Thakkar, Kanda & Deshmukh 2012:645). The problem thus appears to be that SMEs have run their logistics operations inefficiently over the years. It is not known whether they manage their logistics in-house or outsource, and whether either of these are performed at a level appropriate to their business.

Small and medium-sized enterprises are generally required to allocate a large proportion of their scarce resources to their core business activities, endeavouring to reduce the cost of production and other related costs (Murphy et al. 2012:261). Past research has shown that manufacturing companies can improve their performance by diligently managing their logistics activities (Waugh & Luke 2011:338). This confirms the results of other studies that have identified logistics-related problems as inhibitors of the performance of SMEs, sometimes even causing their failure (Kimuyu 2010:11; Okpara & Wynn 2007:26). To mitigate against the problems of poor logistics, manufacturing SMEs should adopt logistics management strategies that are likely to create high levels of efficiency and effectiveness (Murphy et al. 2012:250). One of the strategies that enterprises follow to achieve higher levels of performance is to outsource non-core activities such as logistics operations. Enterprises use third-party logistics (3PL) service providers, who tend to have high levels of expertise, resources and capabilities, to improve their logistics, thereby ensuring performance (Waugh & Luke 2011:338). Manufacturing SMEs thus tend to channel their scarce resources into core manufacturing activities and outsource non-core activities such as logistics services to expert 3PL service providers to achieve improved levels of performance (Murphy et al. 2012:249). Outsourcing logistics activities assists SMEs in acquiring logistics expertise, resources and capabilities that could be lacking in-house or which cannot be performed efficiently at lower costs. Therefore, outsourcing can result in improved enterprise performance (Rahman 2011:350; Zailani et al. 2017:56).

Not all enterprises embrace logistics outsourcing. It is only used by just over half of enterprises globally, measured as organisations which outsource at least a single logistics activity (e.g. transportation services), either partially or fully (Langley & Capgemini 2016:13). Sahay and Mohan (2006:675) highlight that 55% of enterprises in India outsource their logistics services. In Australia, it is estimated that 66% of companies outsource their logistics services (Rahman 2011:351). High levels of logistics outsourcing have been reported in Turkey, at 80% (Aktas et al. 2011:839). A later global 3PL study reported that 86% of enterprises outsource logistics services to some degree (Langley & Capgemini 2016:13).

Langley and Capgemini (2015:14) argue that the importance of logistics outsourcing has increased over time because of

the number of enterprises using it and the growing number of activities that are outsourced, as well as the growth in logistics outsourcing expenditure. Enterprises aiming to reduce costs often outsource operational logistics activities such as transportation (Aktas et al. 2011:842; Langley & Capgemini 2016:13; Rahman 2011:353). However, very little outsourcing of information processing and value-added logistics services have been reported across the globe (Langley & Capgemini 2016:13). Research on the extent of logistics outsourcing among SMEs is limited, and past outsourcing studies (Hsiao et al. 2010b:75–86; Waugh & Luke 2011:337–360; Zailani et al. 2017) have mainly focused on the reasons for outsourcing and its impact on outsourcing in large enterprises. Most of the previous studies on logistics outsourcing have been contextualised in North America, China, India and Europe, as highlighted by Langley and Capgemini (2016:7) and Shi, Arthanari and Wood (2017:43). Studies on logistics outsourcing also tend to be focused on large enterprises (Langley & Capgemini 2016:7). This implies that little is known about logistics outsourcing, especially in developing countries, and particularly regarding the extent of its use among SMEs. Thus, this study sought to bridge this gap by determining the extent of logistics outsourcing among SMEs in Kenya. This study aims to achieve the following objectives:

- to ascertain the extent of logistics outsourcing among SMEs
- to determine whether there is any difference in the outsourcing of operations, information processing and value-added logistics services among SMEs.

