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Determinants of innovation and its impact on financial performance in South African family and non-family small and medium-sized enterprises

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Background: The importance of innovation for enterprises of all sizes is well documented. However, existing research is ambiguous, with several research gaps concerning the role and nature of innovation in the performance of family and non-family small and medium-sized enterprises (SMEs), particularly in a South African context.

Aim: The aim of the study was to identify the determinants of innovation output, the types of innovation that are commonly being utilised and the influence thereof on perceived financial performance.

Setting: A total of 224 responses from family and non-family SMEs in South Africa were analysed in the study.

Methods: The statistical analysis included assessing the validity and reliability of the measuring instrument by using an exploratory factor analysis and Cronbach's alpha coefficients, respectively. Inferential statistics included calculating the Pearson's product moment correlations, a *t*-test, analysis of variance tests and multiple regression analyses.

Results: Predictors or determinants of *Innovation output* amongst family and non-family SMEs in this study are *Innovation-orientated organisational culture*, *Market orientation and response* and *Risk-orientated entrepreneurial orientation*. A significant and positive relationship was also found between *Innovation output* (which included product, process, organisational and marketing innovation) and *Perceived financial performance*. No differences were found concerning the innovation practices of family and non-family SMEs in this study.

Conclusion: Innovation plays an important role in improving the financial performance of SMEs. In addition, financial and human resources are not necessarily the main determinants of innovation in South African SMEs, but rather the creation of an innovation- and market-orientated organisational culture, together with a risk-orientated entrepreneurial orientation.

Keywords: small and medium-sized enterprises; family enterprises; innovation; innovation output; financial performance.

Introduction, problem statement and the purpose of the study

It is well known that small and medium-sized enterprises (SMEs) make critical economic and social contributions to most national economies (Amoah & Amoah 2018). What is lesser well known is that most SMEs are also family-owned and controlled and play a significant role in global (Miroshnychenko et al. 2021) and African economies, including South Africa (Murphy & Lambrechts 2015). In this study, an SME is defined as a enterprise that employs between 5 and 250 full-time employees and has been in operation for at least 2 years. Family SMEs are therefore defined by combining the definitions of family enterprises and SMEs, thus referring to a enterprise in which two or more family members work, or where a single family owns more than 50%of the enterprise and are active in its day-to-day activities, so long as it has been in operation for at least 2 years and employs between 5 and 250 employees.

Previous research revealed a positive relationship between innovation, enterprise performance and long-term value creation (Moses et al. 2011). In addition, innovation has been identified as a key driver of long-term economic growth and as the initiator of competitive strategy in the market (Moses et al. 2011). Considering South Africa's high (official) unemployment rate, it has become critical for all South African enterprises, including SMEs, to engage in innovative

enterprise practices (Rogerson 2018). Not only will this allow SMEs to improve their chances of survival, but will also contribute towards the reduction of unemployment, inequality and poverty in South Africa (Hauck & Prügl 2015; Rogerson 2018). Moreover, whilst crucial for all SMEs, innovation is of unique importance to family enterprises, as they rely on it to enhance their generational transition process and maintain the family's wealth over generations (Kellermanns et al. 2012). Innovation in this study refers to the introduction of a new or greatly enhanced product, service, process, marketing technique or organisational method incorporated into the internal structure and practices of a particular enterprise. These new products, services, processes or enterprise methods do not need to be entirely new to the market, industry or a country as a whole, but can rather just be novel to a particular enterprise (Lodh, Nandy & Chen 2014).

De Massis et al. (2016) suggest that the lack of innovation strategies utilised by both family and non-family SMEs contributes to their high failure rates. Family enterprises in particular are often, but not always, considered less innovative than their non-family counterparts, which may influence their poor succession rates (Kellermanns et al. 2012). Furthermore, research gaps can be identified in the literature pertaining to innovation in both family and non-family SMEs, leaving our holistic knowledge of the topic incomplete (Hauck & Prügl 2015). In addition, few observations have been made regarding the determinants of innovation in SMEs operating in developing countries, particularly in Africa (Jegede et al. 2012).

Given the gaps and ambiguity in existing literature regarding the role of innovation in the performance of family and non-family SMEs, coupled with the high failure rate of SMEs negatively affecting the South African economy, the purpose of this study was to investigate the nature of innovation in family and non-family SMEs, by identifying the factors that influence innovation output, the types of innovation that are commonly being utilised and the influence thereof on the perceived financial performance of South African family and non-family SMEs.

Literature overview

Innovation, innovation output and perceived financial performance

In this study, *Innovation output* includes the four types of innovation, namely product, process, organisational and marketing innovation. Product innovation refers to the creation and introduction of entirely new products and services into the market, or it can involve drastic improvements to existing products and services (Gunday et al. 2011; Moses et al. 2011). Process innovation involves the implementation of a drastically improved method of delivery or production occurring in a enterprise's methods, software and equipment that allows the enterprise to improve production or delivery times or reduce costs and wastage (Bozkurt & Kalkan 2014; Gunday et al. 2011). Organisational innovation can be described as the implementation of a new or improved organisational method or behaviour in a enterprise's commercial practices, external relations or workplace organisation (Bozkurt & Kalkan 2014). Marketing innovation is a method for enterprises to increase their sales by responding to the consumers' problems and needs in new and creative ways. This includes creating and implementing new or improved marketing campaigns, pricing strategies, product or service placements and promotional activities (Gunday et al. 2011).

Financial performance is considerably easier to measure than non-financial performance, as it is most commonly assessed by using monetary and economic indicators, such as profitability and growth (Gerba & Viswanadham 2016:531–532). Despite advantages being found for using both financial and non-financial performance measures, many researchers have consistently only utilised financial indictors to measure the overall performance of a enterprise (Talib & Shafie 2016:65). The reason for this may be because financial measures create a solid foundation from which to draw conclusions regarding the overall performance and success of a enterprise, as all enterprises' strategies and efforts are often aimed at creating sustainable profits and growth (Lotz & Van der Merwe 2014:190). As such, this study will make use of financial measures to determine the overall performance of the enterprise. When measuring financial performance, empirical studies usually make use of 'perceived' measures (Talib & Shafie 2016:65). The reason for this is because the feedback received from the respondents (owners and/or managers of family and non-family SMEs) is based on their subjective perspective of their enterprise's growth and profitability, as opposed to using objective data and financial records that are shared in the public domain (Soininen et al. 2012:616; Talib & Shafie 2016:65). Therefore, for the purpose of this study, *Perceived financial performance* refers to the owner and/or manager's perception that the enterprise has been financially successful and achieved its financial goals by experiencing growth in profits, sales and the number of employees over the past 2 years.

