

LOGISTICS OBJECTIVES, CAPABILITY AND BENEFITS: THE CASE OF SMES IN EMFULENI MUNICIPAL DISTRICT

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–Abstract–

Logistics objectives within an organisation may be to enhance business competitive performance and customer satisfaction through improved product flow, information flow and cash flow. However, internal and external logistics capabilities may be required among logistics personnel for successful achievement of the formulated logistics objectives. SMEs challenge is to recognise the service level requirements of individual customer segments quickly and the ability to restructure their logistics processes to fulfil those requirements. Competition within the business environment today requires time-based logistics capability. This is because the emerging market is sensitive to time. Organisations operational efficiency and effectiveness focuses on the organisations ability to supply and deliver the correct amount of product in time to the right location and customer. As such, for SMEs to demonstrate competitiveness and gain business performance, SMEs may have to focus on not only product development and marketing skills, but also on logistics capabilities. The data was collected and analysed quantitatively through SPSS (25.0) and SMART-PLS (3.0) statistical techniques. These statistical means enable the researcher to structurally measure the reliability and validity of research constructs. The statistical results generated from the 131 SMEs that participated indicated that the enhancement of logistics capabilities among SMEs is a significant requirement for successful implementation and achievement of logistics benefits and performance.

Key Words: SMEs, Logistics objectives, Logistics capabilities, Logistics benefits

JEL Classification: L1, M15

1. INTRODUCTION

As the business grows into maturity, SMEs may become more sophisticated in their control systems and more bureaucratic in their centralised decision making and procedures (Caldera & Dawes, 2019). SMEs may start to focus more on developing the products and marketing skills to satisfy customers' specific needs (Chin, Hamid, Rasli & Baharun, 2012). In other words, as global market competition intensifies, SMEs soon take on some of the characteristics of larger organisations (Gaganis, Pasiouras & Voulgari, 2019). These characteristics may include demonstrating competitive advantage strategy to integrating logistics capabilities, the use of logistics technology, profit through marketing skills to attract more customers, financial management skills, human resources management skills and external investment in order to exploit early success and to make the business economically viable (De Maeseneire & Claeys, 2012; Lee, Foo, Leong & Ooi 2016; Dolz, Iborra, & Safón, 2019). With these skills well established in SMEs management systems, SMEs can begin to reap the benefits of value-adding logistics resulting from enhanced order cycle time, reduced transportation cost, materials handling cost and storage costs (Brink, 2017; Khan, Xuehe, Atlas, & Khan, 2019).

Furthermore, SMEs in their quest for survival, often shift their focus from growth orientation to logistics and supply chain orientation that not only facilitates collaborative relationship among SMEs, but also preserve SMEs future competitive position with the market environment (Done, Voss & Rytter, 2011; Sadiku-Dushi, Dana & Ramadani, 2019). With the gradual positioning of strategic logistics among SMEs and in addition to SMEs innovative and entrepreneurial skills, logistics capabilities that favour business growth begin to emerge. (Arzubiaga, Kotlar, De Massis, Maseda & Iturralde, 2018).

Many researchers on SMEs survival have suggested the implementation of knowledge management, marketing capabilities and supply chain management integration as means for SMEs survival ((Tzokas, Kim, Akbar & Al-Dajani, 2015; Kozlenkova, Hult, Lund, Mena & Kecec, 2015; Hong, Zhang & Ding, 2018; Zhang, Guo, Huo, Zhao & Huang, 2019). While this may be true, these studies have hardly categorically and empirically considered internal and external logistics capabilities impact on SMEs upstream and downstream logistics. Therefore, this study suggests that logistics capabilities are important unique resources that can guarantee SMEs survival and business growth in today's business uncertainties.

