-RESEARCH ARTICLE-

THE EFFECT OF SUPPLIER SELECTION, SUPPLIER DEVELOPMENT AND INFORMATION SHARING ON SME's BUSINESS PERFORMANCE IN SEDIBENG

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–**Abstract**–

In recent times, logistics and supply chain management (SCM) have become important sources of sustainable competitive advantage to firms. However, the roles of logistics and SCM are still influenced by the value chain approach. Consequently, there are factors that have not been given enough attention in the supply chain literature. Realising this issue, the study examines the influence of practices such as supplier selection, supplier development and information sharing on the SMEs business performances in the Sedibeng district. A quantitative research survey was conducted among 300 SME owners/ managers. SPSS 22.0 was used to analyse the data. AMOS 24.0 was used to perform confirmatory factor analysis. Structural path modelling (SEM) was conducted to assess the proposed model fit and to test the statistically significant relationship of the hypotheses. The results of the study show significant relationships amongst the

posited variables, this means that SMEs can use the supply chain management practices: supplier selection, supplier development and information sharing to improve business performance within SMEs in the targeted FMCG industry. This study contributes to the body of knowledge by providing a research framework that can be adopted to enhance SMEs performance as well as providing practical recommendations based on the research findings for SMEs and for future research. Furthermore, as one of the first studies evaluating the influence of practices such as supplier selection, supplier development and information sharing on the SMEs business performances in the Sedibeng district, it has generated new insights and outlines strategic reasons for SME owners and managers to improve on their business relationships across the value chain.

Key Words: Supplier selection, Information sharing, Supplier development, Business performance

JEL Classification: L 1

1. INTRODUCTION

Business networks are based on the long-term relationship, and such relationships are strategically positioned for over time. By developing long-term relationships in the business network, the suppliers will become a part of a well-managed supply chain, which will have an everlasting effect on the competitiveness of the entire supply chain. Successful supply chain management (SCM) implementation is expected to enhance the relationship between upstream suppliers and downstream customers and, thereby, increase information sharing and firm performance (Yap & Cheng, 2012).

According to Bhutta and Huq (2012), selecting the right supplier is a difficult decision for many companies and organisations, with a possible significant impact on the organisation's ongoing performance and its ability to obtain the quality products and services it wishes to market.

Previous research also suggested that organisations involved in supplier development programs will improve their supplier performance and build competitive advantage (Modi & Mabert, 2015; Alaez-Aller & Longas-Garcia, 2014).

The remainder of the article is organised as follows: the problem is described next and review on the literature is done in section 3. In section 4, the conceptual model is illustrated, and hypotheses are developed. The 'Research method' in section 5 explains the methodology and design, whereas the research results will

be presented in section 6. The 'Discussion and conclusions' in section 7 follows next. Managerial implications and recommendations are presented in section 8. Limitations and suggestions for future research are given in section 9 and concludes the study.

2. PROBLEM STATEMENT

For all businesses to perform well they should be exposed to reliable suppliers and, also be developed by large firms through sharing of vital information that will help them grow. Nevertheless, SMEs face challenges when they are selecting suppliers because of their nature and, also most suppliers prefer to do business with large businesses. Large businesses have an advantage over SMEs as they share information with their suppliers.

The purpose of this study was to investigate the influence of supplier selection, supplier development and information sharing on business performance. Previous researchers have viewed only the importance of integration and collaboration planning on firm competitiveness (Wu, Chuang & Hsu, 2014; Lai, Wong & Lam, 2015; Ndungo, Tobias & Florence, 2017); hence, little is known regarding supplier development, supplier selection, information sharing and their effect on business performance in the Sedibeng district. In addition, there is little evidence on the effect of supplier selection and the knowledge and affordability of supplier development and information sharing of SMEs. Based on the above the following three research questions were formulated: does supplier selection influence business performance? does supplier development impact on business performance? and how does information sharing influence business performance?

In addressing these questions, the outcomes may be utilised to assist SMEs and owners to develop and implement strategies that are suitable in meeting the needs of improving business performance within Sedibeng district.

3. LITERATURE REVIEW

For this study, key supply chain practices have been identified as supplier selection, supplier development and information sharing, which can be used to gain competitive advantage and enhance business performance among SMEs.