Independent variables: Determinants of innovation

In this section, the relationships that exist between the proposed independent variables (*Financial resources*, *Human resources and leadership*, *Information and knowledge*, *Entrepreneurial orientation* [*EO*], *Market orientation* [*MO*] and *Organisational culture* [*OC*]) and *Innovation output* are discussed, together with anecdotal and empirical evidence for their inclusion in the hypothesised model.

Financial resources

Financial resources involve the monetary capital and available funds that are acquired through the owner(s) and their family, financial institutions, extended enterprise networks or the enterprise's own profitability (White, Maru & Boit 2015). Having access to adequate internal financial resources can, however, be a challenge for SMEs, as they

often have to turn to external financiers or risk operating without innovation, which could impede their development and leave them trailing behind their competitors (Hottenrott, Hall & Czarnitzki 2016). Some of these external financiers can include, amongst others, financial institutions, banks, government, peer-to-peer, crowdfunding and angel investors. Because of risk-averse behaviour and long-term focus, family enterprises may struggle to attain external financing because they avoid sharing equity with non-family stakeholders (De Massis, Frattini & Lichtenthaler 2013; Nieto et al. 2015). Several empirical studies have found a positive relationship between financial resources and innovation in SMEs (e.g. Lopez-Fernandez, Serrano-Bedia & Gómez-López 2015; Nieto et al. 2015). Hence, the following hypothesis is proposed:

H^1: There is a positive relationship between *Financial resources* and the *Innovation output* of family and non-family SMEs.

Human resources and leadership

The capabilities of employees and management within a enterprise are important factors that facilitate the successful implementation of innovation (Caten et al. 2019; Vieites & Calvo 2011). When a enterprise's management is open to innovation and also allows employees to get involved in the decision-making processes and innovation practices, the enterprise tends to exhibit greater innovation outputs (Nagy & Băbăiță 2016). In addition to the management of the enterprise, leaders play a crucial role in creating an environment for innovations and sustainable development within a enterprise and will significantly affect the innovation process (Röd 2016). In family enterprises, family influence, or 'familiness', is a key determinant of innovation. Family members have an influence on the decision-making processes within the enterprise and subsequently influence the innovativeness of the enterprise either positively or negatively, depending on the family in question (Gast et al. 2018; Röd 2016). Thus, the following hypothesis is proposed:

H^2: There is a positive relationship between *Human resources and leadership* and the *Innovation output* of family and non-family SMEs.

Information and knowledge

Acquiring reliable information and knowledge, from internal and external sources, is important for SMEs to identify opportunities in the market and exploit them with relevant innovations (Jegede et al. 2012). SMEs, however, often struggle to generate their own internal information in comparison with large enterprises, as they do not possess the same capacity and resources to notice and effectively process knowledge and information. Despite this challenge, Jegede et al. (2012) suggest that networking and collaboration with other external enterprises and research entities are ways to overcome this capability shortfall. Collaborating with external entities is an important component of open innovation, as information and knowledge can be acquired through various external entities, such as customers, suppliers, competitors, allies, the Internet, social media platforms, the media, consultants, scientific research organisations, academic institutions, amongst others (El Samra et al. 2019). Family enterprises often form strong relationships inside and outside of the enterprise, which create an environment of free and easy communication and information exchanges (De Massis et al. 2013). The aforementioned anecdotal evidence is supported by empirical studies that found a positive relationship between information and knowledge and innovation in both family and non-family SMEs (e.g. El Samra et al. 2019; Jegede et al. 2012). As a result, the following hypothesis is formulated:

H^3: There is a positive relationship between *Information and knowledge* and the *Innovation output* of family and non-family SMEs.

Entrepreneurial orientation

In order for an innovation to be truly successful, it almost certainly requires elements of risk, proactiveness and a willingness to establish newness; thus, establishing a clear link between EO and innovation (Covin & Wales 2018). In this study, EO is investigated as a multi-dimensional construct (Dele-Ijagbulu, Eresia-Eke & Moos 2020) and includes three dimensions of EO, namely innovativeness, proactiveness and risk-taking. Innovativeness refers to a enterprise's willingness and capacity to engage in innovation activities (Gunawan, Jacob & Duysters 2016). The proactive element of EO focusses primarily on the readiness of enterprises to seek and engage in innovation, as well as the timing of said innovation in relation to market conditions (Covin & Wales 2018; Nasution et al. 2011). Risk-taking, on the other contrary, is the willingness to commit resources to projects with unknown outcomes (Hernández-Linares et al. 2020). Empirical research by Mohammed et al. (2020) and Nasution et al. (2011) revealed a positive correlation between EO and innovation. Based on this evidence, the following hypothesis is proposed:

H^4: There is a positive relationship between *EO* and the *Innovation output* of family and non-family SMEs.

Market orientation

Dibrell, Craig and Hansen (2011) describe MO as a process whereby a enterprise achieves an understanding of the needs and expectations of customers whilst closely monitoring the activities of their competitors. MO is a concept, which is found to be a key determinant of innovation in enterprises (Voigt, Baccarella & Wassmus 2011). Studies conducted by Riswanto et al. (2020) and Ho et al. (2018) found that MO did in fact have a positive influence on the financial performance of enterprises. A recent study conducted by Chipunza (2020) in South Africa and Zimbabwe found that both constructs of MO (customer orientation and competitor orientation) had a positive influence on all four types of innovation (product, process, organisational and marketing innovation). Beck et al. (2011) also confirmed the existence of a positive relationship between MO and innovation. Against this background, the following hypothesis is proposed:

H[5]: There is a positive relationship between *MO* and the *Innovation output* of family and non-family SMEs.