2. LOGISTICS OBJECTIVES

Organisation strategy can be formulated at corporate, business and functional level, which may vary according to the scale of SMEs (Erdem & Erdem, 2011; Esi, 2015). The corporate strategy is about stating up front feasible organisational goals and objectives as well as its management. The business level detail the strategic actions and plans to effectively and efficiently provide/deliver value product and service to customer in a competitive manner (Porter, 1980). The functional (implementation) stage is where logistics efficiency and effectiveness exist and it is about how decisions will be carried out in real-time (Erdem & Erdem, 2011). Logistics is the strategic action behind efficient procurement and production of materials as well as the effective distribution of final product to the right customer in a damage free fashion without compromising time, place and quantity concerns. According to the Council of Supply Chain Management Professionals (CSCMP, 2016), logistics management is “that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers’ requirements.” This means that logistics objectives can affect how well or how poorly an individual firm and its associated supply chains can achieve goals and objectives (Murphy Jr & Knemeyer, 2018). Logistics objectives within an organisation may be classified under operational measures such as timely deliveries, cost reduction, meeting customers’ special requests, offer short delivery lead times, as well as to be flexible and responsive. Moreover, it is of no significance stating organisational goals without the implementation of which logistics capabilities play an important role (Hofmann 2010). This study therefore state that:

- H1:** The formulation of logistics objectives will require internal logistics capability enhancement among SMEs
- H2:** The formulation of logistics objectives will require external logistics capability enhancement among SMEs
- H3:** Logistics objectives will positively impact SMEs upstream logistics benefits
- H4:** Logistics objectives will positively impact SMEs downstream logistics benefits

3. LOGISTICS CAPABILITIES AND BENEFITS

Logistics capability is a priority when aiming to achieve sustainable and diverse competitive advantage (Gligor & Holcomb, 2014). According to Sandberg and Abrahamsson (2011:65), capability is defined as “complex bundles of individual skills, assets and accumulated knowledge exercised through organizational processes, that enable firms to co-ordinate activities and make use of their resources”. According to Dang and Yeo (2018:309), logistics capability is defined as “organized systems that provide integration within a given business area. In turn, these areas of business are comprised of organizational networks of technically skilled people who aim to effectively manage the flow of goods and information. A logistics system normally includes the following subsystems: supply, transport, servicing, production, warehousing, distribution, and the relationships between them”. For this study, logistics capability is SMEs ability to select, employ and deploy logistics capacity to achieve logistics objectives (Gligor & Holcomb, 2012). Therefore, the achievement of logistics objectives may require logistics capability among SMEs personnel for the creation of value logistics. For this research, logistics capability is divided into internal and external logistics capabilities. The internal logistics capabilities are characterised as delivery reliability, increasing operational effectiveness, ability to reduce inventory levels as well as the capability to reduce lead time (Lin & Chang 2018; Kain & Verma, 2018). The external logistics capabilities for this study are characterised as strategic alliance, outsourcing, information technology and supply chain integration.

Both researchers and practitioners have made it obvious that competition within the business environment today requires logistics capability (Gligor & Holcomb, 2014; Yang, 2016; Lyu, Chen & Huo, 2019). This is because the emerging market is sensitive to time flexibility, responsiveness, operational efficiency and effectiveness of which logistics capability plays a key role (Seebacher & Winkler, 2015; Amoako-Gyampah, Boakye, Adaku & Famiyeh, 2019). Logistics capabilities enhance SMEs operational efficiency and effectiveness towards supplying and delivering the right quantity of products, at the right time, to the right location and customer (Abd, Rahim, Absi, Ahmad & Hassan, 2016; Sweeney *et al.*, 2018). Therefore, this article proposed that:

H5: SMEs internal logistics capability has an impact on upstream logistics benefits such as accurate forecasting, resource planning and cost saving, increase in coordination between departments and suppliers as well as shorter manufacturing lead time

H6: SMEs internal logistics capability has an impact on downstream logistics benefits such as customer satisfaction, quick response to customer's needs, gaining diverse competitive advantages, improvement in customer' service and relationships as well as increase in turnover.

H7: SMEs external logistics capability has an impact on upstream logistics benefits.

