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Technological Opportunities, Intellectual Property Rights and SMEs Growth in North Central Nigeria.

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ABSTRACT

This study examined the effect of technological opportunities and intellectual property rights on SMEs growth in North Central Nigeria. A survey research design using a structured questionnaire to collect data from respondents. The questionnaire was developed to elicit responses from the owners and managers of SMES on the effect of technological opportunity and intellectual property rights on small and medium enterprises growth in North Central Nigeria. A total number of 400 copies of the questionnaire had been distributed to respondents, while 400 copies were returned, 2 cases of the returned questionnaire were removed due to inappropriate filling. This study adopted the Partial Least Square Structural Equation Modelling (PLS-SEM). The result revealed that technological opportunity and Intellectual property right have positive effects on growth of small and medium enterprises in the North-Central States of Nigeria. The study recommended SMEs should engage with customers to understand their pain points and needs. Look for technology-driven solutions that can address these pain points and improve their overall experience with their products or services and SMEs should regularly assess their business intellectual property assets and potential vulnerabilities to identify which assets need protection and determine the appropriate type of protection for each.

Key words: Technological Opportunities, Intellectual Property Rights, SMEs Growth

1.0 INTRODUCTION

In today's growing multidimensional world, small and medium enterprises (SMEs) are engaged more on using technology to stimulate growth, client value and

market differentiation as such, these businesses are embracing innovation technologies for invention, change and diversification and this is eventually the case in a recovering global economy (Peter, 2011). SMEs are important business organs which form a strong constituent of the global economy. In most emerging countries economic growth and employment are led by SMEs.

Small and Medium Enterprise Development Agency of Nigeria (SMEDAN) and the Bureau of Statistics (NBS) conducted a poll in 2018 and the findings revealed that, SMEs account for over 96% of all enterprises in Nigeria, over 80% of employment, and close to 50% of the country's GDP. The creation of sufficient financial income, foreign exchange, increased employment, and the opening of Nigeria's borders to international competition are the keys to the country's economic emancipation. These goals are firmly reliant on the planned and disciplined growth of the SMEs sector, which has the potential to propel the Nigerian economy toward industrialization. Technological opportunities and the protection of intellectual property rights have helped developing nations' SMEs flourish by maximizing profits, lowering costs per unit, and increasing manufacturing efficiency. (Al-Mubaraki & Aruna, 2013).

Through a variety of means, technological opportunities are crucial to the growth of SMEs. First off, capturing these chances might result in product or service differentiation, giving SMEs a competitive edge. (Song et al., 2017). Secondly, Technological opportunities has the potential to increase operational performance and cost-effectiveness while fostering growth. (Damanpour, 2014). Additionally, leveraging technological opportunities can facilitate market expansion, both domestically and internationally, by addressing unmet needs or entering new niches (Eisenhardt & Martin, 2000).

Intellectual property rights impact SMEs growth through various mechanisms. Firstly, IP protection, such as patents, copyrights, and trademarks, provides SMEs with exclusive rights to their innovations, preventing unauthorized use by competitors (Hall & Helmers, 2010). This protection encourages SMEs to invest in research and development, leading to innovation-driven growth (Maskus & Penubarti, 2004). Moreover, IP rights can serve as strategic assets, enabling SMEs to establish partnerships, attract investors, and negotiate licensing agreements (Fosfuri & Tribó, 2008).

However, despite government and non-governmental interventions of programs and policies in providing access to finance, capacity development, and linkages to SMEs in North Central Nigeria, SMEs growth is slow and declining in employment, revenue, market share, and product development, necessitating the closure of some SMEs. SMEs are often unable to hire more employees (Olagunju & Abdulraheem, 2018). SMEDAN and NBS (2021) reported that, the growth of SMEs measured by their contribution to GDP has declined, from 49.81% in 2017 to 46.31% in 2020 indicating a decrease of 3.5% in SMEs contribution to GDP. SMEs are unable to tap into their full revenue potential (CBN, 2019). SMEs struggle to compete effectively in both local and international

markets (Olokundun et al., 2017). SMEs fall behind in terms of creating innovative products that can attract a broader customer base (Adegbite, 2019). The slow and decline in SMEs growth is associated with technological opportunity and intellectual property rights as identified by SMEDAN (2017) national survey on macro, small and medium enterprises and SMEDAN (2021) national policy on micro, small and medium enterprises.