Logistics outsourcing – A literature review

Arguments posited by proponents of transaction cost economics and the resource-based view theories have been used in past studies to explain logistics outsourcing (Bolumole, Frankel & Naslund 2007; Halldórsson, Hsuan & Kotzab 2015). This study is based on the resource-based view theory, which posits that enterprises can acquire resources externally to improve their service delivery and gain competitiveness (Liu et al. 2015). This implies that SMEs can acquire logistics resources externally to meet their customers' requirements through logistics outsourcing. Logistics outsourcing refers to the transfer of part of or all logistics activities to 3PLs or logistics service providers (LSPs) (Wilding & Juriado 2004:628; Zailani et al. 2017:58). In this manner, the outsourcing company expects the 3PL providers to perform the logistics activities more efficiently and effectively when compared with those performed in-house, and thus improve customer service levels.

The importance of logistics outsourcing to practitioners and academics has been growing over time. This growth is because of issues such as (1) the strategic impact of logistics outsourcing on customer service, in terms of delivery timeliness and the visibility of goods along the supply chain (Foogooa 2008:863), (2) the cost-saving opportunities

presented by logistics outsourcing (Rahman 2011:350) and (3) the logistics capabilities acquired from 3PLs such as logistics information systems, high skills and knowledge, innovative capacity, improved quality and the reduced risk of managing logistics in-house (Edvardsson & Teitsdóttir 2015; Foogoo 2008; Liu et al. 2015).

There are many logistics activities that can be outsourced across business enterprises. For example, Yang (2014:19) presented a comprehensive list of 45 logistics activities outsourced to 3PLs. Yang's list included all of the 19 logistics activities presented in the 3PL survey of Langley and Capgemini (2014:12). However, the most commonly outsourced logistics activities tend to be transportation services, warehousing, inventory management, packaging, fleet management, and clearing and forwarding (Langley & Capgemini 2016:13; Rahman 2011:352). This study focused on the above logistics activities as well as product track and trace, logistics information systems and order management (Aktas et al. 2011:839; Langley & Capgemini 2016:13).

Pratap (2014:233) argued that 3PLs possess higher levels of expertise than in-house staff, which allows them to achieve higher efficiencies and effectiveness. Companies that adopt a logistics outsourcing strategy anticipate many associated benefits, which include cost reduction, better on-time delivery, reliable and predictable services, access to innovations, the reallocation of resources for other investments, more management time to focus on core business activities, greater operational flexibility and access to skilled staff (Langley & Capgemini 2014:10; Rahman 2011:350). Other benefits of logistics outsourcing include shared risk, improved working capital and high returns on investment (Rahman 2011:350; Zailani et al. 2017:58). In addition to these benefits, companies expect to improve their overall performance through logistics outsourcing (Rahman 2011:354).

Logistics activities can be differentiated from those related to basic execution to those that are strategic to the enterprise's competitiveness (Liu et al. 2015:47; Waugh & Luke 2011:339). In this study, the activities are classified into three categories. Firstly, *operational logistics activities* involve the day-to-day operations of the enterprise, in which cost-efficiency is the main consideration when selecting an LSP, for example, transportation (Hsiao et al. 2010b:77; Langley & Capgemini 2014:12; Liu et al. 2015:47; Solakivi et al. 2011:136). Secondly, *information processing logistics activities*, which are unique to the firm and tend to focus on achieving flexibility as well as goal setting, such as order processing and logistics information systems (Langley & Capgemini 2014:12; Solakivi et al. 2011:136). Finally, *value-added logistics activities* refer to logistics activities that are complex and require a high level of knowledge and know-how from the 3PL. Inventory management is an example of such a value-added service (Langley & Capgemini 2014:12; Liu et al. 2015:47). Identifying the classifications before outsourcing is important for SMEs to estimate their potential in influencing company performance and to assist in evaluating 3PL resources and capabilities appropriately before contracting (Liu et al. 2015:47).

TABLE 1: Classification of logistics activities.