3.1. Supplier selection

Supplier selection is the process by which SMEs identify, evaluate and contract with suppliers. Supplier selection aims to identify and distinguish suppliers that are at an acceptable state or position to work whilst displaying the best potential

for continuously meeting a company's needs (Kahraman, Ulukan, Cebeki & Tolga, 2011).

According to Harwood (2009), supplier selection can be seen as one of the most crucial aspects of SCM. It can be considered as one of the areas that is most taken for granted. While the academic literature is very broad, the effective evaluation and selection of suppliers for important raw materials continues to be challenging in many industries. In this context, past research shows that SMEs use price and a number of other dimensions such as flexibility, quality, delivery and service in the supplier selection decision (Rajput & Bakar, 2012). Therefore, selecting the right supplier for your specific business will ensure that goods and services are delivered in the right quantities, at the right price and at the right time.

3.2. Supplier development

Supplier development is defined as any activity that a buyer undertakes to improve a supplier's performance and/or capabilities to meet the buyer's short- or long-term supply needs (Sithole, 2014). Furthermore, Rönnquist & Wenner (2014) define supplier development as any effort of a buying firm working with its supplier(s) to increase the performance and/or capabilities of the supplier and meet the buying firm's short- and/or long-term supply needs. Moreover, this promotes current improvements that are intended to benefit both buyer and supplier. Supplier development can be defined as a program developed by a buyer to upgrade its supplier's capabilities and adoptive improvements (Krause, Handfield & Tyler, 2012). The effect of supplier development can lead to improved performance of the business.

3.3. Information sharing

According to Wadhwa and Saxena (2011), information sharing relates not only to sharing of information, but to sharing of data and knowledge. Therefore, to streamline the terminology and avoid confusion, information sharing in supply chains is defined as the "inter-organisational sharing of data, information and/or knowledge in supply chains".

However, another cluster of researchers (Lai, et al. 2015) seems to be more sceptical, indicating that information sharing in supply chains in reality is limited due to complexity, costs and risks. The task of determining what information should be shared and with whom is a complex task, especially since supply chains tend to evolve over time and information sharing may require involvement of several different partners (Samaddar, Nargundkar & Marcia, 2011). Therefore, it is an important issue in forging a good working relationship with stakeholders.
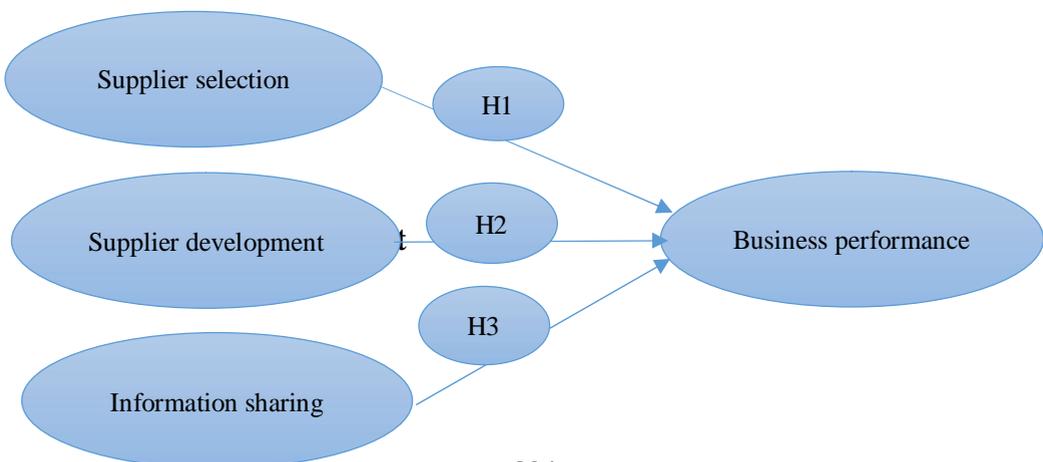
3.4. Business performance

The reasons for measuring business performance are varied. According to Sandada, Desousa and Awazu (2012), performance measurement is essentially a comparative process whereby different aspects of performance are compared. This comparison, according to Crowther (2011), offers three benefits. First, it enables an organisation to compare the performance of one-time period with another. Secondly, the business is able to compare the performance of one business sector or industry with another and lastly, it strategically assists the business to compare all alternative courses of action and their expected benefits and then choose the best one. Tangen (2013), reveals that by measuring its performance, the business organisation is able to effectively improve its productivity, thereby increasing profitability and hence, competitiveness. In addition, Tangen (2013) states that measuring business performance ensures that the business adopts a long-term focus and increases efficiency in its resource allocation as well as its operations. Indeed, it is therefore important to measure the performance of a business to ensure sustainability and competitive advantage.