Organisational culture

Whilst resources and capabilities are often the focus of research on innovation determinants (Vieites & Calvo 2011), the OC within the enterprise has been strongly linked with innovation (Halim, Ahmad & Ramayah 2019). Instilling an innovative OC in SMEs provides them with the ability to react in ways that will secure their competitive position, enhance creativity and achieve desired results in a turbulent market (Halim et al. 2015). In the context of family enterprises, OC is of particular importance, given that the values displayed within the family enterprise are usually based on the values of the founding family and are maintained throughout the enterprise's existence (Franco & Lucas 2016). Previous empirical researches have established a positive relationship between OC and innovation (e.g. Ali Taha, Sirkova & Ferencova 2016; Çakar & Ertürk 2010; Halim et al. 2019; Uzkurt et al. 2013). Laforet (2016) states that little research exists that specifically examines the influence of OC on innovation in family enterprises. Against this background, the following hypothesis is formulated:

H[6]: There is a positive relationship between *OC* and the *Innovation output* of family and non-family SMEs.

Innovation output and perceived financial performance

Donkor et al. (2018), in their study amongst SMEs in Ghana, find that the higher an SME's innovative capacity, the more innovation outputs it produces and the better its financial performance tends to be. In a similar manner, Centobelli, Cerchione and Singh (2019) state that the more innovative SMEs are, the better their financial performance tends to be, as a result of the positive relationship that exists between these two variables. Bozkurt and Kalkan (2014), in a study amongst Turkish SMEs, find that SMEs mainly utilise two specific types of innovation, namely process and marketing innovation. Centobelli et al. (2019) find that higher levels of process innovation in manufacturing SMEs increase product innovation outputs, which further enhance financial performance. Similarly, Expósito and Sanchis-Llopis (2019) in their study find that product innovation has a positive influence on the sales and overall financial performance of SMEs. It is important to note that in a study conducted by Paula and Silva (2018) amongst 2745 European manufacturing enterprises, it was found that some innovation outputs had minimal influence on financial performance in the short term, but rather it took some time to emerge. Therefore, the following relationship is hypothesised:

H[7]: There is a positive relationship between *Innovation outputs* and the *Perceived financial performance* of family and non-family SMEs.

Innovative differences between family and non-family SMEs

Several studies (e.g. Fredyna, Ruíz-Palomo & Dieguez 2019; Jiménez-Jiménez, Sanz-Valle & Perez-Caballero 2020; Kraus, Pohjola & Koponen 2012; Matzler et al. 2015; Price, Stoica & Boncella 2013) have found innovation differences between family and non-family SMEs. A study conducted by Classen et al. (2014) have found that family enterprises invest less intensively than their non-family counterparts, whilst also tending to operate primarily in less innovation-intensive industries. To investigate whether there are perceived differences between family and non-family SMEs concerning the variables proposed in this study, the following null hypotheses were formulated:

H_0^{1-8}: There is no difference in perceived *Financial resources*, *Human resources and leadership*, *Information and knowledge*, *EO*, *MO*, *OC*, *Innovation output* and *Perceived financial performance* between family and non-family SMEs.

Research design and methodology

A positivistic research paradigm and deductive methodological approach was utilised in this study. Owing to the nature of this study, an online survey strategy was adopted, which used a closed-ended, structured and self-administered questionnaire to gather primary data for the purpose of this study.

Measuring instrument design and administration

The questionnaire consisted of two sections. Section A focussed on acquiring the demographic information of the respondents and their enterprises by means of multiple-choice questions. Section B made use of a seven-point Likert scale in which the respondents are able to indicate their level of agreement with statements measuring the independent variables (*Financial resources*, *Human resources and leadership*, *Information and knowledge*, *EO*, *MO* and *OC*) and the dependent variables (*Innovation output* and *Perceived financial performance*) of the study. In total, 54 randomised statements sourced from previous studies (see Table 1) were posed, which formed the basis for each variable's operationalisation. A complete list of the items is shown in Appendix 1.

Possible respondents were identified by using the sample frame generated for the purpose of this study and selected by using the non-probability sampling technique of convenience and snowball sampling. Once selected, family and non-family SMEs that agreed to participate were able to access the online questionnaire by using the link provided in the email or cover letter. No hard copy questionnaires were used in this study. To obtain ethical clearance, various ethical considerations were taken into consideration when creating and administering the measuring instrument. A formal ethics number was assigned by the relevant Ethics Committee before the empirical investigation commenced.

Empirical results

Response rate and demographic information

Of the 4575 emails sent, a total of 224 (144 family SMEs and 80 non-family SMEs) responses were useable in the statistical analysis. The majority of the respondents who participated in this study were male (71.9%), with female respondents consisting of only 28.1% of the total sample. The majority of

TABLE 1: Operationalisation of variables, scale items and sources.

Variable	Operationalisation	Number of items	Sources
Perceived financial performance	Perceived financial performance refers to the owner and/or manager's perception that the enterprise has been financially successful and achieved its financial goals by experiencing growth in profits, sales and the number of employees over the past 2 years.	6	Farrington (2009); Matchaba-Hove (2013)
Innovation output	Refers to the enterprise providing customers with products and/or services that offer unique benefits or changes (e.g. appearance and packaging) that are superior to its competitors, as well as consistently improving on its enterprise processes, equipment and information-sharing practices, whilst regularly renewing its marketing practices and after-sales services to customers.	13	Calik, Calisir and Cetinguc (2017)
Financial resources	The availability of and access to internal and external funding sources that will enable the enterprise to fund changes or new developments in its products, services, processes or enterprise practices.	5	Oliveira and Roth (2012) Fleuren et al. (2014)
Human resources and leadership	Refers to the owners, managers and employees of the enterprise having sufficient knowledge, experience, qualifications, experience, skills, training and positive attitudes to identify and implement new enterprise opportunities.	5	Oliveira and Roth (2012); Rahman and Kavida (2019)
Information and knowledge	Refers to a enterprise's access to relevant internal and external information through social media, smartphones and instant messaging. It also refers to the enterprise networking with external entities in addition to the internal research activities conducted by the enterprise that can be used to provide market insights and keep up to date with changing trends and economic conditions to identify opportunities and have the necessary knowledge to capitalise on these opportunities.	6	Ferris et al. (2005); Flores et al. (2012).
Entrepreneurial orientation	Refers to the enterprise having the ability, capacity and willingness to identify new enterprise opportunities, engage in innovation activities, commit a large portion of its resources to risky ventures and invest heavily in entrepreneurial product and/or market initiatives. The enterprise also acts proactively to initiate actions to which its competitors respond.	5	Covin and Wales (2018); Fredyna et al. (2019)
Market orientation	Refers to the enterprise demonstrating its commitment to its customers by encouraging customer feedback, comments and complaints, as well as monitoring customer satisfaction. In addition, MO refers to the ability of the enterprise to identify current and potential competitors' strengths, weaknesses and strategies.	7	Chipunza (2020)
Organisational culture	Refers to the enterprise creating a culture where employees are actively encouraged, receive the required support to think and behave in original and novel ways, take calculated risks with new ideas, are allowed to try and solve problems in different and creative ways, as well as where non-family employees are treated as a part of the family in family enterprises.	7	Calik et al. (2017); Price et al. (2013); Riaz, Akhtar and Aslam (2018)

