



# Modelling the antecedents for export orientation, innovation capacity and performance for South African manufacturing SMEs

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**Orientation:** In order to improve performance, South African manufacturing small and medium-sized enterprises (SMEs) need to constantly look at expanding their markets by exploring export opportunities and innovating their products and services.

**Research purpose:** The aim of this study was to model the antecedents for export orientation, innovation capacity and SME performance.

**Motivation for the study:** Although the influence of export orientation and innovation capacity on firm performance is well established, this study has brought together these capabilities as well as SME absorptive capacity, knowledge management and entrepreneurial competence into one model.

**Research design, approach and method:** The study adopted a quantitative research approach and employed a cross-sectional survey of 207 SMEs in South Africa. Structural equation modelling was employed for data analysis using AMOS 26.0.

**Main findings:** Absorptive capacity and knowledge management capabilities are certainly significant capabilities that should be embedded in the SME business, in view of their role in positively influencing the development of export orientation and innovation capacity, and that the influence of entrepreneurial competence is not significant enough. The results of the study showed that the primary data collected and analysed fit the posited model.

**Practical/managerial implications:** With SMEs seeking to enter the export market faced with a number of challenges as they begin to explore uncharted waters, the ability to learn and assimilate new knowledge will stand SMEs in good stead as they expand their markets beyond the present boundaries.

**Contribution/value-add:** The study's findings extend the principle of distributed focus of attention into a possible new theory called SME Export and Innovation Attention Theory.

**Keywords:** absorptive capacity; knowledge management capability; entrepreneurial competence; innovation capacity; export orientation; SME performance.

## Introduction and background

In recent years, there have been a number of studies, which have investigated the performance of small and medium-sized enterprises (SMEs). Good performing SMEs mean better socio-economic conditions as a result of increased employment opportunities and improved fiscal revenue (Lawless 2014). Hence, South African manufacturing SMEs welcome the support received from the government and other institutions, which facilitate their growth and development. Policy makers should recognise the peculiar needs of those SMEs with the potential for high growth and employment creation (Ngek & Van Aardt Smit 2013). Yet, for SMEs to grow and thrive, much more is required than support from the government. Entrepreneurs and SME managers should also know the kind of capabilities their business require in order to move from one point to the next. Innovative start-ups, which are future job-creating enterprises (Kuckertz et al. 2020), should equally be cognisant of such capabilities.

The socio-economic contribution of small and medium enterprises is well documented in the literature, especially in the areas of job and wealth creation (Lawless 2014; Mafini, Poee & Loury-Okoumba 2016; Ngek & Van Aardt Smit 2013). For SMEs to continue making such contribution, they need to keep improving their performance in the face of shrinking markets and growing competition (Prasanna et al. 2019). This calls for SMEs to expand their markets by exploring

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export opportunities and by constantly innovating their products and services, as well as their operational processes (Golovko & Valentini 2011; Zortea-Johnston, Darroch & Matear 2012). Yet, for SMEs to grow their markets and innovate, they need to improve their learning ability through absorptive capacity and knowledge management capabilities (Bagheri et al. 2019; Martin & Javalgi 2019).

In this study, absorptive capacity and knowledge management are regarded as the learning capabilities that must be built in order to strengthen the operational effort to positively influence firm performance. Entrepreneurial competence has also been identified as pivotal in achieving organisational performance goals; it is unique to the specific entrepreneur and organisational setting. South African manufacturing need to learn to harvest or extract knowledge management routines and practices necessary for transforming knowledge inputs into performance-enhancing outputs (Abbariki, Snell & Easterby-Smith 2017:57; Barbero, Casillas & Feldman 2011:673). The dynamic capabilities view offers a framework or a perspective, which depicts how resources (such as knowledge or entrepreneurial competence) are utilised and configured as routines and practices that constitute organisational capabilities (Mohamud & Sarpong 2016:511; Teece 2014:17).

As SMEs largely depend on their owners, who are often entrepreneurs, their skills and competencies cannot be overemphasised for the success of their business. Surviving and thriving under these competitive pressures call for constantly embracing new ways of thinking and working (Joynes, Rossignoli & Fenyiwa Amonoo-Kuofi 2019). The shrinking local markets constantly challenge SMEs and their owners to increase their horizon and explore markets beyond their own geographical boundaries for potential growth and expansion (Gherghina et al. 2020). In this regard, Alves et al. (2020:5) posit that SMEs active in international trade outperform those that do not. This indicates that SMEs can do well to engage in activities that will enable them to internationalise, as this will enhance competitiveness.

While there were many other studies that examined permutations of sections of these relationships, for example, the link between absorptive capacity and innovation (Ali, Kan & Sarstedt 2016; Enkel et al 2017), or the effect of exports and innovation on firm performance (Golovko & Valentini 2011; Kafetzopoulos & Psomas 2015), or how learning determines export orientation and affects export performance (Huang et al. 2018), this is the first study that has attempted to put all these variables together in a model to examine the outcome on firm performance for South African SMEs. Hence, this study explores the influence of organisational learning capability (absorptive capacity, knowledge management capability and entrepreneurial competence) on the innovation capacity, export orientation and SME performance. Figure 1 illustrates the conceptual framework for this study.