4. RESEARCH DESIGN, DATA ANALYSIS AND RESULTS

Using a quantitative data collection approach, a questionnaire was design and was conveniently distributed to 150 SMEs within the Emfuleni Municipal District. The sample size was determine based on historical evidence and on the recommended sample size for SMART-PLS-SEM. Out of the 150 questionnaires that was distributed, a total of 131 were returned (Kock & Hadaya, 2018; Munir, 2018).

4.1. Background of the participated SMEs

The demographic table indicated that nearly one third of the SMEs have been in operation for two to four years and about one quarter have been in operation for five to seven years. More than half of the SMEs (had annual sales of less than R 1 million and nearly one quarter had annual sales between R 1 million to less than R 5 million. Approximately 64 percent of the SMEs have physical assets worth less than R 4 million and almost one quarter have physical assets worth between R4 million and R8 million Nearly 84 percent of the SMEs that participated in the study have less than 50 employees with only 6 percent having 200 or more employees. About 22 percent of the SMEs that participated were trading companies with approximately 7 percent being either mechanical and engineering or electronics and electrical. Nearly 17 percent were food and beverage companies and about 8 percent were service companies.

4.2. Validity and reliability measures

The SMART-partial least squares (SMART-PLS 3) structural equation modelling procedure was used to analyse the data. Table 1 shows the reliability and validity results of the research constructs.

Table 1: Validity, reliability and Descriptive Statistics

Research constructs	Indicators	Descriptive statistics		Reliability statistics			Validity statistics	
		Mean (\bar{x})	SD	Alpha (α)	CR	AVE	$\sqrt{\text{AVE}}$	Factor loading
Business logistics objectives	BLO1	4.79	1.407	0.783	0.861	0.608	0.780	0.754
	BLO2	4.73	1.323					0.841
	BLO3	4.79	1.330					0.686
	BLO4	4.94	1.299					0.828
Internal logistics capabilities emphasised	INE1	5.00	1.164	0.775	0.856	0.599	0.774	0.828
	INE2	5.08	1.141					0.806
	INE3	4.49	1.291					0.784
	IME4	4.63	1.343					0.666
External logistics capabilities emphasised	ELC1	4.60	1.487	0.861	0.900	0.645	0.803	0.807
	ELC2	4.56	1.555					0.723
	ELC3	4.84	1.329					0.780
	ELC4	4.63	1.448					0.885
	ELC5	4.68	1.435					0.811
Upstream logistics benefits	ULB1	5.01	1.332	0.804	0.866	0.568	0.754	0.760
	ULB2	4.86	1.106					0.733
	ULB3	5.05	1.299					0.843
	ULB4	4.66	1.136					0.819
	ULB5	4.68	1.424					0.584
Downstream logistics benefits	DLB1	5.01	1.199	0.898	0.922	0.664	0.815	0.772
	DLB2	5.35	1.045					0.836
	DLB3	5.21	1.107					0.749
	DLB4	5.02	1.190					0.799
	DLB5	5.22	1.047					0.877
	DLB6	5.28	1.090					0.849

Note: Alpha (α) = Cronbach’s alpha; CR=Composite reliability; AVE=Average variance extracted

Cronbach’s alpha test (α) and composite reliability test (CR) were used to test the internal reliability of the measurement model. From Table 1, the alpha values as well as the composite reliability values for all the measurement variables range from 0.775 to 0.898 and 0.856 to 0.922 respectively. According to Johnson and Christensen (2012), a value greater or equal to 0.70 indicates a good internal consistency for the measurement constructs. The average variance extracted (AVE) value for this study, ranges from 0.568 to 0.664 with estimated values greater than 0.5, which provides an acceptable level of internal reliability and

validity of the research construct (Khosrow-pour, 2006:75; Vinzi, Chin, Henseler & Wang, 2010:437). Convergent validity was determined using the obtained factor loadings, which were expected to be above 0.5. Drawing from Table 1, all factor loadings are greater than 0.5 (i.e. ranging from 0.584 to 0.884), which indicates acceptable individual item convergence in the validity of all scale items.