Category	Description	Source
A: Operational services outsourcing: • Transportation • Clearing and forwarding • Fleet management	<ul style="list-style-type: none"> • Low-level services • Focuses on efficiency • Asset-based services • Transactional by nature – that is, not complex to purchase • Includes standard logistics services 	Liu et al. (2015:46); Langley and Capgemini (2014:12)
B: Information processing services outsourcing: • Procurement or order processing • Product tracking and tracing • Information services	<ul style="list-style-type: none"> • Requires mid-level specific assets and skills • Decision support systems are important • Usually combined with standard logistics services to achieve economies of scale • Focuses on flexibility • Customised to meet specific user needs 	Hsiao et al. (2010a:397); Solakivi et al. (2011:136); Liu et al. (2015:46)
C: Value-added services outsourcing: • Inventory management • Warehousing management • Packaging management	<ul style="list-style-type: none"> • Strategic by nature • High level of tacit knowledge required • Complex to implement • Focuses on responsiveness 	Solakivi et al. (2011:136); Liu et al. (2015:46)

Note: Please see the full reference list of the article, Mageto, J., Prinsloo, G. & Luke, R., 2018, 'The extent of logistics outsourcing among small and medium-sized manufacturing enterprises in Nairobi', *Journal of Transport and Supply Chain Management* 12(0), a346. <https://doi.org/10.4102/jtscm.v12i0.346>, for more information.

The three categories of logistics activities, a brief description of each and corresponding activities that are commonly outsourced are illustrated in Table 1.

Manufacturing enterprises are expected to carefully evaluate their requirements and select the right logistics activities to outsource to 3PLs (Waugh & Luke 2011:355). Small and medium-sized enterprises can select activities to outsource from any of the categories, dependent on their business requirements. Once an enterprise selects logistics activities to outsource, they also have to determine the extent to which the activities are to be outsourced, that is, either partially or fully (Solakivi et al. 2011:138).

Extent of logistics outsourcing

In this study, the extent of logistics outsourcing refers to the depth to which LSPs are used to execute logistics operations in an enterprise, industry, country or region (Langley & Capgemini 2016:13; OED Online 2017). Partial outsourcers allocate 1% – 50% of logistics operations to LSPs, while full outsourcers are expected to allow LSPs to perform 51% – 100% of their logistics operations.

The extent to which logistics activities are outsourced is positively influenced by the lack of in-house logistics competencies and resources (Hsiao et al. 2010a:403; Murphy et al. 2012:253; Zailani et al. 2017:64). Tatham et al. (2017:266, 271) argued that logistics risk and complexity are usually triggered by the dynamic nature of global markets, and environmental and behavioural factors. When the perceived logistics risk and complexity are high for a particular logistics function (e.g. packaging), enterprises are more likely to outsource it (Zailani et al. 2017:74). Conversely, costs associated with logistics outsourcing, such as vendor search, bargaining and contract management, are likely to reduce the number of enterprises that could adopt the logistics outsourcing strategy (Pratap 2014). In addition,

TABLE 2: Examples of the extent of logistics outsourcing.

Logistics activity	Percentage outsourcing	Source
Transportation service	> 70	Aktas et al. (2011); Solakivi et al. (2011); Langley and Capgemini (2016:13).
Inventory management	18	Millen et al. (1997); Hsiao et al. (2010b); Langley and Capgemini (2014:12)
Warehousing	47	Lieb and Randall (1996); Millen et al. (1997)
Fleet management	53	Lieb and Randall (1996); Millen et al. (1997)
Clearing and forwarding	51	Langley and Capgemini (2014:12)
Packaging	40	Wilding and Juriado (2004:637)
Procurement or order management	18	Langley and Capgemini (2014:12)

