

*Full Length Research Paper*

# **The effect of entrepreneurial orientation on firms' performance of the telecommunication sector in Sudan**

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The purpose of this research is to investigate the effect of entrepreneurial orientation (EO) on firms' performance in the telecommunication sector in Sudan. The EO is reflected in innovativeness, proactiveness, risk-taking, competitive aggressiveness and autonomy which have been treated as a one-dimensional construct. Firms' performance has been measured by financial and non-financial indicators in a subjective manner. To accomplish the research objective, data were collected through a self-administered questionnaire distributed to a sample of respondents from the four companies (Zain, Sudani, MTN and Canar) composing the sector of the telecommunication in Sudan. The findings revealed that, EO has a significant effect on firms' performance in the telecommunication industry in Sudan. The findings of this research provide additional evidence from an under-examined context to support the link between EO and firms' performance. Additionally, this research offers practical implications to practitioners, investors, entrepreneurs, board members, and fund providers pursuing instruments for evaluating the success of telecommunication companies. The study concluded that, in an environment characterized by uncertainty and rapid change, EO appears to be an essential way of creating and maintaining superior firms' performance.

**Key words:** Entrepreneurial orientation, firms' performance, Sudan, telecommunication.

## **INTRODUCTION**

Evaluating the role of entrepreneurial orientation (EO) on advancing the performance of organizations in today's business environment is a crucial concern for both academics and practitioners. In the current years, several fields have given a close attention to the relationship between these two major constructs which have been investigated in numerous empirical studies. EO can be

deemed as a new trend to assess the performance of a new business enterprise (Kraus et al., 2018).

In an environment characterized by swift change and uncertainty, the future gains from current processes are uncertain and business organizations must constantly look out for new opportunities. In today' aggressive business world, EO is acknowledged as a viable strategic

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tool (Rae and Ruth, 2013). Therefore, firms may get advantages from embracing EO. Such firms need to innovate regularly while taking risks in their product-market approaches (Miller and Friesen, 1982). Efforts undertaken by firms to predict and foresee market needs and place new product/service offerings often resulted in improved or relatively better performance (Ireland et al., 2003). Consequently, theoretical arguments imply that EO results in higher business performance. However, the significance of this association seems to diverge across different contexts. While some research have observed that firms which embraced a solid EO, have performed considerably superior than firms which did not embrace it (Gupta et al., 2019; Lee et al., 2019; Ahmed, 2017; Al-Nuami et al., 2014; Schepers et al., 2014; Van Doorn et al., 2013; Vij and Bedi, 2012), other research presented minor or even an absence of association between EO and performance (Branch and McGivern, 2014; Dimitratos et al., 2004; Lumpkin and Dess, 2001; Zahra, 1991). Thus, there is a substantial discrepancy in the magnitude of reported findings on the interactions between EO and the performance of firms. Hence, the study of EO in different contexts is required. This research highlights the necessity to cultivate a wide view of EO and firms' performance in a different context. The increasing popularity of entrepreneurship worldwide has stimulated the interest in comprehending the relevance of EO in varied socio-cultural settings (Wales et al., 2019). Likewise, it is emphasized in the literature that there is still an enormous gap in some developing economies in contrast to the developed countries (Kaunda, 2012). It is hoped that this research helps enlighten and evolve critical themes of study in the multicultural literature of EO, particularly those that have persisted under-examined up to now.

This study examines the effect that EO may have on firms' performance in the telecommunication sector in Sudan. Telecommunication industry is a part of high technology-based industry (Döckel, 2003). Technology-based industry is composed of organizations that combine, obtain or initiate new technology to develop new products, services, and processes as the source of their competitive advantage. It is considered especially appealing to analyze this industry because of its rapid change and extreme environmental uncertainty (Rai et al., 2007). There is no doubt that the telecommunication is a vital sector in Sudan economy. In the present context of economic obstacles and instability facing the country, the capacity of this sector to innovate, invest and create growth, will become a fundamental contribution for the economic and social development of Sudan.

## LITERATURE REVIEW AND HYPOTHESES

In this section the focus will be on presenting a brief literature review on entrepreneurial orientation (EO),

business performance and the link between them.