Table 2: Correlation Analysis Results and Discriminant Validity Measures

Research variables	Business logistics objectives	Downstream logistics benefits	External logistics capability emphasised	Internal logistics capability emphasised	Upstream logistics benefits
Business logistics objectives	0.780				
Downstream logistics benefits	0.554	0.815			
External logistics capability emphasised	0.493	0.463	0.803		
Internal logistics capability emphasised	0.615	0.548	0.539	0.774	
Upstream logistics benefits	0.664	0.607	0.663	0.667	0.754

Discriminant validity was done by assessing whether inter-correlation matrix among the construct are less than the square root of the AVE (Garson, 2016). In Table 2, the inter-correlation values for all paired latent variables are less than \sqrt{AVE} (ranging from 0.76-0.87), therefore, reveal the existence of discriminant validity (Khosrow-pour, 2006).

Figure 1: PLS 3.0 Bootstrapping Analysis Results

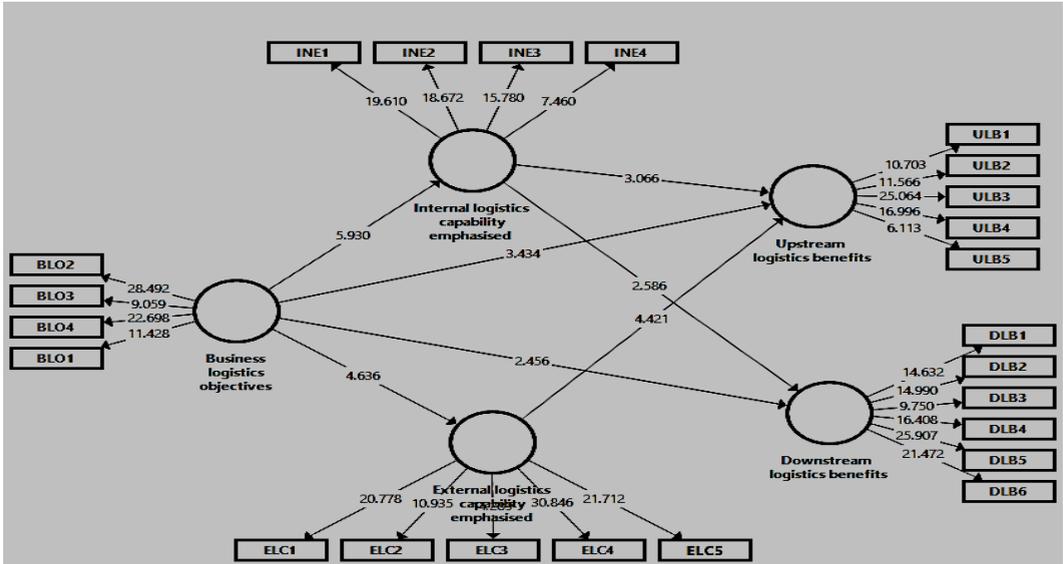
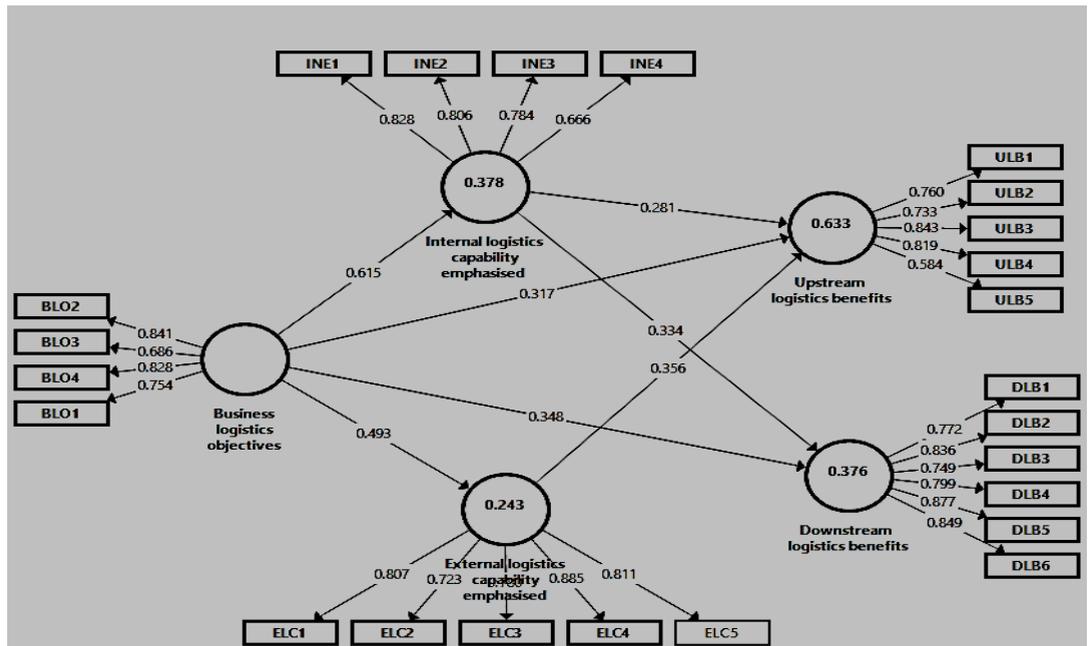