Note: Please see the full reference list of the article, Mageo, J., Prinsloo, G. & Luke, R., 2018, 'The extent of logistics outsourcing among small and medium-sized manufacturing enterprises in Nairobi', *Journal of Transport and Supply Chain Management* 12(0), a346. <https://doi.org/10.4102/jtscm.v12i0.346>, for more information.

the potential loss of control and direct contact with customers (Kersten et al. 2007:12), a lack of competent 3PLs (Assaf et al. 2011:197) and a lack of recognition of the strategic importance of logistics to the core business (Waugh & Luke 2011:341) negatively affect the extent of logistics outsourcing. Thus, the degree of logistics outsourcing varies from one activity to another; value-added activities such as inventory management tend to be the least outsourced, while operational activities such as transportation are typically the most outsourced. Table 2 shows examples of the extent of logistics outsourcing in selected studies on the topic.

Research methodology

Research design

The purpose of this study is to determine the extent of logistics outsourcing among SMEs. To achieve this objective, a descriptive survey research design was followed. This design assisted in portraying an accurate picture (Saunders, Lewis & Thornhill 2009:140) of the extent of logistics outsourcing among SMEs. A survey design was considered appropriate for this study as it provided pertinent information on logistics outsourcing, which might have been a precursor to causal studies in this context in the future (Creswell 2014). Furthermore, a survey design presented an opportunity to study a sample population of SMEs and draw inferences for the entire population (Creswell 2014; Fowler 2009). Similar past studies also followed the survey design methodology, for example, Langley and Capgemini's (2016:5–51) 3PL surveys and an earlier survey by Hong, Chin and Liu (2004:17–25) in China.

The population of the study comprised manufacturing SMEs in Nairobi City County. A list of 2023 licensed SMEs was obtained from the Nairobi City County licensing department. The list was filtered to exclude non-manufacturing SMEs, resulting in 960 enterprises. The list was further filtered based on the number of employees (i.e. 11–100), leaving 406 manufacturing SMEs, which formed the target population of this study. The selected SMEs represented five manufacturing categories, namely, chemicals and plastics, metal processing, wood and paper products manufacturers, textile and clothing

manufacturers, and human and animal food manufacturers. The enterprises manufacture goods to meet demand within Kenya, although some export their products to other countries.

Data collection

Primary data were collected, generally using a 7-point Likert-type scale, anchored from 1 (never) to 7 (every time) to indicate the frequency of outsourcing a particular logistics activity. The questionnaire was developed based primarily on the 3PL study by Langley and Capgemini (2016:13). The study questionnaire was divided into two sections. In Section 1, the data on respondent and enterprise demographics were collected. In Section 2, data on the extent of logistics outsourcing for each of the selected activities for this study were collected. In addition, Section 2 of the questionnaire included an open-ended question which required the respondents to state the reason(s) why their enterprises practised logistics outsourcing. The questionnaire was piloted in 10 SMEs, which resulted in rephrasing some items to achieve greater clarity. For example, *godown*¹ was added to warehousing and *order management* was added to procurement for clarity of the items. The respondents were logistics managers, directors or their equivalents involved in the day-to-day running of the enterprises' logistics operations. The questionnaires were delivered to each SME and collected later, although in some cases the respondents filled in the questionnaires as the researcher waited. This method was used for convenience and because only the physical addresses of SMEs were readily available. It was considered appropriate because this results in higher response rates compared with online surveys (Hohwü et al. 2013).