### Entrepreneurial orientation

EO has its background in the strategy-formulating practice literature that indicates the strategic methods by which firms recognize new opportunities and realize entrepreneurial activities (Dess and Lumpkin, 2005). There is no commonly acknowledged definition for entrepreneurship that has acquired general agreement (Carland et al., 2015). EO comprises a constant behaviour so as to accomplish the initiation of new business, which will eventually lead to the generation of a durable competitive advantage in the long term (Wiklund and Shepherd, 2003).

Miller (1983)'s pioneering work indicates that an entrepreneurial organization is one that constantly generates innovations, assumes risky business opportunities and be the market leader in introducing proactive innovations ahead of competitors. As a result, he underlines three major dimensions that establish EO, namely: innovativeness, pro-activeness and risk-taking – which have been prominent dimensions of EO that were investigated empirically in the literature of entrepreneurship (Al-Ansari, 2014; Beliaeva, 2014; Ejdy, 2016; Karyotakis and Moustakis, 2016; Omisakin et al., 2016; Rauch et al., 2009).

Drawing on the definition of Miller (1983) and other prior research in the field of EO (Burgelman, 1984; Hart, 1992; MacMillan and Day, 1987; Venkatraman, 1989), Lumpkin and Dess (1996) identified further two dimensions of the EO: Competitive Aggressiveness and Autonomy. These additional dimensions have been used to measure EO by many authors (Duru et al., 2018; Kaunda, 2012; Sriprasert, 2013). Furthermore, it has been noticed that several EO related research were accomplished with the use of EO dimensions in various combinations (Soininen, 2013). Therefore, the five dimensions of pro-activeness, autonomy, innovativeness, risk-taking, and competitive aggressiveness were selected to measure EO in this study.

*Innovativeness* is defined as a firm's willingness to contribute to creativity and experimentation through the development and the launch of novel products/services as well as process and business model innovation leadership via its activities in research and development. It is important to note that, innovative behaviour does not essentially imply a radical, new to the state of the art innovation but may indicate the processes of reproducing and adapting of current ideas into innovations that are novel to the firm (Perez-Luno et al., 2011).

The second dimension of EO is *risk-taking* which is described as the firm's inclination and tendency to allocate a substantial amount of its resources in endeavors where the cost of failure can be very high or the outcomes are uncertain (Wiklund and Shepherd,

2011).

The third dimension is *pro-activeness* which represents an opportunities-pursuing, forward-looking view embodied by the development and induction of new products and services in advance of the competition. It also relates to the ability to anticipating shifts and opportunities that may occur in the environment which encourages modification in the current tactics and spot forthcoming market trends (Hughes and Morgan, 2007). Pro-activeness portrays how organizations consider opportunities within local and foreign markets (Covin and Miller, 2014).

The fourth dimension of EO is *competitive aggressiveness*. This dimension seeks out to preserve and grow existing resources in response to competitive threats (Lumpkin and Dess, 2001). Thus, competitive aggressiveness may involve actions such as concentrating on preserving market positions or overtake rivals in markets deemed valuable of targeting (Lumpkin and Dess, 1996). This dimension may be especially significant within conventional conglomerates that are driven by a powerful desire to be competitive in new markets and safeguard their global market position. Nevertheless, numerous cultures also consider competitive aggressiveness as having restricted demonstration within EO (Covin and Miller, 2014). That is, in several contexts, entrepreneurial endeavors are regarded as growing out of cooperation and partnership among different stakeholders rather than competition (Gupta and Gupta, 2015).

The final dimension of EO is *autonomy* which refers to the freedom and empowerment necessary for the realization and exploitation of opportunities through the application of business concepts (Lumpkin et al., 2009). In other words, autonomy offers employees the opportunity to function effectively by being empowered, self-regulated, and creative across all levels of the organization without any organizational or structural obstacles that would hinder them (Lumpkin and Dess, 1996). Reviewing the relevant literature on EO dimensions, it can be noticed that a persisting debate about whether or not these dimensions in fact differ independently (Wales et al., 2011). As advocated by Covin et al. (2006), EO is viewed as a one-dimensional construct, created by the combination of innovativeness, pro-activeness, risk-taking, competitive aggressiveness and autonomy.