Source: Please see the full reference list of the article, Venter, E. & Hayidakis, H., 2021, 'Determinants of innovation and its impact on financial performance in South African family and non-family small and medium-sized enterprises', *Southern African Journal of Entrepreneurship and Small Business Management* 13(1), a414. https://doi.org/10.4102/sajesbm.v13i1.414, for more information

respondents were between the ages of 50 to 59 years (26.8%), followed by those between the ages of 40 to 49 years (21.9%) and 20 to 29 years (18.8%). Most of the respondents indicated that they were in possession of a tertiary qualification (80.8%), whilst the remaining 19.2% were not. It is interesting to note that there is an almost even spread between the years (duration) that the enterprise has been in operation. Many of the enterprises have been operating for between 2 and 5 years (19.6%), followed by those operating for longer than 30 years (17.9%). Most of the enterprises in the sample employed between 5 and 10 employees (39.3%), followed by those that employed between 21 and 50 employees (21.9%), then between 11 and 20 employees (17.9%) and between 51 and 100 employees (12.1%). Most of the respondents indicated that their enterprise operates in the service industry (35.7%), followed by other (21.9%), retail and/or wholesale (15.2%) and manufacturing (14.3%).

Validity and reliability results

The reliability of the scales measuring the independent and dependent variables was tested by using an exploratory factor analysis (EFA) (Cooper & Schindler 2014). Only factor loadings of 0.4 or greater and that loaded onto one factor were considered acceptable. Factor loadings that did not meet these requirements were removed from the results and excluded from further statistical analysis (Hair et al. 2014).

Independent variables: Determinants of innovation

Before the EFA was performed on the independent variables (determinants of *Innovation output*), the suitability of the data was assessed by using the KMO-MSA and Bartlett's Test of Sphericity. The KMO-MSA value was 0.882 and Bartlett's Test of Sphericity was statistically significant ($p < 0.001$). Hence, the data were deemed suitable to perform the EFA analysis, as both of the required conditions were satisfied. The factor structure from the EFA performed on the independent variables is displayed in Table 2.

As seen in Table 2, three factors were extracted from the original six by using Principal Axis Factoring with a minimum factor loading of 0.4. Three new factors emerged, which were re-named, with new operationalisations formulated for each. The questions (items) that constitute each factor structure were reviewed and labelled. The first factor (Factor 1) extracted did not correspond with any of the existing theoretical dimensions. Rather, numerous items intended to measure five of the original independent variables loaded onto this factor. Three originally intended to measure *OC*, two items measuring *EO*, one item intended to measure *MO*, one item measuring *Human resources and leadership* and one item intended to measure *Information and knowledge* loaded onto this factor. Therefore, this factor

TABLE 2: Factor structure of the independent variables.

Items	Factor 1	Factor 2	Factor 3
INFO6	0.959†	-0.162	-0.263
MO1	0.638†	0.046	-0.148
EO2	0.632†	0.079	-0.066
OC1	0.562†	-0.161	0.399
HR4	0.506†	0.005	0.177
OC7	0.470†	-0.023	-0.014
EO1	0.453†	0.012	0.353
OC3	0.446†	-0.012	0.220
MO7	-0.081	0.845†	0.004
MO2	0.034	0.695†	0.007
MO5	0.170	0.686†	-0.196
FR1	-0.133	0.675†	-0.064
EO3	0.113	0.529†	0.065
MO3	0.254	0.475†	-0.085
FR4	-0.240	0.466†	0.444
MO4	0.388	0.459†	-0.282
EO5	0.021	-0.232	0.793†
EO4	0.018	-0.298	0.697†
OC2	-0.008	0.186	0.579†
FR3	-0.257	-0.024	0.549†
INFO1	0.032	0.145	0.466†
HR5	0.078	0.329	0.422†
OC4	0.385	0.073	0.249
OC5	0.335	0.109	0.228
OC6	0.32	0.116	-0.229
HR1	0.148	0.247	0.282
HR2	0.048	0.241	0.390
HR3	-0.158	0.352	0.393
INFO2	0.157	0.142	0.341
INFO3	0.179	0.309	0.292
INFO4	0.269	0.026	0.325
INFO5	0.304	0.226	0.062
MO6	0.303	0.368	-0.065
FR2	-0.210	0.134	0.327
FR5	-0.016	0.145	0.111
Expl.Var	7.595	7.700	7.501
Prp.Totl	0.283	0.047	0.042

†, values loaded together onto each factor.

has been named *Innovation-orientated OC*, which explains 28.25% of the variance in the data. Factor loadings ranging between 0.959 and 0.446 were reported for this factor, as well as a Cronbach's alpha coefficient of 0.824. Thus, there is sufficient evidence that the scale measuring *Innovation-orientated OC* is valid and reliable. In this study, *Innovation-orientated OC* refers to the enterprise having an innovation-driven internal OC where employees are treated as part of the family and are encouraged to actively think and behave in original ways to generate creative and innovative solutions to problems, whilst using market information and customer feedback to identify new enterprise opportunities.

Similar to the first factor, the second factor (Factor 2) extracted also did not correspond with any of the existing theoretical dimensions. Of the eight items that loaded onto this factor, five items were originally intended to measure *MO*, two items *Financial resources* and one item intended to measure *EO*. This factor has subsequently been named *MO and response*, which explains 4.65% of the variance in the data, with factor loadings ranging between 0.845 and 0.459, confirming the validity of this scale. A Cronbach's alpha coefficient of 0.830 is reported, providing evidence of reliability. *MO and response* refers to the enterprise monitoring customer and competitor behaviour to quickly detect market threats and changes, whilst generating and allocating sufficient financial resources to develop new products, services or processes in response.