Furthermore, there are limited empirical studies on the effect of technological opportunity and intellectual property rights on the growth of SMEs in North Central Nigeria that needs to be explore. Olusegun et al, (2019) studied the Impact of technological opportunity on SMEs growth in Abeokuta in Ogun state, Nigeria. The result showed that, technological opportunity has a strong, significant, linear and positive relationship with growth of SMEs. And also, Oyedele et al, (2020): Investigated intellectual property rights as a Pathway to Sustainable Business Performance: Empirical Evidence from SMEs in Nigeria. Their findings revealed that intellectual property rights, have a direct positive effect on SMEs growth in Ogun state. Their research worked focused only on SMEs in Ogun State in western Nigeria, and only looked at either technological opportunity or intellectual property rights, but this research work focus on SMEs in North Central Nigeria, studying both technological opportunity and intellectual property rights. Thus, this study examined the effect of technological opportunities and intellectual property rights on SMEs growth in North Central Nigeria.

Literature Review

Concept of Technological Opportunities

Technological opportunities refer to the ease with which innovations and technical improvement can be accomplished, and they can be jointly represented by increases in information spillover, cross-firm research, and research scope. (Olsson, 2005). Technological opportunity is the potential for technological progress in general or within a particular field. Technological opportunities include fresh concepts, emerging technologies, or market niches that SMEs can take advantage of to develop cutting-edge goods, solutions, or procedures. These possibilities are brought about by advances in science, modifications in consumer tastes, modifications in industry rules, or new trends that might be used to achieve a competitive advantage. (Shane, 2001).

Concept of Intellectual Property Rights

Yamin (2003) defines intellectual property as the group of immaterial rights defending intellectual property that has commercial value. In addition to geographical markers, trade secrets, publicity rights, moral rights, and rights against unfair competition, this category also covers trademarks, copyrights, and patent rights. Plant breeders are also covered by intellectual property. The phrase "intellectual property right" (IPR) refers to works of the mind to which the law grants the designated owners the sole

right of appropriation. The corpus of laws known as IPR Law is responsible for overseeing all pertinent aspects of intellectual property rights, including ownership, registration, protection, licensing, assignment, and lifetime. (Udoma & Osagie, 2016).

For SMEs' growth trajectories, effective management of intellectual property rights can have significant effects. By giving SMEs a distinctive selling concept and discouraging copycats, IP protection helps improve SMEs' market position. (Hu & Jefferson, 2009). Furthermore, IP rights can enable SMEs to enter new markets, expand product lines, and attract foreign investment (Cohen et al., 2000). Licensing or selling IP assets can generate additional revenue streams, facilitating financial stability and growth (Maskus, 2000).

Small and Medium Enterprises Growth

Growth is associated with the firm survival and achievement of organizational goals. It is measured in terms of employment, revenue, market share and product development (Pasanen, 2007). Organizational growth has gained interest among different academics mainly because it contributes to economy through new job creation. Growth is considered an indicator of organizational performance and it is associated with the achievement of financial goals. The turnover of the firm is the most frequent measure of growth, which addresses taxation concerns, whereas the number of employees is another measure of growth, which addresses the job concerns. There is interconnection between these two growth indicators within the context of SMEs, and they are used due to their visibility and simplicity to obtain within organizations (Fadahunsi, 2012).