The relevant dimensions of EO frequently reveal high inter-correlations with each other in several studies (Bhuiyan et al., 2005; Richard et al., 2004). Consequently, most research combined these dimensions into a single factor (Covin et al., 1994; Lee et al., 2001; Walter et al., 2006). Some researchers have claimed that the EO construct is best regarded as a one-dimensional construct (Covin and Slevin, 1989; Knight, 1997) and, accordingly, the various dimensions of EO should correlate with firms' performance in similar manners.

Thus, following Covin et al. (2006), this study measured EO as an aggregated construct that includes all the five aforementioned dimensions.

### Firms' performance

Firms' performance is a multidimensional construct and the relation between EO and business performance may be contingent on the indicators utilized to evaluate performance (Lumpkin and Dess, 1996). Empirical evidences suggested that there is no agreement among scholars on the applicable measures of business performance indicators. Thus, a broad variety of performance measures, that is, objective and subjective measures, as well as financial and nonfinancial measures were operated across different studies (Chakravarthy, 1986; Venkatraman and Ramanujam, 1986; Murphy et al., 1996; Combs et al., 2005).

It has been broadly accepted by scholars that objective measures of performance are more applicable than subjective measures of performance. Objective data, however, are not easy to be acquired as respondents are hesitant to disclose information that may be confidential to the public (Dess and Priem, 1995). Additionally, business firms are commonly persuaded to deliver subjective performance evaluation of their enterprises, which may lack robust consistency (Wiklund and Shepherd, 2005). Alternatively, performance can be considered to be multidimensional construct and hence it is worthwhile to assimilate several subjective and objective measures of performance for precise assessment (Lumpkin and Dess, 1996; Combs et al., 2005; Wiklund and Shepherd, 2005). In this study, subjective and self-reported financial and non-financial measures are utilized to measure firms' performance, which are coherent with the earlier studies (Covin and Slevin, 1989; Smart and Conant, 1994).

### Entrepreneurial orientation and firms' performance

The link between EO and firms' performance has become a key issue of interest in previous studies. These studies have shown that EO remains a prominent factor that potentially influences firms' performance and could extensively improve firms' performance (Ahmad, 2017; Hoque, 2018; Umrani et al., 2018; Gupta et al., 2019; Adebisi et al., 2019; Ambad and Wahab, 2016; Barrett and Weinstein, 2015). However, there are also some studies that inferred that EO does not offer positive outcomes to firms' performance (Branch and McGivern, 2014; Matsuno et al., 2002; Morgan and Strong, 2003; Naldi et al., 2007). Indeed, these implications form the foundation for the interest in exploring the effect that EO may have on business performance (Miller, 1983).

This research and its hypotheses are theoretically based on the resource-based theory (RBT; Wernerfelt, 1984; Galbreath, 2005). RBT has become a prevailing paradigm in the field of entrepreneurship and strategic management (Hitt et al., 2016). This theory suggests that businesses endeavor to differentiate themselves from competitors in order to achieve competitive edge and outstanding performance (Hitt et al., 2016; Galbreath, 2005). Accordingly, RBT advocates that firms that implement a value creating strategy, such as EO and corporate entrepreneurship are more expected to attain competitive edge and superior performance than its existing or prospective rivals that do not adopt such strategies. Therefore, drawing on the premises of RBT, this study formulates a hypothesis that identifies the significant role of EO to improve firms' performance. Thus, the following hypothesis is articulated:

*Entrepreneurial orientation positively influences firms' performance of the telecommunication sector in Sudan.*

## METHODOLOGY

Here, the paper briefly discusses the materials and methods in terms of measurement development, sampling and data collection as well as the statistical tools of data analysis.