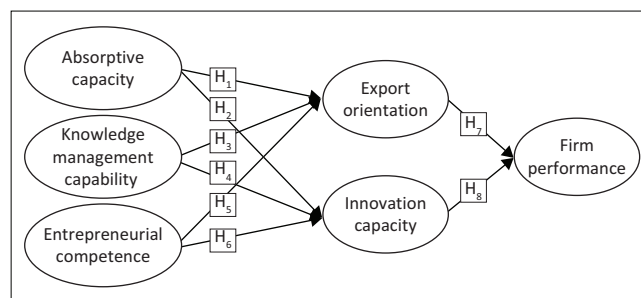


FIGURE 1: Conceptual model.

Based on the conceptual research model, the following hypotheses are stated:

- H<sub>1</sub>: There is a positive and significant relationship between absorptive capacity and export orientation.
- H<sub>2</sub>: There is a positive and significant relationship between absorptive capacity and innovation capacity.
- H<sub>3</sub>: There is a positive and significant relationship between knowledge management and export orientation.
- H<sub>4</sub>: There is a positive and significant relationship between knowledge management and innovation capacity.
- H<sub>5</sub>: There is a positive and significant relationship between entrepreneurial competence and export orientation.
- H<sub>6</sub>: There is a positive and significant relationship between entrepreneurial competence and innovation capacity.
- H<sub>7</sub>: There is a positive and significant relationship between export orientation and firm performance.
- H<sub>8</sub>: There is a positive and significant relationship between innovation capacity and firm performance.

## Theoretical framework

Nonaka's 'theory of organisational knowledge creation' (Nonaka & Nishihara 1994) best frames the discussion on organisational learning as encapsulated by the knowledge management and absorptive capacity concepts. Knowledge creation theory starts with a reflection on the iterative relationship between tacit and explicit knowledge in an organisation. It also considers how the sharing of knowledge between individuals and across departments (referred to by Omidvar 2013:13, as 'boundary spanning') gives rise to the development of new and innovative ideas. In this study, absorptive capacity and knowledge management are regarded as the learning capabilities that must be built in order to strengthen the operational effort to positively influence firm performance. Learning is pivotal to the organisation's ability to understand its own strengths and weaknesses and the opportunities and threats existing in the external environment. Without the ability to 'sense and seize' opportunities (Teece 2007:1322), businesses, and SMEs in particular, have little chance to perform, grow and survive.

The 'sensing of opportunities' capability requires both externalisation of organisational learning (i.e. making the tacit explicit); the acquisition and systematising of new knowledge from a variety of external sources including suppliers and customers and through research and

development efforts (in other words, a knowledge management process) and an integration of new and existing knowledge, requiring absorptive capacity. Furthermore, management attention must be focused to allow for searching beyond the firm's existing knowledge perimeters (Teece 2007:1326). Here, there is a need for entrepreneurial competence based on an attention focus choice (Gebauer 2009:83). In this study, learning capabilities (as reflected by absorptive capacity and knowledge management) and entrepreneurial competence are the high-level tools deployed at a higher level to create operational capabilities that will lead to outputs that will, in turn, produce positive firm performance outcomes. These high-level tools are also referred to as dynamic capabilities in terms of the dynamic capabilities view, which helps us to understand how capabilities can be built so that firm performance outcomes can be realised.

## Literature review

### Absorptive capacity and export orientation

Absorptive capacity refers to the organisational capability to identify the need for new information, to assess the fit with existing knowledge base and to integrate the new information accordingly and then to convert such new information into firm performance-enhancing outputs (Ali et al. 2016; Gunawan & Rose 2014). Export orientation, however, is concerned with how firms prepare for exporting and become export entrants, which involves learning to export and learning by exporting, after export entry (Leonidou, Katsikeas & Coudounaris 2010). Galbreath (2019) found that for exporters to successfully enter foreign markets or achieve export intensity, they require absorptive capacity in order to learn about the business requirements and market conditions in targeted export destinations.

Absorptive capacity also enables research and development and can influence the business' export behaviour and performance, thereby helping business overcome export hurdles, which may otherwise be difficult to overcome (Gkypali, Arvanitis & Tsekouras 2018). Gkypali et al. (2018) found that the bigger the firm, the stronger the export orientation becomes. This indicates that medium-sized enterprises rather than micro-enterprises or small enterprises are more likely to develop export orientation. However, Wu and Voss (2015:344) found that over time, the effect of absorptive capacity on export performance wanes as, over time, absorptive capacity becomes institutionalised and eventually falls victim to organisational bureaucracy and rigidity. For SMEs intending to export, it is of vital importance that they learn about the export market, and for those already active in the export market, they need to realise that learning by exporting is beneficial (Huynh, Nguyen & Tran 2018). These studies reveal that absorptive capacity does play a role in export orientation. Yet, much still needs to be explored about the relationship between absorptive and export orientation. Hence, this study hypothesises:

**H<sub>1</sub>:** There is a positive and significant relationship between absorptive capacity and export orientation for SMEs.

### Absorptive capacity and innovation capacity

Innovation is about bringing forth a new idea or a new solution in the form of a product or a process or a service and is the useful output of the creativity process (Cropley, Kaufman & Cropley 2011:2; Gong, Zhou & Chang 2013). However, for creative ideas to become useful innovation outputs, some transformative learning processes must occur, that is, absorptive capacity is necessary (Gebauer, Worch & Truffer 2012). A few studies have established a positive relationship between absorptive capacity and innovation capacity (Ali et al. 2016; Engelman et al. 2017; Enkel et al. 2017). In their study, Cepeda-Carrion, Cegarra & Jimenez-Jimenez (2012) observed that the relationship between absorptive capacity and innovation is shaped by unlearning. Overall, the literature indicates a strong positive influence of absorptive capacity on innovation (Zahra & George 2002; Zou, Ertug & George 2018). Therefore, the following hypothesis is proposed:

**H<sub>2</sub>:** There is a positive and significant relationship between absorptive capacity and innovation capacity for SMEs.