Generally, the term “business growth” is used to refer to various things, such as increase in total sales volume, increase in production capacity, increase in employment, increase in production volume, increase in the use of raw material and power. These factors indicate growth, but do not provide a specific meaning of growth. Business growth is typically defined and measured using absolute or relative changes in sales, assets, employment, productivity, profits and profit margins. Delmar et al (2003) posited that various scholars use growth indicators such as assets, market share, physical output and profits to measure business performance. Yet they argued these indicators are usually not used as sales and employment, because their applicability is limited; thus, market share and physical output vary within different industries and are therefore difficult to compare; total assets value depends on industrial capital intensity and is sensitive to change over time; and, lastly, profits are simply appropriate in measuring size over a long period of time. Furthermore, Delmar *et al*. (2003) claimed sales and employment are two important indicators when measuring firm growth. Employment is often used, because it is comparatively easy to access and measure as well as because it lies within interest for policy makers (Barkham *et al*., 1996).

Empirical Review

Kim et al. (2021) conducted a longitudinal study in South Korea to investigate the relationship between the use of technological opportunity and SMEs growth. They collected data from 150 SMEs in the manufacturing sector and analyzed the firms' performance indicators over a three-year period. The results demonstrated that SMEs leveraging AI technologies achieved higher productivity levels and innovation rates, leading to substantial growth in terms of market share and profitability

Olusegun et al, (2019) studied the Impact of technological opportunities on SMEs growth in Abeokuta in Ogun state, Nigeria. A sample of 126 respondents was identified, Linear Regression analysis was used to test the research hypothesis and the result showed that, Technological opportunity have a strong, significant, linear and positive relationship with growth of SMEs.

Smith et al. (2018) conducted a comprehensive study to investigate the impact of technological opportunities on SMEs' growth in the United States. Their research utilized data from a sample of 500 SMEs across various industries. They employed a panel regression model to analyze the relationship between technology adoption and SMEs' revenue growth over a five-year period. The study found a positive and statistically significant correlation between technology adoption and SMEs' growth. SMEs that effectively utilized technological advancements experienced higher revenue growth rates compared to those lagging in technology adoption

Akinyele et al. (2021). Studied intellectual property rights and sustainability of business growth. Empirical evidence of SMEs in Odeda, Nigeria. The study revealed that intellectual property rights play a significant effect on sustainability of SMEs business growth. A total number of 133 respondents was used. The analysis of data was done using regression and correlation models and chi square. However, this study used PLS-SEM for data analysis.

Pinzon-Castro et al. (2015). Investigated the relationship between intellectual property and SMEs growth: A Mexican SMEs perspective. They studied 125 SMEs in Mexican, the result obtains showed that intellectual property rights had a positive and significant influence on SMEs growth. But this study investigated SMEs in Nigeria.

Kim and Park (2020) investigated the influence of Intellectual Property Rights on the growth of technology-based SMEs in South Korea. The research revealed a significant positive relationship between IPR protection and the growth of such SMEs, particularly in terms of innovation and market expansion.

Theoretical Review

Resource- Based View Theory

Resource-based theory has been developed to understand how organizations achieve sustainable competitive advantages. The theory focuses on the idea of costly-to-copy attributes of the firm as sources of business returns and the means to achieve

superior performance and competitive advantage (Barney, 1986; Conner, 1991; Hamel & Prahalad, 1996). A firm can be understood as a collection of physical capital resources, human capital resources and organizational resources (Barney, 1991). Resources that cannot be easily purchased, that require an extended learning process or a change in the corporate culture, are more likely to be unique to the enterprise and, therefore, more difficult to imitate by competitors. It is argued that performance differentials between firms depend on having a set of unique inputs and capabilities (Conner, 1991). According to resource-based theory, competitive advantage occurs only when there is a situation of resource heterogeneity (different resources across firms) and resource immobility (the inability of competing firms to obtain resources from other firms) (Barney, 1991). Therefore, this paper is underpinned by the resource-based view theory, because technological opportunity and intellectual property rights are resources that will provide SMEs with competitive advantage for growth.