### Measurement development

All constructs were measured using multiple-item scales based on a five - point Likert scale ranging from 1=strongly disagree to 5=strongly agree that were adapted from previous validated studies in the field of EO. In particular, EO was measured by a thirteen-item scale adapted from Miller (1983) and Lumpkin and Dess (1996). EO was operationalized as a one-dimensional construct: The five dimensions of innovativeness, pro-activeness, risk taking, competitive aggressiveness, and autonomy were aggregated together to measure this construct. Principal components factor analysis was conducted to augment the one-dimensionality of the scale, confirming that the items analyzed are clustered in a single factor. Finally, business performance was measured using subjective self-reported items. The measurements were based on growth and profitability which were adopted from previous studies (Gupta and Govindarajan, 1984; Venkatraman and Ramanujam, 1986). These measurement items have been adapted to fit the study settings. Four items were employed to measure growth and additional two items to measure profitability.

### Sampling and data collection

The population of this research encompasses all employees who work in the telecommunication sector in Sudan. This sector is mainly made up of four companies: Zain, Sudani, MTN, and Canar. A self-administrated questionnaire was used as primary data collection instrument. A total of 150 questionnaires were distributed to senior employees in the four telecommunication companies using a simple random sampling method. Out of the 150 questionnaires, 119 valid responses were obtained, resulting in an effective (79.3%) response rate.

## Statistical analysis

The research model was tested using SPSS software. The data were analyzed using a two-step approach: in the first step, an Exploratory Factor Analysis (EFA) and Reliability analysis was performed, which helps evaluate the goodness of the measure. In the second step, the research hypothesis was tested using linear regression analysis.

## RESULTS AND DISCUSSION

### Assessment of the goodness of measure

The study tested validity and reliability to assess the goodness of measure of the research constructs. EFA for testing the validity of measures was employed. Moreover, the reliability of measurements was evaluated by internal consistency using Cronbach's alpha test. The results of EFA and reliability test are described as follows:

### Exploratory factor analysis

Principal Component Analysis, Varimax Rotation with Kaiser Normalization and Eigenvalues were applied to the constructs of study. The findings of EFA revealed that, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was equal to 0.932. In addition, the Bartlett's Test of Sphericity was significant at 0.05. Therefore, it can be concluded that EFA is appropriate for this data. As summarized in Table 1, all the items used to measure the five dimensions of EO (innovativeness, pro-activeness, risk taking, competitive aggressiveness, and autonomy) were loaded on a single component or factor with eigenvalue beyond 1.0. Moreover, the items used to measure the firms' performance also converged one a single factor. These two factors explain 62.160% of variance in the data (> 0.60 threshold).

In addition, all the items had factors loading more than the recommended value of at least 0.50 advocated by Hair et al. (2010) as shown in Table 2. The high loadings signify that the factors extracted for the study are well correlated with the original variables and explain substantial part from the variance in the original variable.

### Reliability analysis

The Cronbach's alphas for the two construct are shown in Table 3, along with the number of items. According to Hair et al. (2010), the minimum level of Cronbach's alpha is 0.70. The findings of the reliability analysis showed that the Cronbach's alphas of both constructs were above the recommended threshold for the fulfillment of construct reliability, indicating that the measures used in this research data were internally consistent and highly reliable.

**Table 1.** Total variance explained.

Component	Initial Eigen values			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1. EO	9.955	52.394	52.394	7.131	37.531	37.531
2. Firm Performance	1.855	9.766	62.160	4.679	24.628	62.160

**Table 2.** Rotated component matrix.

	Component	
	EO	Firm performance
Innov3	0.800	
Innov1	0.790	
RT1	0.746	
CA1	0.744	
RT3	0.738	
Auton1	0.738	
Auton3	0.730	
Innov2	0.724	
Proact1	0.706	
CA2	0.703	
Auton4	0.638	
Auton2	0.624	
Proact3	0.610	
FP3		0.850
FP2		0.816
FP4		0.775
FP1		0.765
FP5		0.759
FP6		0.591

Innov; innovativeness; RT, risk-taking, CA, competitive aggressiveness; Auton, autonomy; Proact, proactiveness; FP, firm performance.

**Table 3.** Constructs' reliability.

Construct name	Number of items	Cronbach's alpha
EO	13	0.942
Firm performance	6	0.892

### Hypotheses testing

The research hypothesis suggests that the EO is positively related with the firms' performance. To test this hypothesis, the study conducted Pearson correlation and regression analysis. Test of research hypothesis demonstrated support for the predicted positive relationship between EO and firms' performance in the telecommunication sector (H1: *t-value* is 9.402; *p value* < 0.001). Moreover, EO explains approximately 43% of the variance in firms' performance ( $R^2 = .430$ ). Table 4 shows

the results of the hypotheses testing.