Figure 2: PLS 3.0 the Main Research Model Results



4.3. Path model results and factor loadings

Figures 1 and 2 indicate the p-value, path modelling results and as well as the item loadings for the research constructs. BLO stands for business logistics objectives, INE stands for internal logistics capabilities, ELC stands for external logistics capabilities, ULB stands for upstream logistics benefits and DLB is the acronym for downstream logistics benefits.

Table 3: Results of Structural Equation Model Analysis

Proposed relationship	path	Hypothesis	Path coefficient	T-value	P-value	Outcome
BLO - INE		H ₁	0.615	3.930	0.000	Supported
BLO - ELC		H ₂	0.493	4.636	0.000	Supported
BLO - ULB		H ₃	0.317	3.434	0.014	Supported
BLO - DLB		H ₄	0.348	2.456	0.002	Supported
INE - ULB		H ₅	0.281	3.066	0.000	Supported
INE - DLB		H ₆	0.334	2.586	0.001	Supported
ELC - ULB		H ₇	0.356	4.421	0.000	Supported

Table 3 and Figure 2 present the seven hypothesised relationships, path coefficients, the t-statistics and the decision criteria. Both the t-value and p-value indicate the level of significance among the hypothesised relationship. The significant relationship should have a t-statistic that is above 1.96 and a p-value ≤ 0.05 to indicates a strong relationship level (Gravetter & Wallnau, 2016:669). Table 3 also shows that all seven hypothesised relationships are statistically significant.

5. SIGNIFICANCE OF THE FINDINGS

H1 and H2 states that the formulation of logistics objectives will require both internal and external logistics capability enhancement among SMEs are supported at t-statistics value of 3.930 and 0.493 respectively. The path results of the structural equation model for the two hypothesised relationships also shows higher predictive relationships of path estimate =0.4615 and 0.493, p=0.000<0.05 and explained about 38 and 24 percent (R² = 0.378, 0.243) respectively. This may mean that although the formulation of business logistics objectives is important

for SMEs, it is highly necessary that SMEs clearly stipulate from the onset the logistics capabilities required to affect organisational performance. SMEs business objectives, be it cost leadership, differentiation or focus strategy require logistics capabilities to achieve business performance. This is consistent with Erdem and Erdem (2011) findings that logistics efficiency and effectiveness is the result of logistics capability. However, from the factor loading in Table 1, it can be observed that SMEs business logistics goals are to meet customer specifications and to be flexible and responsive. This may be true because as technology advances, more customers are empowered and more customers desire product offerings that are tailored specific to their exact preferences (He, Zhang & He 2019). For example, the rise of internet shopping, home delivery of purchase items and ready-to-eat, which has logistics implications. In this case, SMEs that are adamant in terms of flexibility and responsiveness to customer orders in a timely manner, may fail. Logistics objectives are mainly centred on quality customer services and satisfaction (Fernandes, Moori & Filho, 2018). Therefore, the re-evaluation and improvement of SMEs business logistics objectives in terms of quality logistics service offered according customer specific need and satisfaction level is essential (Sohn, Woo & Kim 2017). H3 and H4 further validate the need for SMEs to improve on their logistics capabilities.