### Knowledge management capability and export orientation

Knowledge management capability refers to the practices and tools that are deployed to allow for knowledge creation and knowledge conversion (Cerchione & Esposito 2017). Export orientation refers to all the investments made in configuring human, social and physical capital resources in pursuit of imminent or longer term internationalisation strategy and the commensurate procedures that are put into place to ensure that this aim is pursued and achieved (Eliasson, Hansson & Lindvert 2012; Gubik & Bartha 2014). Investing in human capital, in particular in the learning prowess and knowledge of staff, is significant in improving labour productivity prior to exporting and in the early stages of exporting (Casillas, Barbero & Sapienze 2015).

Villar, Alegre and Pla-Barber's study (2014) found that export performance is enhanced when certain knowledge management practices have been adopted. Casillas et al. (2015:106) surveyed 103 Spanish SMEs that were either intending to export or had just started exporting in the last year. They found that knowledge management of the learning accrued prior to and during the early stages of exporting has a significant effect on success as an exporter. In the light of this, this study postulates:

**H<sub>3</sub>:** There is a positive and significant relationship between knowledge management capability and export orientation for SMEs.

### Knowledge management capability and innovation capacity

Knowledge management serves the purpose of improving operational efficiency, productivity and quality and enables the delivery of new solutions to customer needs (Donate & Sánchez De Pablo 2015). Novelty and usefulness are also associated with innovation, and thus, knowledge



management can be seen as an enabler of innovation (García-Morales, Jiménez-Barrionuevo & Gutiérrez-Gutiérrez 2012; Kim, Kim & Foss 2016). In their study, Donate and Sánchez De Pablo (2015) found that of the four activities or functions of knowledge management, that is, knowledge creation, storage, transfer and application, it is the knowledge creation and knowledge application functions that have the most significant and positive relationship with innovation.

A further contribution on innovation as a way to bring new solutions to market was made by Li et al. (2014) who identified the link with knowledge management. Their study found that Chinese firms use networks and knowledge exploration and exploitation to identify and pursue opportunities. Gonzalez and Martins (2014) concluded that the innovation strategy is an important factor in knowledge management because of its ability to direct the width and breadth of knowledge creation activities, and conversely knowledge management contributes to the achievement of innovation strategy. Martín-De Castro (2015:143) asserts that to achieve and maintain a competitive edge in the modern global economy that is technology and information driven, knowledge management is a strategic resource, imperative in driving innovation in organisations. Hence, the following is posited:

$H_4$ : There is a positive and significant relationship between knowledge management and innovation capacity for SMEs.

### Entrepreneurial competence and export orientation

Entrepreneurial orientation is a competence that the manager or owner or founder deploys to determine how to make decisions about investment in resources and capabilities in preparation for export orientation (Swoboda & Olejnik 2016). Furthermore, it lies within the ambit of the entrepreneur or SME manager to decide whether to engage in decisions that are riskier but have a long-term perspective, such as developing an export orientation, while also attending to immediate or short-term operational decisions and matters. This is referred to by Laureiro-Martínez et al. (2015:324) as an ambidextrous entrepreneurial competence relating to decision making.

Entrepreneurial competency consists of behaviours adopted by the entrepreneur, which have a direct and positive effect on the entrepreneur's work performance by promoting the development of organisational capabilities and competitive advantage, which includes building export orientation as a capability that could produce future competitive advantage (Sánchez 2011). Kuivalainen, Sundqvist and Cadogan (2010) found that entrepreneurial competence and internationalisation success are related. Similarly, Fernández-Mesa and Alegre (2015) found entrepreneurial competence to be pivotal for export success. Game and Apfelthaler's study (2016) also found that entrepreneurial competence as evidenced by the entrepreneur's decision-making approach, prior international experience and knowledge is very important

in exporting. These studies show that the SME entrepreneur would usually also be the manager and main decision maker, plays a critical part in export orientation and makes decisions and directs the development of export-oriented capabilities. Therefore, this study posits the following hypothesis:

$H_5$ : There is a positive and significant relationship between entrepreneurial competence and export orientation for SMEs.

### Entrepreneurial competence and innovation capacity

Entrepreneurial competence is the ability to perform the three entrepreneurial tasks that shape the competitive scope of the firm, namely to make decisions and take actions and to build organisational capabilities (Man, Lau & Chan 2008). All three of these tasks are relevant to building innovation capacity through the entrepreneur's ability to contribute knowledge and technology management, idea management, project management and commercialisation ability (Doroodian et al. 2014). Pérez-Luño, Wiklund and Cabrera (2011) show that the relationship between entrepreneurial competence and innovation is of strategic importance and requires further research. Lechner and Gudmundsson (2014) aver that decisions about developing innovation capacity are derived from the firm's overall strategy for competitiveness, which is driven by entrepreneurial competence in executing the aforementioned entrepreneurial tasks. As more empirical evidence is required on the relationship between entrepreneurial competence and innovation capacity, the following hypothesis is, therefore, proposed:

$H_6$ : There is a positive and significant relationship between entrepreneurial competence and innovation capacity for SMEs.