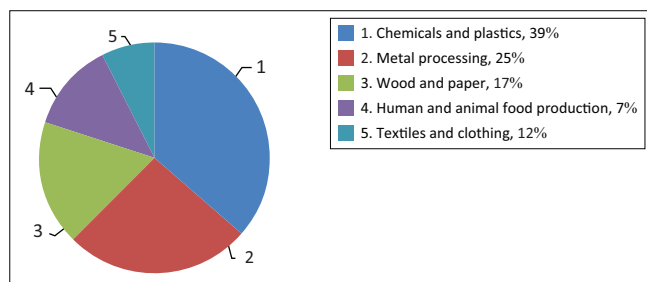
Data analysis

Demographic data were presented in tables and charts to show the various manufacturing categories as well as to identify the enterprise characteristics examined in this study. To ascertain the overall extent of logistics outsourcing, first, the percentage of SMEs practising outsourcing of each activity was calculated. The most outsourced logistic activity was identified (in this case, transportation services). All the enterprises that did not outsource transportation were examined to determine whether they outsourced any of the other logistics activities. The 7-point Likert-type scale was divided into three categories, namely, (1) no outsourcing (Scale 1), (2) partial, low or limited outsourcing (Scales 2, 3 and 4) and (3) high or full outsourcing (Scales 5, 6 and 7). The extent (partial or full) of outsourcing for each of the logistics activities was determined using customised tables in SPSS Statistics 24. Furthermore, the extent of outsourcing for operational, information processing and value-added categories was calculated, and results are presented thereafter. A one-way analysis of variance (ANOVA) procedure was used to determine whether there were differences in the extent of outsourcing of operations, information processing and value-added logistics activities.

1. Refers to warehousing services in Kenya.

TABLE 3: Non-response bias – independent samples test.

Test variable		Levene's test for equality of variances		t-test for equality of means						
		F	Sig.	t	df	Significance (2-tailed)	Mean difference	Standard error difference	95% confidence interval of the difference	
									Lower	Upper
Transportation services	Equal variances assumed	2.323	0.129	0.985	161.000	-	0.431	0.437	-0.433	1.295
	Equal variances not assumed	-	-	0.851	24.158	0.403	0.431	0.506	-0.613	1.475

**FIGURE 1:** Manufacturing categories.**TABLE 4:** Logistics outsourcing experience.

Number of years	SMEs (%)
< 5	52.1
6–10	24.5
11–15	16.0
16–20	7.4

SMEs, small and medium-sized enterprises.

TABLE 5: Annual average revenues.

Amount (USD)	SMEs (%)
0–10 000	14.7
10 001–200 000	44.2
200 001–500 000	25.2
500 001–1 000 000	16.0

SMEs, small and medium-sized enterprises.

Ethical considerations

This research posed no risk of physical harm or damage to the respondents or their enterprises. The respondents were requested to participate in the research voluntarily, and their data as well as related information were handled in confidence and kept anonymous. The respondents were also free to request the final report after the data were analysed for their interest, although the respondents were expressly informed that the study was for academic purposes only.

Results

A total of 197 questionnaires were completed. After a screening process, 163 usable questionnaires were selected, giving a response rate of 40%. The questionnaires were divided into two groups (i.e. early and late respondents) to assist in testing for non-response bias. Late responses comprised the questionnaires collected in the last two weeks of the data collection exercise, after a minimum of two reminders. Early respondents returned 142 usable questionnaires. Non-response bias was tested between early and late responders as per the Armstrong and Overton (1977:396–402) procedure, using transportation services as the 'test variable' (Table 3).

Non-response bias was ruled out as there was no statistical difference ($p = 0.326$) in the responses from the two groups (Armstrong & Overton 1977; Clotney & Grawe 2014).

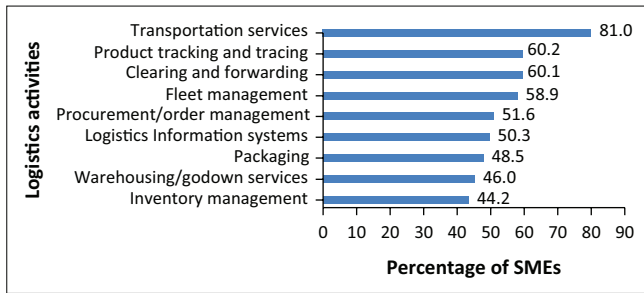
The data covered five manufacturing categories, as also found by Chege et al. (2016:24), with the chemicals and plastics sector having the highest representation (Figure 1).