The statistical results for H3 and H4, which postulated that business logistics objectives have a direct positive impact on both upstream and downstream logistics benefits, was supported. For example, the statistics significant values for H3 is 3.434 with path estimate = 0.317; $p=0.014<0.05$ and the significant value for H4 is 2.456. The path results of the structural equation model also show predictive relationship of path estimate =0.317; $p=0.002<0.05$ respectively. These results indicate that business logistics objectives, without the logistics capabilities required for successful implementation, will result in little effect on SMEs performance compared with the path coefficient in H1 and H2. Logistics benefits such as competitive advantage through customer satisfaction, resource planning and cost reduction, quick response time, accurate inventory planning, as well as increased coordination with suppliers are the source of organisations sustained business performance (Sohn, Woo & Kim 2017). This finding is consistent with Murphy Jr and Knemeyer (2018) that “logistics can affect how well or how poorly SMEs and their associated supply chains can achieve business goals”. Therefore, SMEs inability to meet customer demand and inability to coordinate with suppliers is the result of lack of logistics capability and competency among logistics personnel. Hence, logistics capability is important for SMEs success and business growth.

The relationship between internal logistics capabilities and upstream logistics benefits is supported at t-statistics value of 3.066. The path result of the structural equation model also shows a predictive relationship (path estimate =0.281; $p=0.000<0.05$) and a high explanatory power of about 63 percent ($R^2 = 0.633$) of upstream logistics benefits. The R^2 indicates that SMEs increasing capability to deliver orders on time with reliability, increasing operational efficiency, ability to reduce inventory levels as well as the capability to reduce lead time, will have a high positive impact on upstream logistics benefits in terms of accurate forecasting, resource planning and cost saving, increase in coordination between departments and suppliers as well as shorter manufacturing lead time (Lin & Chang 2018; Kain & Verma 2018). However, the participated SMEs rated delivery orders on time as the major capability toward increase in coordination between departments, with suppliers and customers. In the global market environment with technology advancement, the ability to deliver on time differentiates a successful organisation from a non-successful organisation. According to Bushuev (2018), an organisation is distinguished by the speed of its suppliers for the supply of good quality products and the speed at which the organisation satisfies its customers in terms of timely and dependability of goods and service delivery to final customers in the supply chain. In other words, the success in effective buyer and supplier coordination lies in the SMEs ability to implement on time delivery dependability both within and outside organisational boundaries, which, if not adhered to, may lead to lack of buyer-supplier trust and increase in operational cost. The effort to reduce response and delivery time and improve coordination activities such as information sharing, information technology and long-term partnership is the reason for supply chain management practices among competing SMEs (Tan & Cross 2012). The path model also revealed a positive relationship (path estimate =0.334; $p=0.001<0.05$) with a high significant level of (t-statistics =2.586) and explains about 38 percent ($R^2 = 0.376$) between internal logistics capabilities and downstream logistics benefits H6. The results reveal that internal logistics capabilities can enable SMEs to gain competitive advantages through customer satisfaction, quick response to customer demand and improve customer service/relationships. Customer satisfaction and quick response to customer needs can help SMEs achieve competitive advantages, which are not easily copied by competitors (Meidutė-Kavaliauskienė, Aranskis, & Litvinenko, 2014). Downstream logistics benefits refer to SMEs ability to enhance improvement in customer service and relationships and to realise increase in business turnover. The result is consistent with Fernandes, Moori and Filho (2018), that internal logistics capabilities that “combine delivery speed and

reliability together with flexibility and responsiveness are key components of the quality logistics service in the pursuit of customer satisfaction”.