As with Factor 1 and Factor 2, the extraction of Factor 3 also did not correspond with any of the existing theoretical dimensions. Two items intended to measure *EO*, one item *Financial resources*, one item *OC* and one item intended to measure *Information and knowledge* loaded onto this factor. Based on the nature of these items that loaded together, the new factor that emerged was named *Risk-orientated EO*, which accounts for 4.19% of the variance in the data. Factor loadings ranging between 0.763 and 0.480 were reported for the items measuring this factor, providing sufficient evidence of the scale's validity. A Cronbach's alpha coefficient of 0.735 was calculated, meaning that this scale can be considered reliable. In this study, *Risk-orientated EO* refers to the willingness of the enterprise to commit to and invest in risky entrepreneurial and market initiatives with uncertain outcomes so as to achieve enterprise growth. This implies that the enterprise is prepared to alter its products, services or processes, with these alterations being conducted by experienced employees, funded by friends and communicated by using social media.

Dependent variable: Innovation output

All 13 of the items intended to measure *Innovation output* loaded together onto one factor, as anticipated. Factor loadings ranging from 0.754 to 0.498 were extracted for the items that loaded onto this factor, providing sufficient evidence of validity. In addition, a Cronbach's alpha coefficient of 0.885 was reported, indicating that this scale is highly reliable. Finally, the construct of *Innovation output* explains 38.73% of the variance of the data. It is important to note that according to the results of the EFA, all of the items intended to measure *Innovation output* loaded together. This means that the items measuring each of the four types of innovation (product, process, organisational and marketing innovation) were all found to measure *Innovation output*. Based on the results of the EFA, the operationalisation of *Innovation output* remains unchanged from its original depiction.

Dependent variable: Perceived financial performance

As was the case with *Innovation output*, an individual EFA was performed together with the calculation of Cronbach's alpha coefficient to ensure that the scale measuring the dependent variable is valid and reliable. Each of the seven items that were intended to measure *Perceived financial performance* loaded together and provided evidence of validity by returning factor loadings ranging between 0.842 and 0.474. Therefore, *Perceived financial performance* remained the name of this factor, which serves as a dependent variable in this study and explains 53.55% of the variance in the data. Moreover, the reliability of the scale was ensured, as a Cronbach's alpha coefficient of 0.874 was calculated.

Revised hypothesised model and hypotheses

The results of the factor analyses that were performed required the formulation of new applicable names and operationalisations for the independent variables. Therefore, the null hypotheses have also been reformulated in line with the revised hypothesised model (H_0^{1-5}). However, the dependent variables (*Innovation output* and *Perceived financial performance*) remain unchanged. The revised hypothesised model is illustrated in Figure 1.

Descriptive statistics

The descriptive statistics of the data in this study showed that *Innovation output* returned a mean score of 4.10, whilst *Perceived financial performance* returned a mean score of 3.93, with the majority of respondents agreeing with the items measuring these variables. Of the independent variables, *Innovation-orientated OC* and *MO and response* returned the highest mean scores of 4.42 and 4.24, respectively, with most respondents in agreement with the items measuring these variables. Alternatively, *Risk-orientated EO* returned a neutral mean score of 3.22, with most respondents remaining neutral regarding the items measuring this variable.

Inferential statistics

The inferential statistics undertaken in this study include the calculation of Pearson's product moment correlations, a *t*-test, analysis of variance (ANOVA) tests and multiple regression analyses (MRAs). The results of these statistical procedures will now be discussed in the sections to follow.

Pearson's product moment correlations

Pearson's product moment correlation coefficients were calculated and used to determine whether any association or correlation exists between the independent variables (*Innovation-orientated OC*, *MO and response* and *Risk-orientated EO*), *Innovation output* and *Perceived financial performance*. Significant positive correlations were reported between all three of the independent variables, whilst each of the independent variables also reported strong positive relationships with *Innovation output*. Two of the independent variables, *MO and response* and *Risk-orientated EO*, were found to have significant positive relationships with *Perceived financial performance*, whilst the relationship between *Innovation-orientated OC* and *Perceived financial performance* was weak. Finally, a strong positive correlation was found between *Innovation output* and *Perceived financial performance*.

Results of the *t*-test: Family versus non-family small and medium-sized enterprises

A two-tailed independent sample *t*-test was conducted to determine whether there was a significant difference in the perception of family and non-family SMEs concerning the three independent variables (*Innovation-orientated OC*, *MO and response* and *Risk-orientated EO*) and the dependent variables (*Innovation output* and *Perceived financial performance*). No significant ($p > 0.05$) differences in the perceptions between family and non-family SMEs were found concerning the five variables, which is illustrated in Figure 1, after the factor analysis was conducted. In other words, there is no difference in the perception of family and non-family SMEs regarding the mean scores of *Innovation-orientated OC*, *MO and response*, *Risk-orientated EO*, *Innovation output* and *Perceived financial performance*. As such, H_0^1, H_0^2, H_0^3, H_0^4 and H_0^5 are not rejected.

Hypotheses testing

The first analysis was conducted to determine whether significant positive relationships exist between the independent variables (determinants of innovation), namely *Innovation-orientated OC*, *MO and response* and *Risk-orientated EO*, and the dependent variable, *Innovation output*. The second MRA was performed with *Innovation output* as the independent variable and *Perceived financial performance* as the dependent variable. In both cases, control variables were introduced based on the significant differences of scores identified in the ANOVA tests. These control variables are *Enterprise size*, *Enterprise age* and *Industry*. Prior to the commencement of the two MRAs, several tests were performed (e.g. variance inflation factors and residual

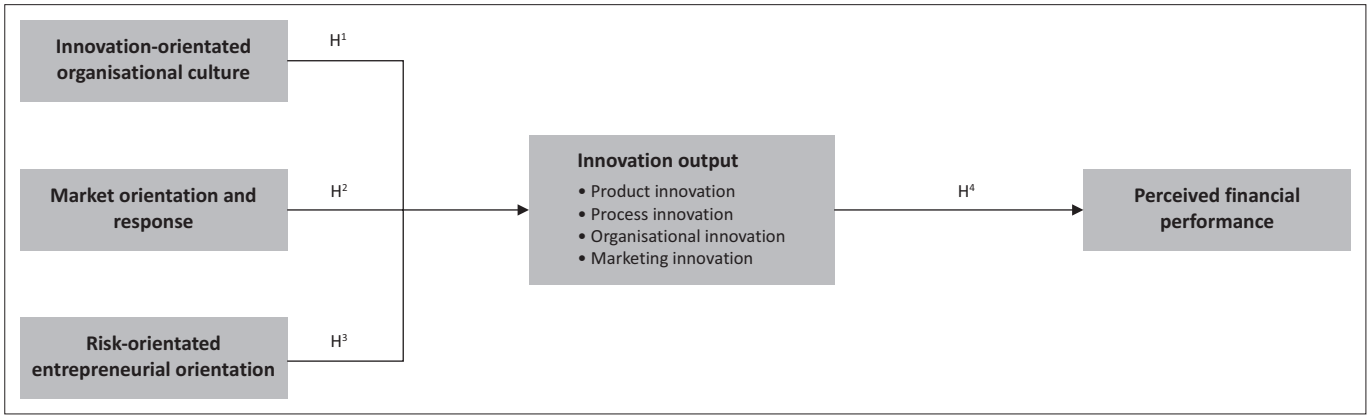

FIGURE 1: Revised hypothesised model: Determinants of Innovation output and its influence on Perceived financial performance.