4. CONCEPTUALISED RESEARCH MODEL

Drawing from the literature review, a research model is conceptualised and hypothesised relationships between research constructs was developed. In the conceptualised research model, supplier selection, supplier development, information sharing are the predictors and business performance is posited to be the outcome variable. The model is developed to explain the relationships between the constructs in the contexts of SMEs. Three hypotheses are examined. The proposed conceptual model can be seen in Figure 1.

Figure 1: Conceptual model

4.1.1. Supplier selection and business performance

Supplier selection criteria assist a company to verify competent suppliers; the assessment process often involves the consideration of several important supplier performance aspects that include price, delivery punctuality and quality (Kannan & Tan, 2012; Kim, 2009; Vonderembse & Tracey, 2010). When suppliers are chosen through use of these criteria, supplier performance and the buying organisations operations performance are predicted to improve (Vonderembse & Tracey, 2010). Thus, enhancing the company's ability to obtain advantage on a competitive level.

The study proposes that there is a relationship between supplier selection and business performance. Therefore, it is hypothesised that:

H1: Supplier selection has a positive influence on business performance.

4.1.2. Supplier development and business performance.

According to Sithole (2014), supplier development improves supplier performance along with the supply chain. The supplier program supports the suppliers to improve their capability and performance within a business (SMEs), which in return help the buying company to achieve competitive advantages and enhance the market position. Several SMES engage themselves to facilitate their suppliers for the improvement of performance and capability through supplier development (Rajput & Baker, 2012).

Supplier development is increasing in popularity and a number of studies have been conducted to examine the concept (Krause & Handfield, 2012; Modi & Mabert, 2015; Ray, 2010; Wagner, 2010). Thus, the hypothesis pertaining to the above is stated as follows:

H2: Supplier development has a positive influence on business performance.

4.1.3. Information sharing and business performance.

Information sharing amongst supply chain partners has a significant consequential impact on the effectiveness of business performance (Madlberger, 2009).

Information sharing also allows SMES to make better decisions on ordering, capacity allocations, production and material planning through increased visibility of demand, supply and inventory (Iyer, Germain & Claycomb, 2013).

It can be postulated that the higher the level of information sharing by the SMEs, the higher the expected level of business performance. Hence, this study seeks to

determine such a relationship in the case of SMEs. Therefore, it is hypothesised that:

H3: Information sharing has a positive influence on business performance.

5. RESEARCH METHOD

5.1. Research design

Quantitative research was suitable for this study because it deals with numbers, employs statistical methods to analyse data and is associated with the positivist research perspective (Sedmark & Longhurst, 2010). A self-administered survey was used in this study, using a structured questionnaire.

5.2. Research sample

The study was conducted in the Sedibeng district in mainly two towns, Vanderbijlpark and Vereeniging, in the Gauteng province, South Africa. The target population of this research was 300 SMEs that fall under the fast moving consumer goods (FMCG) industry and operating and listed within the Sedibeng district. A simple random sampling method was chosen for this research. With this method, the population is divided into mutually exclusive groups (industry sectors) and random samples drawn from each group (Kotler & Armstrong 2012).

5.3. Measurement instruments

Measures for the constructs supplier selection, supplier development, information sharing and business performance were further developed to suit the study's context and purpose. All items were measured using a five-point Likert scale. All respective measurement scales were found to be reliable on the whole.

6. RESEARCH RESULTS

6.1. Sample description

In this study, questionnaires were distributed to individual SME owners and managers in the Sedibeng municipal district. Of the 300 questionnaires distributed, only 297 were received and presented a response rate of 99 percent. Some of the questionnaires were regarded as spoilt due to filling in mistakes.