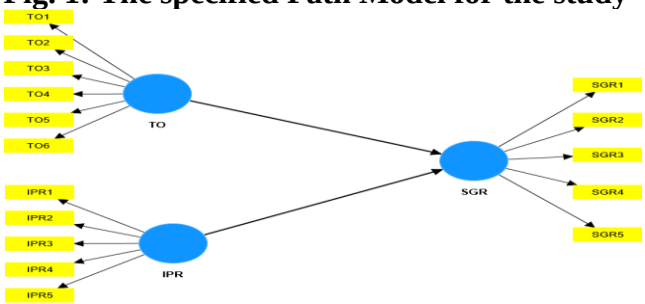
Research Methodology

This study adopted a survey research design using a structured questionnaire to collect data from respondents. The sample size in this study was determined by using the prescribed formula of Mendenhall (1973) under the convenient basis simple techniques. A sample of 400 was estimated from a population of 13,378 (NBS and SMEDAN 2017).

The questionnaire utilised for this study was adapted from various sources to fit the aims of this work. The questionnaire was developed by the researcher based on the work of (Fink, 2003) to elicit response from the owners and managers of SMES on the effect of technological opportunity, intellectual property rights on small and medium enterprises growth in North Central Nigeria.

Data analysis was conducted using Partial Least Square Structural Equation Model (PLS-SEM). A path model was therefore, estimated, to evaluate the causal relationship between technological opportunity (OP), Intellectual property right (IPR), and SMEs growth.

Fig. 1: The specified Path Model for the study



Data Analysis

This study adopted the Partial Least Square Structural Equation Modelling (PLS-SEM). Through the application SMARTPLS software.

Response Rate

Table 1

Summary of Response Rate

Item	No of copies
Copies of Questionnaire distributed	520
Copies of Questionnaire Returned	440
Copies of the Questionnaire Removed	10
Usable copies of the Questionnaire	430
Response Rate	82.7%

Table 1 presents the response rate of distributed questionnaires. A total number of 520 copies of the questionnaire had been distributed to respondents, while 440 copies were returned, 10 cases of the returned questionnaire were removes due to inappropriate filling. Therefore, only 430 copies of the questionnaire were used for further analysis, constituting 82.7% response rate, which is suitable for further analysis (Tabachnick & Fidell, 2013).

Measurement Model

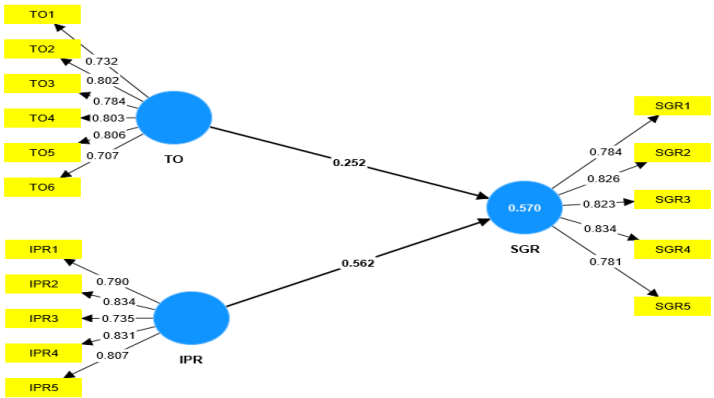


Fig. 2 The Path Measurement Model

Table 2

Construct Reliability and Convergent Validity

Construct	Items	Loadings	CR	AVE
Intellectual Property right	IPR1	0.790	0.899	0.640
	IPR2	0.834		

	IPR3	0.735		
	IPR4	0.831		
	IPR5	0.807		
Technological Opportunity	TO1	0.732	0.899	0.598
	TO2 TO3	0.802 0.784		
	TO4	0.803		
	TO5	0.806		
	TO6	0.707		
SMEs Growth	SGR1	0.784	0.905	0.656
	SGR2 SGR3	0.826 0.823		
	SGR4	0.834		
	SGR5	0.781		

Note: AVE represents Average Variance Extracted; CR represents Composite Reliability.