analysis) to satisfy the necessary assumptions, with the results confirming that these assumptions were all adequately met.

Results of the multiple regression analyses: Independent variables and innovation output

Given that the global *F*-test's *p*-value was significant ($p < 0.001$), at a 5% level of significance, the model was considered adequate for prediction purposes. With an R^2 value of 0.800, the results of the MRAs show that the control variables and the independent variables explain 80% of the variance in *Innovation output* (Table 3).

Table 3 presents the results of the first MRA analysing the relationships between the independent variables and *Innovation output*. The first MRA reported significant and positive relationships between all three independent variables (*Innovation-orientated OC*, *MO and response* and *Risk-orientated EO*) and *Innovation output*. The beta coefficients reported for all of these relationships are greater than 0.20, suggesting the presence of interpretable linear relationships (Lee 2014). Regarding the control variables, a significant positive relationship was reported between the control variable *Enterprise age* and the dependent variable *Innovation output* ($\beta = 0.159$; $p < 0.05$).

There is a significant positive linear relationship ($\beta = 0.218$; $p < 0.05$) between *Innovation-orientated OC* and *Innovation output*. However, the MRA suggested that *Innovation-orientated OC* (*t*-value = 4.782) exerts the least influence of the independent variables on *Innovation output*, which corresponds with the results of Pearson's product moment correlations. The strongest significant positive linear relationship ($\beta = 0.534$; $p < 0.05$) was reported between *MO and response* and *Innovation output*. In addition, it was reported that *MO and response* (*t*-value = 12.608) exerts the strongest influence on *Innovation output*. Finally, a significant positive linear relationship ($\beta = 0.278$; $p < 0.05$) was also reported between *Risk-orientated EO* and *Innovation output*. With a *t*-value of 7.844, *Risk-orientated EO* exerts slightly more influence than *Innovation-orientated OC*, but less influence than *MO and response*, on *Innovation output*.

TABLE 3: Regression results: Independent variables and Innovation output.

Independent variables	Dependent variable: Innovation output ($R^2 = 0.800$)		
	Beta (β)	*t*-value	Significance (*p*)
Intercept	-0.137	-0.775	0.439
Enterprise size	-0.034	-0.600	0.549
Enterprise age 1	0.099	1.447	0.149
Enterprise age 2	0.159	2.698	0.008
Industry 1	0.054	0.789	0.431
Industry 2	0.052	0.733	0.464
Innovation-orientated organisational culture	0.218	4.782	0.000
Market orientation and response	0.534	12.608	0.000
Risk-orientated entrepreneurial orientation	0.278	7.844	0.000

Against this background, support is found for the hypothesised relationships between *Innovation-orientated OC* (H^1), *MO and response* (H^2) and *Risk-orientated EO* (H^3), and the dependent variable, *Innovation output*.

Results of the multiple regression analyses: Innovation output and perceived financial performance

Given that the global *F*-test's *p*-value was significant ($p < 0.001$), at a 5% level of significance, the model was considered adequate for prediction purposes. The results of the MRA (Table 4) show that the control variables and *Innovation output* explain 40.20% ($R^2 = 0.402$) of the variance in *Perceived financial performance*. For the control variables, a significant negative relationship was reported between the control variable *Enterprise size* and the dependent variable *Perceived financial performance* ($\beta = -0.328$; $p < 0.05$).

Table 4 presents the results of the second MRA analysing the relationship between *Innovation output* and *Perceived financial performance*. A significant positive linear relationship ($\beta = 0.791$; $p < 0.05$) exists between *Innovation output* and *Perceived financial performance*. Again, the beta coefficient reported for this relationship is greater than 0.20, suggesting the presence of an interpretable linear relationship (Lee 2014). This means that the more the *Innovation output* increases, the higher the *Perceived financial performance* of the enterprise. Therefore, support is found in this study for the hypothesised relationship (H^4) between *Innovation output* and *Perceived financial performance*.

Discussion of results

All of the SMEs in this study, family and non-family owned, considered innovation as an important activity in their enterprises. This result is in accordance with the findings of Price et al. (2013), who found that innovation was a significant factor in both family and non-family SMEs. In addition, Werner, Schroder and Chlosta (2018) also reported that family SMEs hold innovation as an important consideration in their enterprises.

Furthermore, no significant differences were found between the innovation practices of family and non-family SMEs in this study. These findings are in contrast with most other studies that did report the existence of innovative differences between family and non-family SMEs (Kraus et al. 2012). For example, Matzler et al. (2015) found that family enterprises

TABLE 4: Regression results: Innovation output and perceived financial performance.

Independent variables	Dependent variable: Perceived financial performance ($R^2 = 0.402$)		
	Beta (β)	*t*-value	Significance (*p*)
Intercept	0.869	2.974	0.003
Enterprise size	-0.328	-2.663	0.008
Enterprise age 1	-0.065	-0.440	0.660
Enterprise age 2	-0.130	-0.974	0.331
Industry 1	0.233	1.523	0.129
Industry 2	-0.010	-0.063	0.949
Innovation output	0.791	10.637	0.000

produce greater innovation outputs than non-family enterprises, whilst Classen et al. (2014) revealed that when family SMEs have a higher propensity to invest in innovation, they do so less intensively than their non-family counterparts. However, there is some literary support for the results of the *t*-test in this study. When comparing thousands of Australian and Belgian family and non-family SMEs, Smith (2008) found that the proposed differences between family and non-family enterprises may be less significant than many earlier studies had indicated. The study also demonstrated that the underlying theoretical rationale for several predicted differences between family and non-family enterprises appeared to be flawed. Moreover, Werner et al. (2018), in their research amongst almost 2000 German SMEs, reported that family SMEs are just as innovative as their non-family counterparts.