This research seeks to contribute to the advancement of the literature on EO as a major factor that stimulates business performance via a robust empirical investigation. The main context of this research is the telecommunication sector in Sudan. Recognizing the influences of decisions made by top management in choosing a strategic orientation is critical and extremely significant to both theory and practice. The objective of this study was to determine the effect of EO on firms' performance. The findings revealed that there was

**Table 4.** Regression and correlation results.

Model	Unstandardized coefficients		Standardized coefficients	t	Sig	F	Sig	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Conclusion
	B	Std. error	Beta								
	EO	0.698	0.074								

significant correlation between these two variables. Hence, the study concluded that EO, particularly in telecommunication industry, has a positive and significant impact on firms' performance (H1 supported), validating previous research in this context (Ahmad, 2017; Hoque, 2018; Umrani et al., 2018; Gupta et al., 2019). For instance, the findings of this research concurred with the results of the study conducted by Ahmad (2017), who investigated the significance of EO and market orientation on business performance of Jordanian small to medium enterprises (SME) in the telecommunications industry. Furthermore, in his research on the influence EO on the business performance among SMEs in Bangladeshi, Hoque (2018) also reached a similar conclusion about the significant positive link between EO and firms' performance.

This study contributes to the literature in the field of entrepreneurship by offering additional evidence to support the positive link between EO and firms' performance from an under-examined context in developing economies, as very few research have been conducted in this context. In addition to the theoretical contribution, this research offers practical implications to practitioners, investors, entrepreneurs, board members, and fund providers pursuing means for appraising the success of telecommunications companies.

Sudanese telecommunication firms need to encourage the generation of new ideas, experimentation, risk-taking behaviour, empowerment, and creativity that ultimately result in novel services and processes. Thus, adopting EO and innovation processes can help those organizations to achieve competitive advantage and endorse notable source of growth (Dess and Lumpkin, 2005). Eventually, proactive organizations, supplemented by ground-breaking activities (Lumpkin and Dess, 1996), can be market leaders in the development and introduction of novel products, services, and technologies rather than basically follow trends (Miller, 1983, Covin and Slevin, 1989). Moreover, these proactive firms may be in a position to spot latent customer needs, foresee fluctuations in demand and discover new business opportunities well ahead of their rivals in the market place (Dess and Lumpkin, 2005).

## Conclusion

This research tested and empirically proved the positive

direct effect of EO on the performance of the telecommunication industry in Sudan. In this sector, firms have been operating under the conditions of environmental turbulence, increased competition and global economic sanctions and constrains. Under such conditions firms need to call upon the entrepreneurial skills of their management at different levels to innovate, undertake calculated risk and read the market trends. It is necessary to recognize that in today's business environment, EO in general and innovation in particular appears to be an essential way of creating and maintaining superior business performance. Likewise, firms may achieve superior performance by adopting a proactive strategy regardless of the environment in which they operate. It is thus clear that the telecommunication companies should cultivate a corporate culture and management style that foster the innovative, proactive, autonomous, competitive, and risk taking behavior.

## Limitations and future research

It should be mentioned that the findings of this study come with some limitations; first, the sample size may represent one limitation of the findings of this study. Although the size and the response rate in this research are fairly satisfactory, directing future research on a larger sample size would considerably contribute to the comprehension of the research issues. Second, despite the strong and persistent adoption and support for the employment of subjective measures of business performance, it would have been preferable to have had a mixture or a combination of subjective and objective data to evaluate the effects of EO on business performance. Third, the generalization of the results generated from this study to other sectors or markets remains uncertain. Moreover, the research examined the direct link between EO and firms' performance. However, the nature of EO-performance link is very complicated (Wiklund and Shepherd, 2005).

Hence testing a model that incorporates some moderators and mediators in future studies may lead to more precise explanations about the nature of the relation between EO and firms' performance.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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