Results pertaining to the demographics of respondents are provided as follows. Males occupy most SMEs, constituting 74 percent, while females constitute 26 percent. One of the reasons behind the lower participation of females in the SMEs can be explained by the past practices which were skewed in favour of males. The results further indicated that 156 respondents are between 21-30 age category and

19 over the age of 50. In addition, more than 50 percent of the respondents have either a diploma or a degree. Thus, it can be concluded that graduates venture into small businesses the most in South Africa compared to those with matric or lower education levels. Results also show that there are various types of industries in South Africa ranging from manufacturing to service related industries. According to the findings of this study, private companies dominate in the SMEs sector with 68 percent, followed by sole proprietor's and close corporations.

6.2. Measurement scale reliability and validity

Results from the scale accuracy analysis are exhibited in Table 1. For reliability testing, the researcher used Cronbach's alpha value and composite reliability and average variance extracted. To ensure validity, both convergent and discriminant validity were checked. Cronbach's alpha values greater than 0.70 are considered to be acceptable (Mitchell & Jolley 1996). As reported in Table 1, Cronbach's alpha values for all scales ranged between 0.823 and 0.896, indicating that the scale was internally consistent. In this study, composite reliability values for the measurement scales varied between 0.867 and 0.918, which meets the minimum requirements.

Table 1: Scale accuracy analysis

Constructs	Mean (scores)	SD	Cronbach's test α value		CR value	AVE value	Factor loading
SS1	3.80	1.253		0.879	0.867	0.43	0.735
SS2	3.84	1.787					0.628
SS3	3.97	0.965					0.783
SD1	3.84	0.991		0.8.54	0.870	0.25	0.856
SD2	3.98	1.061					0.636
SD3	3.86	0.939					0.704
SD4	3.81	0.957					0.837
SD5	3.96	0.991					0.754
IS1	3.97	0.953		0.896	0.918	0.73	0.899
IS2	3.99	0.866					0.845
IS3	4.01	0.891					0.895
IS4	3.98	0.941					0.791
BP1	3.86	0.954		0.823	0.870	0.64	0.766
BP2	3.68	0.935					0.842
BP3	3.69	0.972					0.864
BP4	3.82	0.962					0.705
BP5	3.77	0.948					0.742

SS, supplier selection; SD, supplier development; IS, information sharing; BP, business performance

Scores: 1, strongly disagree; 3, moderately agree; 5, strongly agree

Convergent validity was checked if item loadings were greater than 0.5. Table 1 reveal that all item loadings ranged between 0.502 and 0.572. This is beyond the recommended minimum values (Karatepe, 2006).

However, discriminant validity was assessed using AVE values, and the inter-construct correlation matrix through the statistical software. Additionally, inter-construct correlations less than the marginally accepted value of 0.85 were also used as acceptable measure for discriminant validity (Hulland, 1999). These results are shown in Table 2.

Table 2 indicates that correlations between the constructs ranged between 0,028 and 0.797, which attests that discriminant validity was acceptable for this study. As can be seen in Table 1, all items have loadings greater than 0.500, with no correlation between constructs that are greater than 0.899.

Table 2: Correlations between constructs

	SS	SD	IS	BP
SS	1.00			
SD	0.797***	1.00		
IS	0.028	0.462**	1.00	
BP	0.732	0.729	0.612	1.00

SS, supplier selection; SD, supplier development; IS, information sharing; BP, business performance

CFA and SEM fit indices are believed to have no single statistical check of significance that determines a correct model for specified sample data (Schumacher, 2009:78). Consequently, the researcher employed a different model fit criteria as a combination of assessing model fit (Hair et al., 2010). These indices are: chi-square value over degree of freedom ($\chi2/df$) of value between one and three, the values of CFI, IFI and TLI equal to or greater than 0.90 and the RMSEA value to be equal to or less than 0.08. The results obtained in this study are as follows; chi-square value to degree of freedom of 1.562 and, NFI, IFI, TLI, CFI and RMSEA of 0.959, 0.044, 0.896, 0.951 and 0.960, respectively. The overall model assessment revealed an acceptable fit of the measurement model to the specified sample data.