### South African manufacturing performance

Venkatraman and Ramanujam (1986:802) describe firm performance as a subset of organisational effectiveness, which includes financial, non-financial or operational measures, as well as measures for social and environmental impact. Firm performance can be measured by financial performance such as turnover and sales growth or return on investment measures. In order to overcome the resistance of small firms to publicising firm performance information, subjective measures are used, where respondents rate firm performance in relation to competitors or a given benchmark. For instance, in the study of the relationship between entrepreneurial orientation, firm strategy and firm performance of small firms, Lechner and Gudmundsson (2014:45) include two subjective measures of firm performance, that is, cash flow and profitability as judged by the respondents in comparison with their competitors. Wolff, Pett and Ring (2015:720) adopted a similar approach in which respondents could indicate their firms' sales growth and market growth performance over three years. This study also adopted the subjective measure of performance from the SME managers and owners.

## Export orientation and South African manufacturing firm performance

Export orientation means that preparations are made through investment in productivity improvements, be it investment in labour productivity and/or through research and development and capital equipment investments and also that the firm engages in acquiring knowledge about exporting (Eliasson et al. 2012). Eliasson's study found that while the pre-export investments come at a cost, they also deliver positive firm performance results in the domestic market through sales increases and local market growth achievements (Eliasson et al. 2012:468). The revenues earned are necessary to offset the cost of a venture into the export market. Thus, export orientation can, therefore, be directly linked to firm performance. When Golovko and Valentini (2011) examined the relationship between exports and firm performance for Spanish manufacturers, they found that exports do positively relate to firm performance, but the effect can be strengthened when it is combined with innovation.

Interestingly, in their study, Fernandez-Ortiz, Arteaga Ortiz and Clavel San Emeterio (2015) found a positive relationship between export orientation and export commitment, which refers to the extent to which managers deem that export sales targets have been satisfactorily met over a 3-year period since the export entry. This suggests that growth in the domestic market is important in promoting export orientation, which often leads to a satisfactory export experience in terms of sales. Castaño, Méndez and Galindo (2016) investigated, among others, the relationship between internationalisation and business growth expectations of service sector companies in 17 countries for which data were obtained. The relationship was found to be positive and significant, suggesting that there is an expectation by business managers that positive performance outcomes should be achieved via internationalisation, of which exporting is the most likely mode for SMEs. Hence, the following hypothesis is proposed:

**H<sub>2</sub>:** There is a positive and significant relationship between export orientation and SME performance.

## Innovation capacity and South African manufacturing firm performance

Decisions to pursue innovation are linked to the achievement of operation cost reductions and profit increases through the introduction of new products and services into the market (Braga & Braga 2013). Investment in innovation capacity does not always produce performance effects, the reason being that not all innovations will make it to market and some that do will not necessarily find uptake in the market (Buddelmeyer, Jensen & Webster 2010:262). Thus, the extent to which innovation delivers positive results is strongly determined by how good the legal protection for trademarks and patents is and the pace of technology acceleration (Buddelmeyer et al. 2010:264). Kafetzopoulos and Psomas's (2015) study of the relationship between innovation capability and firm performance of Greek manufacturing businesses,

predominantly SMEs, found a significant and positive relationship between innovation and firm performance as well as innovation and product quality, and it also found that operational performance has a positive and significant effect on financial performance (2015).

Yeşil, Koska and Büyükbeşe (2013) aver that investment in innovation capacity results in innovation process effectiveness, which, in turn, should lead to better firm performance. Firms go under because of the inability to make profits, which is related to cost lay-out for innovation, the uptake of innovations in the market, and finally, to how easily innovations can be imitated, that is, whether there is a strong legal protection for trademarks and patents (Buddelmeyer et al. 2010). Jiménez-Jiménez and Sanz-Valle (2011) confirm the hypothesis that innovation and performance are positively and significantly linked, and also that learning has a stronger effect on innovation than it has on performance directly. All these aforementioned studies, irrespective of the indicators used for innovation capacity or firm performance, point to the following hypothesis:

**H<sub>3</sub>:** There is a positive and significant relationship between innovation capacity and SME performance.

## Research methodology

This study adopted a quantitative approach within a positivistic research paradigm. The study employed a survey as the research design with a sample of 400 SMEs. The study used purposive sampling, where several SME databases were used to compile the sample. These databases include the SA Electrotechnical Export, the SA Cosmetics Export Council, the SA Capital Equipment Export Council, Cape Furniture Makers, Olive Nurseries, Fruit producers, Furntech incubates, Steel tube manufacturers, Solar PV manufacturers, SA Boatbuilders, SA National Halaal Authority (food & beverage manufacturers), the Black Business Council in the Build Environment, SA Flower Growers and Flower Export Council, SA Footwear and Leather Industries association, SA Canning industry (fresh product processing and canning) and a group of Department of Trade & Industry's trainees SMEs in their export readiness programme, mainly in manufacturing and agriculture.

Direct web links via Survey Monkey were sent to an email list of 400 SMEs between August and November 2020. Data collection involved three waves until 231 self-administered questionnaires were received, of which 207 were suitable for data analysis, resulting in a response rate of 52%. The questionnaire used in the study was adapted from previously validated instruments: absorptive capacity (Wu & Voss 2015), knowledge management (Cerchione & Esposito 2017), entrepreneurial competence (Man et al. 2008); export orientation (Eliasson et al. 2012; Gubik & Bartha 2014), innovation capacity (Doroodian et al. 2014) and firm performance (Arend 2014; Kafetzopoulos & Psomas 2015). The questionnaire was pre-tested with four academics who are experts in the area of entrepreneurship. As a result, some items in the questionnaire were adapted for better clarity for

local respondents. A five-point Likert scale questionnaire was used. Exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and structural equation modelling (SEM) were used for data analysis using IBM SPSS Amos version 26.