From Table 3 and Figure 2, H7, which states that external logistics capabilities have an impact on upstream logistics benefits, was confirmed significant at t-statistics value of 4.421. The path result of the structural equation model shows a higher predictive relationship (path estimate =0.356, $p=0.000<0.05$) as compared to H5, with a high explanatory power of about 63 percent ($R^2 = 0.633$) of upstream logistics benefits. The results revealed that external logistics capabilities such as strategic alliance, outsourcing, information technology and supply chain integration capabilities are essential. For SMEs to compete effectively, embracing strategic alliance with key suppliers within the logistics chain in terms of achievement of goals, shared risk, gaining knowledge as well as obtaining access to new market is important. Many researchers have reported that strategic alliance improves SMEs efficiency and sustained competitive advantage (Sharma & Choudhury, 2014; Brekalo & Albers, 2016; Gao, Yang, Yin & Ma, 2017). However, information technology capability as rated by SMEs is also important for the facilitation of inventory visibility and real time information flow. For example, accurate demand and sales information can trigger SMEs logistics system to respond to customers' orders in a timely manner (Pinheiro de Barros, Ishikiriyama, Peres & Gomes, 2015). The disadvantage of long intervals between customer orders is demand uncertainty, which may further result in higher inventory management and bull whip effect along the logistics chain (Ruel, Ouabouch & Shaaban, 2017). Therefore, information technology capability can help SMEs mitigate bullwhip effects and uncertainty and shorter operation lead time becomes an advantage.

6. CONCLUSION AND MANAGERIAL IMPLICATION

This article seeks to determine the impact of internal and external logistics capabilities in achieving business objectives as well as enhancing logistics benefits among SMEs in the Emfuleni Municipal District. Seven research relationships between logistics objectives, internal and external logistics capabilities as well as upstream and downstream logistics benefits were projected and were empirically tested. All seven proposed relationships were statistically significant. The findings show that logistics efficiency and effectiveness are very important SMEs capabilities to achieve target levels of customer satisfaction through flexible responsiveness. Logistics efficiency is an internal logistics capability employed to reduce operating cost over time, while logistics effectiveness is the external logistics capability required to satisfy customers

through effective responsiveness (Sweeney *et al*, 2018). Practically, this study will enable SMEs to categorically improve on their logistics efficiency by enhancing both internal and external logistics capabilities.

The importance of internal and external logistics capabilities has been researched as prerequisite for SMEs aiming to achieve customer satisfaction, improved customer relationship management and increased coordination between departments and suppliers. However, few research limitations still exist. For example, the research findings cannot be generalised to all SMEs in South Africa. This is because only a small portion of the SMEs within the Emfuleni Municipal District took part in the study. In other words, since the study data was collected quantitatively using a convenience sampling method, it is therefore recommended that a mixed method of data gathering (quantitative and qualitative) approach be considered for future research on logistics objectives, logistics capabilities and logistics benefits among SMEs in South Africa. Nevertheless, this study has relevance in that it adds value to the knowledge of the perceived benefits and importance of logistics capabilities in actualising and for the implementation of SMEs business logistics objectives. The research methodology and analysis made it possible to identify the extent and important of internal and external logistics capabilities as mediating variables between SMEs business logistics objective and logistics benefits.

It is further recommended that SMEs should have logistics objectives as part of business level objectives so that both internal and external logistics capabilities can be planned for and supported by the management. This is because, according to the results, the achievement of downstream logistics benefits such as postponement of inventory to meet special customers' demands, quick response time and improved customer services and relationships are achievable in accordance to the internal logistics capabilities emphasised and implemented. Accordingly, the more emphasis placed on external logistics capabilities, the more the upstream logistics benefits. In other words, the more the external logistics capabilities are emphasised on, the more the upstream logistics benefits gained. On the other hand, the more emphasis placed on the internal logistics capabilities, the more the downstream logistics benefits gained overtime.

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