The study then proceeded to the next phase of assessing the structural model fit and the hypothesis testing stage.

6.4. Research model assessments and hypothesis testing

The results show the ratio of chi-square over degree of freedom was 2.130. This value is less than the recommended threshold of less than 3.0; therefore, it confirms the model fit. Additionally, CFI, NFI, RMR, IFI, TLI and RMSEA values were 0.916, 0.93, 0.62, 0.855, 0.902 and 0.917. Since the model fit was

acceptable, the study proceeded to test the research hypotheses and the results are reported in Table 3.

The path coefficients for the proposed hypotheses were H1=0.978; H2=0.844 and H3=0.007. All hypothesis coefficients were significant at a 10% confidence level.

Table 3: Structural equation modelling results

Proposed relationship	Hypothesis (H)	Path coefficient	Decision
SS-- BP	H1	0.863	Accepted
SD-- BP	H2	0.985	Accepted
IS-- BP	H3	0.845	Accepted

Structural model fits: $\chi2/df$ =2.130; CFI = 0.916, NFI = 0.93, RMR = 0.62, IFI = 0.855, TLI = 0.902 and RMSEA = 0.917.

SS, supplier selection; SD, supplier development; IS, information sharing; BP, business performance

7. DISCUSSION AND CONCLUSIONS

The purpose of this study was to investigate the influence of supplier selection, supplier development and information sharing on business performance. Three hypotheses were formulated and tested. A positive relationship was hypothesised between supplier selection and business performance (H1) of SMEs. The positive factor loading (0.863) correlation confirms the existence of a positive linear relationship between supplier selection and business performance. The ability of SMEs to select the right supplier and to extract benefits from supplier relationships will influence the way relationships are managed. This can improve business performance.

The next hypothesis was formulated to determine whether supplier development has an impact on business performance (H2). This relationship was proved based on the positive factor loadings (all above 0.5) and their significance level of p-values less than 0.005. These results are consistent with previous research (Krause & Handfield, 2012; Modi & Mabert, 2015; Ray, 2010; Wagner, 2010), which proposes that supplier development is part of supplier relationship formulation and it helps to reduce procurement hazards and helps businesses to achieve competitive positions by ensuring reduced transaction costs.

The third hypothesis posited that information sharing has a positive influence on business performance (H3). Studies have indicated information sharing can be a key ingredient in achieving increased coordination, faster material flow, higher

order fulfilment and shorter order cycle times and reduced inventory costs increased customer satisfaction with fast and reliable delivery, the results showed a positive influence on business performance. This practice adopted by SMEs can be seen in a positive light as they are earmarked for growing the economy and job creation in the country.

It can be concluded that the adoption of SCM practices identified in this study can positively be used by SMEs to achieve business success.

8. IMPLICATIONS

This study has contributed to the existing literature by adding new knowledge and proving a better understanding to the firms' owners and managers on the influence of supply chain management practices on business performance of SMEs. Hence, the study highlights the relationship between supplier selection, supplier development, information sharing and business performance. Furthermore, the research helps SME owners and managers to have a clear understanding of the benefits of choosing the right supply chain management practices to improve business performance.

The environment of business is characterised by rising complexity, uncertainty, instability and volatility. SMEs have to rethink the traditional methods and strategies for doing business in order to overcome the pressure of changing market conditions. Supplier improvement and supplier development should be a top priority for SMEs in order to improve business performance. Supplier development is also a key factor in building partnership relationship, thereby improving mutual success.

9. LIMITATIONS AND FUTURE RESEARCH

Despite the contribution of the study, it has some limitations. First, the geographical region was a constraint, data were collected from SMEs within the Sedibeng municipal district and, therefore, that makes it difficult to generalise the findings to other environments. The need is therefore to extend the study and increase the scope to include other regions that are excluded in this study. Secondly, only three SCM practices were included in this study, which makes it necessary to conduct other studies that cover SCM practices holistically. Further studies can also include other industries. Future studies in South Africa should include large companies to test the hypothetical model in order to provide comparative analysis between SMEs and large business operations. This may provide room for comparative studies by industry size.

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