The data revealed that 80% of the sampled SMEs employed 11–50 employees and the rest had 51–100 employees. This implies that the majority of participating SMEs were small enterprises, which may further imply difficulty in owning sufficient logistics resources and capabilities in-house. The majority (52.1%) of the enterprises had less than five years' experience with logistics outsourcing (Table 4), implying that the strategy is in its initial stages of adoption by SMEs in Kenya. This means that most SMEs in the sample may not have accrued sufficient experience in logistics outsourcing to enable them to significantly improve their logistics operations. The dominance of 'young' enterprises might imply that they do not have the capability to properly manage logistics operations internally, including logistics outsourcing.

Most of the sampled SMEs generated average annual revenues of between \$10 001.00 and \$500 000.00, as illustrated in Table 5.

It was established that only nine SMEs out of 163 never outsourced any of the logistics activities under consideration. Thus, 94% of the SMEs outsourced at least one logistics activity, revealing that the majority of participating SMEs practice logistics outsourcing. The high incidence (almost 94% of the SMEs) of logistics outsourcing reported in this study is consistent with previous studies across the globe (Aktas et al. 2011; Langley & Capgemini 2016:13). This implies that most SMEs in Kenya have embraced logistics outsourcing strategies to achieve efficiency and effectiveness in logistics operations, the majority being within the last five years. The logistics activities under investigation in this study were outsourced to varying degrees (Figure 2), as also revealed in past studies (Aktas et al. 2011; Langley & Capgemini 2016). Transportation services were the most outsourced activity – 81% of the SMEs outsourced this activity. Inventory management was the least outsourced activity, with 44.2% of the sampled enterprises outsourcing this activity. This is illustrated in Figure 2.

Some of the reasons proffered for the extent to which outsourcing is done included the reduction of fixed and



SMEs, small and medium-sized enterprises.

FIGURE 2: Percentage of manufacturing small and medium-sized enterprises that outsource various logistics activities in Nairobi, Kenya.

TABLE 6: Reasons for logistics outsourcing.

Reasons	SMEs (%)
Cost reduction	39.3
Risk reduction	6.7
Limited in-house resources and capabilities	54.0

SMEs, small and medium-sized enterprises.

TABLE 7: Level of logistics outsourcing per activity.

Classification	Level of outsourcing (SMEs [%])		
	Number outsourcing	Partial outsourcing	Full outsourcing
Operational services			
Transportation	19.0	44.8	36.2
Clearing and forwarding	39.9	31.9	28.2
Fleet management	41.1	45.4	13.5
Information processing services			
Product tracking and tracing	39.9	34.4	25.8
Procurement/Order processing	48.5	30.1	21.5
Logistics information services	49.7	36.2	14.1
Value-adding services			
Packaging	51.5	18.4	30.1
Inventory management	54.0	27.0	19.0
Warehousing management	55.8	30.1	14.1

SMEs, small and medium-sized enterprises.

operational logistical costs, to share logistics risks and limited in-house capabilities. As illustrated in Table 6, the majority of the SMEs embrace logistics outsourcing because they have limited in-house logistics resources and capabilities.

Operational logistics services were outsourced by between 58.9% and 81% of the SMEs, whereby most of them only partially outsourced the activities (Table 7). Most SMEs that outsourced operational logistics activities might have done so to reduce logistics costs or lacked the financial resources to adequately develop the required logistics capabilities in-house. Logistics activities related to information processing were the second most outsourced activity, while those related to value-added services were outsourced by less than 50% (e.g. packaging) of the SMEs (see Table 7). Thus, there was a high rate of logistics outsourcing among manufacturing SMEs, although the majority of the organisations only adopted outsourcing to a limited extent.

An ANOVA was conducted to explore the extent of outsourcing in the logistics outsourcing groups (i.e. operational, information processing and value-adding). The results revealed a statistically significant difference at

TABLE 8: Analysis of variance.