The empirical results revealed a significant and positive relationship between the independent variable *Innovation-orientated OC* and *Innovation output*. This result is supported by prior research (e.g. Ali Taha et al. 2016; Uzkurt et al. 2013). In addition, Halim et al. (2015) reported that SMEs with an OC that is focussed on innovation exhibit significantly higher innovation outputs than those that are not. Furthermore, the employee element of this variable whereby employees are treated as a part of the family and encouraged to actively think and behave in original ways is supported by Çakar and Ertürk (2010), who in their study found that when SMEs provide an OC that promotes employee creativity and freedom to pursue opportunities, the more innovative the enterprise tends to be. Therefore, the results of this study support H^1.

The strongest significant positive relationship was reported between *MO and response* and *Innovation output*, which confirmed that *MO and response* is a determinant of *Innovation output*. Consequently, H^2 is accepted. This result is supported by the research of Riswanto et al. (2020) and Ho et al. (2018), who reported that the general concept of MO has a positive influence on, and promotes, innovation in enterprises operating in developing economies. Moreover, the study by Chipunza (2020) reiterated this support in a local setting, as it was reported that SMEs in South Africa and Zimbabwe benefit from higher innovation outputs as a result of exhibiting high levels of customer and competitor-focused MO. The same positive relationship was found by Beck et al. (2011) amongst family enterprises.

Finally, a significant positive relationship between *Risk-orientated EO* and *Innovation output* was also found, confirming the acceptance of H^3. Whilst the general theme of EO was captured in this variable, the dimension of risk-taking was the most prominent feature. The study by Fernández-Mesa, Alegre-Vidal and Chiva-Gómez (2012) supports the findings of this study by reporting a significant positive relationship between EO and *Innovation output*. Furthermore, Nasution et al. (2011) added that a strong EO and a willingness to take risks when developing new products, services or processes in SMEs are highly correlated with innovation. Similarly, Jiménez-Jiménez et al. (2020) reported a strong positive relationship between EO and innovation. Therefore, existing empirical research supports the findings of this study.

In this study, a significant and positive relationship was specifically found between *Innovation output* and *Perceived financial performance*, accepting H^4. Therefore, as a enterprise increases its innovation outputs – the better it will perform in financial terms. This means that *Innovation output* has a direct influence on the enterprise's financial well-being by improving profits, increasing sales and increasing employee numbers. The findings of this study are supported by previous research (e.g. Ho et al. 2018; Vieites & Calvo 2011), which found a significant positive correlation between innovation and financial performance.

Managerial implications

In the context of the *Innovation-orientated OC* and *Innovation output*, the owner(s) and/or manager(s) need to ensure that their enterprise creates and maintains an OC, which treats all employees as part of the 'family' and that is inclusive of all employees, whether they are family or non-family employees. Positive organisational outcomes such as commitment, productivity, adaptability and innovativeness result from the presence of an OC that promotes employees' sense of family and belonging in the enterprise. Family enterprises should make use of this as they already place a strong emphasis on building social binding ties and they are commonly more inclined to build strong social relationships inside and outside of the enterprise. In addition, employees should be encouraged to actively think and behave in original ways to generate creative and innovative solutions to problems, whether it involves the enterprise's products or services, processes, organisational structure and/or marketing practices. Management should provide employees with the freedom to try new things and think outside of the box without fear of serious repercussions, as long as their actions are ethical and responsible.

Concerning *MO and response* and *Innovation output*, the owners and/or management and/or leadership of SMEs should have systems and processes in place to assess customer and competitor behaviour to speedily detect market threats and changes. In other words, and in line with the previous finding, an OC should also be created that values the feedback and opinions of customers. In this way, new opportunities in the market could be identified, and existing products or services, processes, organisational and marketing activities could be improved according to the desires of the consumer market. Regular consultations must be conducted with customers to obtain feedback about whether the enterprise is doing well, and more importantly, what it can do to improve. Given their size and OC, SMEs and family enterprises, in particular, often have a closer and more personal connection with the market, which they could utilise in this regard. Existing and potential competitors must be monitored to identify gaps in their offering that could be filled by one's own enterprise; or reveal the competitors'

innovations that may need to be counteracted to retain competitive advantage in the market. Furthermore, SMEs should consider adopting an 'open' approach to innovation. By adopting an 'open innovation' approach, SMEs will be able to use external sources of information and knowledge (e.g. universities, the Internet, other enterprises, research institutions and government publications) to supplement their own efforts and capabilities.

Regarding *Risk-orientated EO* and *Innovation output*, SMEs should 'invest' in skilled and trained employees if they want to partake in riskier entrepreneurial and innovative initiatives. Pursuing riskier, but more rewarding, innovation ventures or practices often requires experience, knowledge and expertise from employees to reduce risk, whilst also improving the venture's potential success. Financial institutions and traditional sources of financing are not always willing to lend money to small enterprises for the purpose of risky innovative ventures. Therefore, SMEs should consider using personal relations, such as friends, family and professional acquaintances, to acquire the necessary funds. Once again, SMEs could adopt an 'open' approach to innovation, whereby enterprises can collaborate with external entities and utilise external information sources to help reduce the risk of innovation ventures.

The results of this study confirmed that product, process, organisational and marketing innovation all constitute *Innovation output* and play an important role in improving the competitive advantage of the enterprise. Based on a significant positive relationship between *Innovation output* and *Perceived financial performance* in this study, it can be strongly recommended that enterprises seek to innovate in some capacity. This may be through product, process, organisational or marketing innovation, as these types of innovation have all been found to create a competitive advantage and enhance financial performance. Therefore, enterprises should aim to deliver the best and most unique product or service offering to best satisfy consumer needs.

Limitations of the study and recommendations for future research

In the literature review, it became clear that innovation is a complex and multi-dimensional concept and construct. As a result, a challenge, more than a limitation, was to identify the dependent variable in this study. Future research should take this into consideration when comparing the results of this study that used *Innovation output* as its main dependent variable, with other research findings.