## Research findings

As shown in Table 1, half of the respondents were founders or owners, followed by executive managers and departmental managers. Fifty-four per cent of businesses have been in operation for more than 10 years, followed by 19% in business for 2–5 years, 15% between 5 and 10 years, while 11% have been in operation for less than 2 years. A business is considered established if it has been in existence for 42 months (Bosma et al. 2020). This is important for this study, as the target population was manufacturing-based SMEs and to become established as a manufacturing operation requires time, has a bearing generally on firm survival and for the building of capabilities such as export orientation and innovation capacity, time in operation is important.

### Kaiser-Meyer-Olkin measure of sampling adequacy

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is used to determine the strength of the relationship

**TABLE 1:** Sample profile.

Sample characteristic	Freq	%	Valid %	Cum %
Founder or owner	105	50.7	50.7	50.7
General manager or managing director	47	22.7	22.7	73.4
Manager	20	9.7	9.7	83.1
Departmental manager	35	16.9	16.9	100.0
Total	207	100.0	100.0	-
<b>Sectors</b>				
Agriculture	26	12.6	12.6	12.6
Mining and quarrying	9	4.3	4.3	16.9
Manufacturing	91	44.0	44.0	60.9
Electricity, gas and water	17	8.2	8.2	69.1
Construction	11	5.3	5.3	74.4
Retail and motor trade and repair services	11	5.3	5.3	79.7
Wholesale trade, commercial agents and allied services	16	7.7	7.7	87.4
Catering, accommodation and other trade	6	2.9	2.9	90.3
Transport, storage and communications	9	4.3	4.3	94.7
Finance and business services	8	3.9	3.9	98.6
Community, social and personal services	3	1.5	1.5	100.0
Total	207	100.0	100.0	-
<b>Years in operation</b>				
Less than 2 years	23	11.1	11.1	11.1
Between 2 and 5 years	41	19.8	19.8	30.9
More than 5 and less than 10 years	31	15.0	15.0	45.9
+10 years	112	54.1	54.1	100.0
Total	207	100.0	100.0	-
<b>Number of full-time employees</b>				
Less than 5 years	62	30.0	30.0	30.0
6–10	38	18.4	18.4	48.4
11–20	25	12.0	12.0	60.4
21–50	38	18.4	18.4	48.7
51–100	25	12.0	12.1	90.8
101–200	19	9.2	9.2	100.0
Total	207	100.0	100.0	-

between variables, for factorability of the variables, and is indicative of adequacy of the sample factor analysis (Beavers et al. 2013; Rozental et al. 2016). A KMO value of 0.5 is acceptable but is more desirable when above 0.6 (Kaiser 1974:35; Pallant & Manual 2007).

The results from Table 2 show a KMO value of 0.814, which indicates that the sample is adequate and factor analysis can be conducted.

### Bartlett's test of sphericity

Bartlett's test of sphericity must be significant ( $p < 0.05$ ) to indicate that data are suitable for factor extraction and in this case  $p = 0.000$  (Pallant & Manual 2007). This is determined based on the relationship between variables, where correlations must be significantly different from 0 to continue with EFA (Maskey, Fei & Nguyen 2018). Correlations between items should not be so high (above 0.8) as to present the problem of multicollinearity or so low ( $< 0.2$ ) as to indicate that the items do not correlate sufficiently to group under the same construct (Rozental et al. 2016; Watson 2017).

### Variables of central tendency, variability and reliability

The mean is the average score obtained per item, and the standard deviation indicates how far away from or how closely concentrated the responses are to the mean. Table 3 presents the measures of central tendency and dispersion for each construct, namely entrepreneurial competence, absorptive capacity, knowledge management, export orientation, innovation capacity and firm performance. Reliability measures the consistency of a measurement. Internal reliability measures consistency of responses across the measurement items and is indicated by Cronbach's alpha ( $\alpha$ ) (Kline 2016). An alpha coefficient is a value between 0 and 1 and is acceptable at  $> 0,7$  and excellent at  $> 0,9$ , indicating moderate to high reliability (Jain & Angural 2017; ed. Maree 2016). Composite reliability (CR) is also a measure of internal consistency, indicated by a value greater than 0.80 (Raymond et al. 2016). The average variance extracted (AVE) was used to evaluate the discriminant validity of the constructs of the measuring instrument. All relevant values per research construct are presented and discussed in Table 3.

### Correlations and discriminant validity

Discriminant validity means that the inter-construct correlation should not be so high that it is not clear how the different variables measure different constructs (Kline 2016). Discriminant validity can be assessed via the Fornell and Larcker criterion (as applied in this analysis) where, when correlated with the

**TABLE 2:** Kaiser-Meyer-Olkin and Bartlett's test of sphericity.

KMO and Bartlett's test	
Kaiser-Meyer-Olkin measure of sampling adequacy	0.814
Bartlett's test of approx. chi-square sphericity Df	7622.899 1326
Sig.	0.000

KMO, Kaiser-Meyer-Olkin.