Category	Mean	Standard deviation	Standard error	F	Significance ($p < 0.05$)
Operational services	3.02	1.35	19.73	0.12	0.00
Information processing services	2.59	1.45	25.43	0.11	0.00
Value-adding services	2.53	1.53	149.85	0.11	0.00

$p < 0.05$ in the extent of outsourcing for the three groups (Table 8). The mean rank revealed that operational services were most outsourced ($M = 3.03$; $SD = 1.35$), followed by information processing ($M = 2.59$; $SD = 1.45$), while value-added services were the least outsourced category ($M = 2.52$; $SD = 1.54$).

Discussion

Over 94% of the manufacturing SMEs adopted logistics outsourcing to some extent. A similar extent of logistics outsourcing was also reported in the global 3PL survey by Langley and Capgemini (2016:12), which found that about 86% of firms in their sample practised logistics outsourcing. Although most SMEs practice logistics outsourcing, the utilisation of the strategy is limited or partial (i.e. 1% – 50% of logistics operations allocated to outsourcing). The limited extent of outsourcing suggests that logistics outsourcing is in its initial stages of adoption, given that the majority of the SMEs had less than five years' experience with it. It also implies that SMEs, by nature, take time to embrace new strategies, as highlighted by Murphy et al. (2012:269). Thus, SMEs, especially in Kenya, are yet to fully accept logistics outsourcing even though it provides solutions to the problem of limited resources (Murphy et al. 2012:269).

The outsourcing of operational logistics activities is prominent among the sampled SMEs, with transportation services (such as upstream and downstream transportation) being the most outsourced. This high incidence of the outsourcing of operational logistics activities is consistent with the results of a study conducted by Liu et al. (2015), which indicated that operational activities were the simplest category to outsource, although it involved high-value physical assets. The great extent of outsourcing operational logistics activities suggests that the manufacturing SMEs were motivated to reduce logistics costs. This is consistent with results from other studies which have reported that operational logistics activities such as transportation form the largest proportion of logistics costs (Langley & Capgemini 2016:32; Solakivi et al. 2011:141). As highlighted by Liu et al. (2015), operational logistics activities involve investments in high-value assets, which might be a challenge to resource-constrained SMEs. Hence, many of these SMEs mitigate this by outsourcing to LSPs, so that they can still meet their customers' requirements. Other studies (Aktas et al. 2011:841; Hsiao et al. 2010b:81; Langley & Capgemini 2016:12; Rahman 2011:352) have also ascertained the great extent of the outsourcing of operational logistics activities.

Information processing activities such as logistics information systems and product track and trace, as well as order processing, were outsourced by about half of the SMEs, which may have been aimed at reducing logistics costs as well as compensating for in-house deficiencies, as also reported by Halldórsson and Skjøtt-Larsen (2004) and Liu et al. (2015). Less than half of the surveyed SMEs outsourced value-added logistics activities, which are strategic in nature, for example, inventory management (Solakivi et al. 2011:136). This may imply that SMEs in Kenya do not outsource logistics for strategic reasons, such as improving customer responsiveness. The limited outsourcing of information processing and value-added logistics activities was consistent with prior studies such as Hsiao et al. (2010b), Rahman (2011), Solakivi et al. (2013) and Langley and Capgemini (2016). Although partial or limited outsourcing was prevalent in all the logistics services evaluated in this study, extensive outsourcing was observed in packaging. This implies that the majority of the manufacturing SMEs that outsourced packaging might have found it complex to perform this in-house, as well as being cost-effective when fully executed by the 3PLs, as highlighted in the study of Hsiao et al. (2010b). This result may also imply that the outsourcing of packaging enables the SMEs to access the packaging capabilities they lack in-house so as to meet their customers' needs (Liu et al. 2015:46).