Another limitation of this study is that it focussed on a selected number of internal determinants of innovation in SMEs. In particular, this study does not account for external determinants of innovation, such as environmental munificence, national and local governmental laws and regulations and available infrastructure. In the current study, the sample size and sampling techniques used may also be considered as limitations. The non-probability sampling techniques of convenience and snowball sampling used in this study are associated with various disadvantages, such as the potential presence of a sampling bias and the results being less representative of the study population, which limits the accuracy with which generalisations can be made about the research population (Mitchell & Jolley 2010).

Conclusion

This study investigated the determinants of innovation output, the types of innovation that are commonly being utilised and the influence thereof on perceived financial performance. From the findings, it is evident that innovation plays an important role in increasing the financial performance of SMEs. In addition, financial and human resources are not necessarily the main determinants of innovation in South African SMEs, but rather the creation of an innovation and market-orientated OC, together with a risk-orientated EO. No differences were found concerning the innovation practices of family and non-family SMEs in this study.

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Competing interests

The authors have declared that no competing interests exist.

Authors' contributions

Both authors contributed equally to the development of the manuscript. H.H. conducted the initial research as part of his master's dissertation under the supervisor of E.V.

Ethical considerations

Ethical approval for this study was obtained from the Faculty Ethics Committee of the Faculty of Enterprise and Economic Science (Nelson Mandela Metropolitan University), with ethical clearance number: H20-BES-BMA-037.

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Data availability

The data that support the findings of this study are available from the corresponding author, E.V., upon reasonable request.

Disclaimer

The views and opinions expressed in the 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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Appendix 1 starts on the next page→

Appendix 1

TABLE 1-A1: Items used in the questionnaire.

Variable	Items
Perceived financial performance	The financial well-being of our enterprise is secure.
	Our enterprise has experienced growth in profits over the past 2 years.
	I regard our enterprise as being financially successful.
	Our enterprise is profitable.
	Our enterprise has been able to achieve its financial goals.
	Our enterprise has experienced growth in sales over the past 2 years.
Innovation output	Our enterprise provides customers/clients with products/services that offer unique benefits that are superior to those of our competitors.
	Our enterprise has brought several products and/or services to the market in recent years.
	In our enterprise, we improve on the products/services offered to our local market.
	In our enterprise, we regularly make unique changes to the appearance, packaging, shape and volume of our offerings without changing their basic technical and functional features.
	In our enterprise, we are consistently improving our enterprise processes.
	In our enterprise, we regularly reduce wastage and minimise the costs of our products/services through process enhancements.
	In our enterprise, there is a long-term commitment to invest in new operating technologies, equipment, machinery, R&D and continuous improvement.
	In our enterprise, we routinely renew the in-enterprise management information system and information-sharing practices.
	In our enterprise, we routinely renew the organisational structure to facilitate communication and coordination between different functional areas in the enterprise.
	In our enterprise, we frequently renew the routines, procedures and processes employed to execute enterprise activities.
	In our enterprise, we consistently come up with new and creative ways to market our products/services to our current and potential customers/clients.
	Our enterprise focusses on exploring and providing unique customer and after-sales services to our customers.
	Our enterprise regularly renews product/service pricing and promotion techniques employed for the pricing of current and/or new products.
Financial resources	In our enterprise, we generate sufficient financial resources to fund changes in our enterprise's products, services or processes.
	In our enterprise, we make use of external funding (such as bank loans or government funding) to fund changes in our enterprise's products, services or processes.
	In our enterprise, we make use of funding from friends to fund changes in our enterprise's products, services or processes.
	In our enterprise, we routinely allocate financial resources to the development of new products/services or enterprise practices.
	In our enterprise, we make use of family capital to fund changes in our enterprise's products, services or processes.
Human resources and leadership	In our enterprise, the owners/managers and employees have sufficient knowledge, experience and qualifications to identify and implement new enterprise opportunities successfully.
	Our enterprise is able to recruit top-quality employees with relevant qualifications, skills and experience.
	Our enterprise consistently promotes and/or provides comprehensive quality education and training for our employees.
	In our enterprise, employees are dedicated and have a positive attitude towards innovation activities.
	In our enterprise, employees have experience in identifying and implementing new enterprise opportunities that are related to the products and services in our industry.
Information and knowledge	In our enterprise, we consistently make use of social media to communicate and gather information about new opportunities in our industry and/or identify current and potential competitors and customers.
	In our enterprise, we consistently make use of smartphones to communicate and gather information about new opportunities in our industry and/or identify current and potential competitors and customers.
	In our enterprise, we consistently make use of email and instant messaging to communicate and gather information about new opportunities in our industry and/or identify current and potential competitors and customers.
	In our enterprise, we spend a lot of time and effort networking with people outside the enterprise to obtain relevant information (e.g. suppliers, customers, government, tertiary institutions).
	In our enterprise, we have the ability to acquire relevant information from reliable sources which are inside the enterprise.
	In our enterprise, we have the ability to conduct our own research to acquire relevant industry and market-related information.
Entrepreneurial orientation	Our enterprise has the ability and eagerness to identify new enterprise opportunities.
	Our enterprise has the capacity and willingness to engage in innovative activities.
	With regard to the competition, our enterprise usually acts proactively to initiate actions, to which our competitors respond.
	Our enterprise commits a large portion of its resources towards risky ventures to grow.
	Our enterprise invests heavily in entrepreneurial products or market initiatives of which the ultimate success is uncertain.

TABLE 1-A1 continues on the next page→

TABLE 1-A1 (continues...): Items used in the questionnaire.

Variable	Items
Market orientation	In our enterprise, we encourage customer feedback, comments and complaints.
	In our enterprise, it is quick to detect changes in repeat customer preferences.
	In our enterprise, we monitor customer satisfaction.
	In our enterprise, we are committed to our customers.
	In our enterprise, we are able to identify current and potential competitors.
	In our enterprise, we are able to identify and assess competitors' strengths, weaknesses and strategies.
	Our enterprise responds swiftly to competitor strategies and actions that threaten the enterprise.
Organisational culture	In our enterprise, we encourage employees to think and behave in original and novel ways.
	In our enterprise, employees are supported and encouraged to take calculated risks with new ideas.
	In our enterprise, employees are allowed to try and solve the same problem in different and creative ways.
	In our enterprise, we actively encourage our employees to identify new enterprise opportunities or change existing work processes.
	The owners/managers of our enterprise support research and technological development activities.
	In our enterprise, family members exert control of the enterprise's strategic decisions.
	In our enterprise, non-family employees are treated as part of the family.