**TABLE 3:** Descriptive statistics per construct.

Construct	Valid (N)	Missing values	Mean	Standard deviation	Composite reliability	AVE	Cronbach's alpha
Entrepreneurial competence	207	0	4.2571	0.80551	0.954	0.698	0.954
Absorptive capacity	207	0	4.0879	0.61896	0.883	0.532	0.882
Knowledge management	207	0	4.2512	0.66965	0.870	0.533	0.869
Export orientation	207	0	3.3907	0.90411	0.861	0.577	0.854
Innovation capacity	207	0	3.3885	0.85898	0.847	0.511	0.852
Firm performance	207	0	3.3969	0.96338	0.892	0.587	0.887

AVE, average variance extracted.

**TABLE 4:** Square root of average variance extracted and inter-construct correlation.

Construct	AVE	EC	AC	KMC	EO	IC	FP
EC	0.698	<b>0.835</b>	-	-	-	-	-
AC	0.532	0.208	<b>0.729</b>	-	-	-	-
KMC	0.533	0.135	0.444	<b>0.730</b>	-	-	-
EO	0.577	0.101	0.249	0.205	<b>0.759</b>	-	-
IC	0.511	0.039	0.306	0.384	0.541	<b>0.715</b>	-
FP	0.587	0.106	0.300	0.223	0.298	0.368	<b>0.766</b>

Square root of AVE values is displayed in bold on the diagonal.

AVE, average variance extracted; EC, export orientation; AC, absorptive capacity; KMC, knowledge management capacity; EO, export orientation; IC, innovation capacity; FP, firm performance.

highest squared correlation of another construct, each construct's AVE value should be higher or, secondly, by an examination of factor cross-loadings (Hair et al. 2014). The values in Table 4 confirm discriminant validity as the square root of AVE values is higher than the construct coefficients.

## Measurement model evaluation (goodness-of-fit indices)

### Summary of goodness-of-fit results

Goodness-of-fit indices allow the researcher to consider the hypothesised model in relation to the theory (Gerbing & Anderson 1992). Kline (2016:269) recommends the use of  $2/df$  statistic, CFI and RMSEA indices should also be applied.

The results presented in Table 5 indicate that all the goodness-of-fit indices used reflected good fit for the structural mode. The chi-square ( $\chi^2$ )/ $df$  value was 2.552, which falls within the acceptable benchmark of below 3. The  $\chi^2$ -test statistic is useful in evaluating a model appropriateness for structural path analysis (Schermelleh-Engel & Moosbrugger 2003). Also, the CFI value of 0.921 was acceptable as it fell above the 0.9 threshold for an acceptable fit. The root mean square error of approximation value of 0.078 was below the threshold of 0.08, indicating that the goodness-of-fit test is acceptable in line with the recommendations by Kaplan (2009). Following all the benchmarks on adequacy of the indices and guidelines on acceptable practice (Hair et al. 2009), the results lead to the conclusion that the structural model is sufficiently fit for path analysis.

### The model's predictive power and relevance

As a multivariate analysis technique, SEM employs numerous statistical techniques to measure and analyse the relationships of

**TABLE 5:** Goodness-of-fit statistics for confirmatory factor analysis of the measurement model.

Goodness-of-fit indices	$2/df$	$p$	RMSEA	CFI
Measurement model	2.552	0.000	0.078	0.921

$\chi^2$ , Chi-square;  $df$ , degrees of freedom;  $p$ , significance; RMSEA, root mean square error of approximation; CFI, comparative fit index.

**TABLE 6:** Model's predictive power and relevance.

Construct	$R^2$	$R^2$ adj.	$Q^2$
FP	59.89%	58.15%	19.75%

FP, firm performance.

observed and latent variables. Techniques such as regression analyses are used to examine linear causal relationships between variables. As such, it is important to evaluate the model's predictive power and, in this study, this was achieved using the  $R^2$  value to determine how well a regression model can make predictions. The results of the predictive power and relevance of the model are presented in Table 6.

In SEM, as in multiple regression, the  $R^2$  related the coefficient of multiple determination usually expressed as the adjustment that castigates its value depending on the number of predictor variables included. According to Hair et al. (2019), the benchmark for an acceptable  $R^2$  is any value above 50%. The results presented in Table 6 indicate that a value of 59.89% is hence acceptable. In addition, the  $Q^2$  value was greater than zero (19.75%) for the variable FP, indicating the structural model's predictive relevance given the employed dependent variables (Hair et al. 2019). Given the acceptable  $R^2$  and  $Q^2$ , there was no need to further adjust the model.

### Structural model goodness of fit assessment

As per the general provisions of SEM, there is a need to evaluate the structural model's goodness of fit. This was carried out, and the results obtained are presented in Table 7.

In line with the benchmarks stipulated in the evaluation of the goodness of fit of the measurement model, the structural model exhibited good fit with the data. The chi-square or degrees of freedom ratio were below 3, with the  $p$ -value below the 0.05 level of significance, while RMSEA and CFI were also acceptable at 0.078 and 0.921, respectively. Having satisfied with the conditions stipulated by Bagozzi and Yi (2012:28) in relation to hypothesis testing, the study proceeded to the next level of analysis.

## Hypothesis testing

The conceptualised research model (Figure 1) proposed that entrepreneurial competence, absorptive capacity and knowledge management each have a positive and significant relationship with export orientation and innovation capacity, respectively, and that export orientation and innovation capacity each have a positive and significant relationship with firm performance. Table 8 shows the hypothesised relationships and regression weights, where the significant effect of variables EC, AC and KMC is indicated by a CR

**TABLE 7:** Structural model goodness-of-fit assessment.

Goodness-of-fit measure	Chisq/df	<i>p</i>	RMSEA	CFI
Structural model	2.661	0.000	0.0791	0.944

RMSEA, root mean square error of approximation; CFI, comparative fit index.