In this study, it was observed that there are significant differences in the extent to which SMEs outsourced operational, information processing and value-added logistics activities. This result implies that SMEs outsource logistics activities differently to meet their goals of cost reduction and risk sharing, as well as acquiring the resources and capabilities they lack in-house. For example, outsourcing operational services might have been different from the other services because it is not complex – it is generally transactional and involves high-value physical assets that most SMEs may opt not to invest in because of the challenge of limited resources (Liu et al. 2015:47). On outsourcing information-processing logistics activities, the SMEs might have aimed at acquiring the advanced decision support systems from expert 3PLs to reduce any inherent risks and costs. A few of the SMEs that outsourced value-added logistics activities such as packaging might have aimed at acquiring expert capabilities of performing complex operations at a lower cost as opposed to owning the expertise in-house, as highlighted by Solakivi et al. (2011:136).

Managerial implications

The results inform SME managers to acquire logistics resources and capabilities that are lacking in-house through outsourcing so as to efficiently meet their customers' requirements. This suggests that managers can achieve cost savings by outsourcing simple operational logistics activities. However, they can achieve far greater benefits by outsourcing higher level logistics activities that are related to information

processing and value-added services. For example, accessing expert packaging services from 3PLs can protect product quality during transportation, handling and consumption, leading to high customer loyalty. Managers are further informed that outsourcing is likely to assist in efficiently expanding the distribution of their products to new markets. Given the difference in the outsourcing of various logistics activities, managers are encouraged to diligently select what to outsource to expert 3PLs.

Limitations

The results of this study are limited to cross-sectional data collected in one county – in Nairobi, Kenya. Therefore, the results of this study should be applied to the entire industry, sector or country with caution. The limitations can be addressed by (1) replicating the study in a wider context to cover other sectors of the economy or to the whole East African region or (2) designing new longitudinal research to study the future trends of logistics outsourcing in Kenya. This study was also limited to SMEs, and it is assumed that the logistics outsourcing trends of large enterprises might be different from the ones reported in this study. The results reported in this study are based on the opinions of Kenyan SME managers. Their views may have been biased based on cultural backgrounds as well as business practices in Kenya.

This study did not seek to identify the reasons behind the significant differences in the outsourcing of logistics activities under the operational, information-processing and value-added services. Thus, the study can be extended in future to investigate why these differences exist. Future research can also be directed towards investigating the impact of logistics outsourcing on the performance of SMEs to unearth the real value of the strategy.

Conclusion

The study revealed that the majority of SMEs practice logistics outsourcing to some extent, thus confirming the resource-based theory. The SMEs outsourced their logistics activities to achieve cost reduction, risk sharing and to access capabilities lacking in-house. Although most of the SMEs practice logistics outsourcing, the majority of them only use it to a limited extent. The general low intensity of logistics outsourcing implies that the strategy is in its early stages of development, given that the majority of the enterprises had less than five years of outsourcing experience. In addition, the SMEs focus more on acquiring the capabilities they lack in-house and cost efficiencies, as opposed to risk sharing, flexibility and responsiveness when using 3PL providers. This demonstrates that the SMEs would tend to outsource a combination of the various logistics services that best minimises logistics costs and supplements in-house resources. The SMEs revealed significant differences in the outsourcing of operational, information-processing and value-added logistics services to meet their individual logistics needs. The difference in outsourcing logistics

activities related to the three categories mentioned might be attributed to the degree to which individual SMEs considered cost reduction, risk sharing or acquiring expert capabilities lacking in-house to be important. Thus, SMEs have unique logistics needs that require them to selectively outsource logistics activities to meet enterprise goals as well as their customers' requirements.

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Competing interests

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Authors' contributions

G.P., R.L. and J.M. collaborated in the conception and design of the research. J.M. collected the data analysed, interpreted them and drafted the manuscript. R.L. and G.P. critically revised the manuscript and approved the final version to be published.

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