Table 2 shows that all the items measuring the constructs loaded well. The CR of variables used in this study ranges from 0.899 to 0.903. Going by the rule of thumb of 0.70 and above for the acceptable values of composite reliability (CR), the study concluded that all these constructs are reliable as all their respective composite reliability's values are above the threshold. Also, AVE with 0.5 signifies that the latent construct explains a half of the variance of its items or factors.

Table *Discriminant Validity: Heterotrait-Monotrait Ratio of Correlations (HTMT)*

Construct	IPR	SGR	TO
IPR			
SGR	0.839		
TO	0.782	0.720	

The HTMT measures factors' discriminant validity. Discriminant validity problems are present when HTMT values are high than 0.90 (Hair, et. al, 2019). Table 3 shows HTMT report; all values are below the minimum threshold of 0.90 therefore the construct of the study achieved discriminant validity.

Structural Model

Table 4

Direct Path Coefficient

Hypotheses	**Beta Value**	**Standard Deviation**	**T Stat**	**P-Value**	**Decision**
TO -> SGR	0.252	0.079	3.172	0.002**	Supported

IPR -> SGR	0.562	0.076	7.396	0.000**	Supported

R Square 0.570

*** p< 0.01; **p< 0.05; *p <0.1

From Table 4, it can be deduced that Technological opportunity has a positive and significant effect on SMEs growth in North Central Nigeria at P value <0.05. This means a unit change in Technological opportunity will lead to 25.2% change in SMEs growth. As a result, Technological opportunity has significant positive effect on SMEs growth in North Central Nigeria.

Again, from Table 4, it can be seen that Intellectual property right has a significant effect on SMEs growth. This means that a unit increase in Intellectual property right will bring about a 56.2% increase in SMEs growth.

Discussion of Findings

Technological opportunity has a significant positive effect on SMEs growth in North Central Nigeria. This result is consistent with the findings of Olusegun et al, (2019), Smith et al. (2018), and Kim et al. (2021). The technological opportunity's positive and significant effect on SMEs growth holds numerous economic implications. SMEs that embrace technology opportunity can enhance their efficiency, expand their market reach, drive innovation, and gain a competitive edge. These benefits, in turn, lead to job creation, increased revenues, economic diversification, and enhanced export potential.

Intellectual property right has a significant positive effect on SMEs growth in North Central Nigeria. This result is consistent with the findings of Akinyele et al. (2021), Kim and Park (2020) and Pinzon-Castro et al. (2015). The intellectual property rights positive and significant effect on SMEs growth holds many economic implications. Intellectual property rights enable SMEs to charge premium prices for their innovative products and services. Patents, for instance, provide a monopoly on the invention, allowing SMEs to set higher prices and generate greater revenue. Increased profitability results from a combination of higher prices, reduced competition, and enhanced market share. As SMEs grow and expand their operations due to the protection and monetization of intellectual property, they require a larger workforce. This leads to job creation, reducing unemployment rates and contributing to economic stability.

Conclusion and Recommendations

The main objective of this study is to evaluate the effect of technological opportunity and Intellectual property right on growth of small and medium enterprises in the North-Central States of Nigeria. It was found that technological opportunity and Intellectual property right have positive effects on growth of small and medium enterprises in the North-Central States of Nigeria.

The study recommends that, SMEs should engage with customers to understand their pain points and needs. Look for technology-driven solutions that can address these pain points and improve their overall experience with their products or services. SMEs should Stay informed about emerging technologies and market trends relevant to their industry, by regularly conducting market research to identify technological shifts and opportunities that can potentially provide a competitive advantage.

This study also suggested that SMEs should safeguard their valuable business information, processes, and know-how as trade secrets by implementing strict confidentiality measures and SMEs should regularly assess their business intellectual property assets and potential vulnerabilities to identify which assets need protection and determine the appropriate type of protection for each.

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