**TABLE 8:** Hypothesised relationships and regression weights.

Hypothesis		Estimate	Standard error	Composite reliability	<i>p</i>	Decision
EO	<--- AC	0.307	0.202	3.395	0.000	Supported
IC	<--- AC	0.183	0.140	2.072	0.000	Supported
EO	<--- KMC	0.033	0.197	0.388	0.000	Supported
IC	<--- KMC	0.357	0.158	3.745	0.000	Supported
EO	<--- EC	-0.186	0.111	-2.483	0.013	Rejected
IC	<--- EC	-0.045	0.077	-0.607	0.544	Rejected
FP	<--- IC	0.263	0.105	3.278	0.001	Supported
FP	<--- EO	0.151	0.069	2.030	0.000	Supported

EC, export orientation; AC, absorptive capacity; KMC, knowledge management capacity; EO, export orientation; IC, innovation capacity; FP, firm performance.

(or *z*) value of > 1.96 (Ho 2013:298; Suhr 2008:2) at *p* < 0.001 level of significance.

The results in Table 8 indicate that out of the eight hypotheses, six were supported at 0.01 significance level. H1 stated that there is a positive and significant relationship between AC and EO, and the results show a beta coefficient of ( $\beta$ ) 0.307 at *p* < 0.001. This implies that H1 was supported. Similarly, H2, H3 and H4 with  $\beta$  values of 0.183, 0.033 and 0.357, respectively, were supported. However, H5 and H6 were not supported. These predicted a positive and significant relationship, and the results indicate  $\beta$  values of -0.186 and -0.045 for the two hypotheses, respectively. Also, the results were not statistically significant as H5 had a *p* value of 0.013 and 0.544 for H6. Regarding H7 and H8, these hypotheses were both supported at  $\beta$  values of 0.263 and 0.151, respectively.

## Discussion

The data show that absorptive capacity bears a positive relationship with export orientation (the CR or *z* value is 3.395 at *p* < 0.001 level of significance). Absorptive capacity was posited as an important capability for an SME to position itself for the export activity and market in this study. With SMEs seeking to enter the export market faced with a number of challenges as they begin to explore uncharted waters, the study found that the ability to learn and assimilate new knowledge will stand SMEs in good stead as they expand their markets beyond the present boundaries.

The study hypothesised a positive and significant relationship between absorptive capacity and innovation capacity for SMEs. The results show that absorptive capacity bears a positive relationship with innovation capacity (CR or *z* value is 2.072 at *p* < 0.001 level of significance). Thus, this study presupposed that as a transformative learning process, absorptive capacity enables the innovation process, which according to the literature starts with a creative idea to develop useful or marketable outputs (Gebauer et al. 2012; Molinari et al. 2014). Through the primary data, this study confirmed a positive and significant relationship between

absorptive capacity and innovation capacity, which is in line with other studies (Ali et al. 2016; Enkel et al. 2017; Engelman et al. 2017). The findings in this study suggest that integrating new information with the existing knowledge, which is an important characteristic of absorptive capacity, will lead to improved capacity to innovate.

The study postulated that there is a positive and significant relationship between knowledge management capability and export orientation. The results indicate that knowledge management capability bears a positive relationship with export orientation (the CR or *z* value is 0.388, at *p* < 0.001 level of significance). To avoid the overlap of meaning between absorptive capacity and knowledge management in terms of knowledge acquisition and use, knowledge management was used in this study with specific reference to the practices and tools deployed to allow for knowledge creation conversion (Cerchione & Esposito 2017). The results indicate that learning is important for the development of an export orientation as well as later on, when the exporter is learning by exporting. The results also showed that knowledge management has a positive relationship with innovation capacity (CR or *z* value is 3.745 at *p* < 0.001 level of significance). These results confirm findings from previous studies, which found that knowledge management is positively associated with innovation, and that knowledge management supports the innovation strategy (Gonzalez & Martins 2014; Li et al. 2014; Martín-De Castro 2015). The study enhanced the understanding of the importance of the knowledge management infrastructure to be in place if SMEs are to improve their innovation capacity.

The analysis showed that entrepreneurial competence is not a significant predictor of export orientation (the CR or *z* value was -2.483). A few empirical studies (Fernández-Mesa & Alegre 2015; Game & Apfelthaler 2016; Kuivalainen et al. 2010) have found a positive relationship between entrepreneurial competence and export orientation, often based on the entrepreneur's own international experience, knowledge and outlook towards trading beyond domestic borders. The findings from this study, however, point to a significant but negative relationship between entrepreneurial competence and export orientation. The findings could suggest that the more competent the entrepreneur feels, the more they believe that they can exploit and rely on local opportunities and the less likely that their export orientation will grow. Increased focus on the local market would be at the expense of their SME export orientation.

Again, the study hypothesised a positive and significant relationship between entrepreneurial competence and innovation capacity. The results showed that entrepreneurial competence is not a significant predictor of innovation capacity (CR or *z* = -0.607). Interestingly, the findings point to a negative relationship between entrepreneurial competence and SME innovation capacity. Entrepreneurial competence involves competence in decision making, task auctioning and building organisational capabilities (Man et al. 2002,



2008). While these tasks may be relevant to building innovation capacity through the entrepreneur's ability to contribute knowledge and technology management, idea management, project management and commercialisation ability (Doroodian et al. 2014), it would seem from the results of this study that there is more to innovation capacity than entrepreneurial competence. Put differently, it is possible that the relationship between entrepreneurial competence and innovation capacity needs to be mediated. As Lechner and Gudmundsson (2014) aver, decisions about developing innovation capacity are derived from the firm's overall strategy for competitiveness, which is driven by entrepreneurial competence in executing the aforementioned entrepreneurial tasks.

The analysis showed that innovation capacity has a positive impact on firm performance (CR or  $z$  value is 3.278 at  $p < 0.001$  level of significance). The literature indicates a positive relationship between innovation capacity and firm performance despite the cost of investment in innovation (Braga & Braga 2013; Jiménez-Jiménez and Sanz-Valle, 2011; Kafetzopoulos & Psomas 2015). To strike a balance between innovation costs and positive performance effects, Buddelmeyer et al. (2010) emphasised the importance of innovation capacity, as illustrated by the fact that trademarks and patents are registered to provide protection for the firm from intellectual property theft.

The analysis showed that export orientation has a positive impact on firm performance (CR or  $z$  value is 2.030 at  $p < 0.001$  level of significance). This result supported what was put forward by Navarro-Garcia et al. (2015) that when export orientation was conceptualised as a conscious effort to seek foreign market opportunities, it was found to enable accelerated internationalisation, which, in turn, showed positive firm performance effects. When export orientation was conceptualised as the growth in the domestic footprint as indicative of the ability to expand abroad (Fernandez-Ortiz et al. 2015), a positive effect on firm performance was predicted on the basis that growth in the domestic market as a positive firm performance indicator leads to an export commitment, which is described as the satisfactory achievement of export sales targets over a three-year period following the export entry.

## Conclusion

The results of this study indicated that absorptive capacity and knowledge management capabilities are certainly significant capabilities that should be embedded in the SME business, in view of their role in positively influencing the development of export orientation and innovation capacity, and that the influence of entrepreneurial competence is not significant enough. Based on the foregoing, this study's findings extend Ocasio's (1997) principle of distributed focus of attention and wish to posit a possible new theory called *SME Export and Innovation Attention Theory*. This yet-to-be developed theory postulates that the success of the export

orientation and innovation capacity of SMEs should be based on the distributed resources, capabilities and knowledge across the SME and not on the entrepreneurial competence of the owner. This theory suggests that once the SME wishes to expand its market across the borders and decides to invest in its innovation capacity, it is time that the entrepreneur or founder or owner relinquishes his or her power to the rest of the business. The findings of this study may also go a long way in shedding light into the entrepreneurship growth theories, which in part seek to understand at what point the entrepreneur should involve a team in moving the business strategy forward as many seem to keep holding on because of the financial and emotional attachment to the business.

The study's findings point to the fact that entrepreneurs should depend less on their own competence and skills to position their SMEs for the export market and innovation and should rather mobilise, configure and deploy resources, such as knowledge, and build organisational capabilities such as knowledge management and absorptive capacity capabilities. To that end, entrepreneurs need to make present-time investments in productivity, which is critical for future export behaviour, as the firm needs to improve its profitability in order to be able to absorb the future cost of learning about and undertaking global ventures

Having reflected on the findings of this study, a number of recommendations are proffered. Firstly, the study recommends that given the nature and amount of information flows, SMEs seek for opportunities that improve their ability to assimilate, learn and use new knowledge and information pertinent to their businesses. Recognising the value of new knowledge and information from within and between individuals, departments and units is a key step in enhancing absorptive capacity. To that end, it is vital for SMEs to put in place coordination mechanisms. This necessitates the establishment of a knowledge management system, which forms part of the ICT infrastructure. Such a system will enable an SME to organise and distribute its body of knowledge to the right people at the right time. Improved absorptive capacity and knowledge management capability will likely lead to enhanced export orientation and innovation capacity and business performance, as shown by the results of this study.

The study also recommends that although an entrepreneur or the founder of the business generally wields the most influence concerning the strategic direction of the SME, his or her entrepreneurial competence may not be sufficient if the SME needs to embark on innovative projects or venture into the export market. This is because the findings have shown a negative relationship between entrepreneurial competence and export orientation and innovative capacity. Thus, it is vital for such capabilities to be spread across the SME and not be limited to one person. Investment in improving absorptive capacity and knowledge management capability of the SME would be a better choice as the study

has already confirmed a significant and positive relationship between absorptive capacity and knowledge management capability, on the one hand, and export orientation and innovation capacity and SME performance, on the other hand.

Like many studies, this one has not been without its limitations. The absence of one sample frame made it impossible to employ a probability sampling as originally desired. Consequently, purposive sampling was used, which means that the results of this study cannot necessarily be generalised but can only be limited to the selected sample. As the study adopted a quantitative approach using a survey, the researcher naturally missed on the thick descriptions that would otherwise have been offered had the study adopted a mixed method where the qualitative aspects would also have been considered. Future studies could adopt a longitudinal study where export orientation and innovation capacity are observed over time. An unexpected finding of a negative association between entrepreneurial competence and SME export orientation and innovation capacity makes for an interesting exploration. The model could be further expanded by investigating technology adoption as a mediator for export orientation and innovation capacity.

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### Authors' contributions

G.J.H. conceptualised the study and wrote the first draft article; D.P. supervised the study and edited the article.

### Ethical considerations

This study followed all ethical standards for research without direct contact with human or animal subjects.

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### Data availability

The data that support the findings of this study can be made available by the corresponding author, D.P., upon reasonable request.

### Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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