
Assessment of the Impact of Environmental Scanning Intensity on Innovation among SMEs Owners in Oyo State Nigeria

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Abstract

The study investigated the effect of environmental scanning intensity on innovation among SMEs in Oyo State Nigeria. A sample of 400 SME owners was taken using the multistage sampling technique. The questionnaire was used to collect information from the respondents and the data were analyzed using descriptive and quantitative analysis. The result from the study shows that environmental scanning intensity on the part of SME owners is very crucial to innovation. The study further underscores the importance of resources, organizational structure, and technology in the promotion of innovation while the study also concludes that government policy has not been encouraging innovation among SMEs. The study recommends more involvement of government in the promotion of innovation and the SMEs owners on their part should embark on efficient environmental scanning in other to improve their innovative ideas that can make their businesses excel or stand out in the ever-rising competitive world.

Keywords: Innovation, Environmental Scanning Intensity, SMEs

1. Introduction

In the past fifty years, the SME sub-sector has remained the main focus of attention of consecutive governments in Nigeria in recognition of its importance because it's a veritable vehicle of economic process and national development (Ayozie, Jacob, Umukoro & Ayozie, 2013). However, one of the most important determinants of the success of SMEs is the atmosphere or environment around where they operate which is highly susceptible to a lot of dynamism in various aspects that affect businesses

For instance, the Nigerian business atmosphere, and notably Metropolis and State are defined by inconsistent state policies, lack of infrastructures, significant taxation, regulative burdens, and lack of access to the credit facility. Moreover, the price of doing business in Nigeria is very high because of double taxation, high bank rates and rates of interest as well as the high rate of exchange, all of these impede investment (Ogundele, Akingbade, Saka & Azeez, 2013). This precarious business environment has led to a rise in the death rate of SMEs in Nigeria. Akinbogun (2008), in his study, submits that the physical atmosphere of Nigeria and her culture are causative factors for the expansion of companies however inadequate infrastructure and

inconsistent government policies represent potential threats to the expansion and performance of SMEs in Nigeria.

Based on the foregoing businesses that are thriving in Nigeria today usually leverage constant scanning of the environment to make sure they are up to date with the current changes in the business environment (Ogundele, Akingbade, Saka & Azeez, 2013). Notwithstanding, an important ingredient necessary for SME owners is the ability to generate and implement innovative ideas that can promote their businesses. Innovation or innovativeness is the ability of the owner of SMEs to think outside the box and create changes to existing products or processes which will result in the sweetening of the organization's ability to supply superior prices to its customers (Rauch, Wiklund, Lumpkin, & Frese 2020). Again, it is believed that the environment where a business owner finds himself or herself might affect the levels of innovation he or she brings into the business (Ogundele, Akingbade, Saka & Azeez, 2013). This assertion remains at the level of opinion and it is yet to be tested empirically.

Consequently, this study among others is billed to investigate the levels of influence of environmental scanning intensity on innovation in the SMEs in Nigeria using the SMEs owners in Oyo State Nigeria as an example.

Previous empirical studies are more concerned with the effect of innovation or environmental scanning intensity on the performance of SMEs. Little was research on the determinants of innovation or innovative ideas in the literature (Ihua, 2006; Obiwuru, Oluwalaiye & Okwu, 2011; Azeez, 2013; Ijir & Gbegi, 2015). This is the area this study will be contributing to the existing literature and body of knowledge generally. The rest of the paper is divided into Literature review, Methodology, Result, Discussion, Conclusion, and recommendation.

2. Literature Review

This aspect of the paper discusses relevant empirical literature as well as the theoretical underpinnings of the study.

Theoretical review

Theories and models that are related to both environmental scanning intensity and innovation are reviewed under this subsection.

The Dynamic Capabilities Approach (DCA)

The dynamic capabilities approach of strategic management tries to elucidate why some organizations are additionally prospering than others in building competitive advantage inside dynamic markets (Eisenhardt & Martin, 2000; Teece, Pisano & Shuen, 1997). Teece, Pisano, and Shuen (1997), the proponents of the DCA outline dynamic capabilities because of the firm's ability to integrate, build and reconfigure internal and external competencies and, therefore, maintain performance in the face of fixing the business atmosphere. The DCA was developed to deal with the restrictions of RBV. Teece et al., (1997) contend that RBV recognizes the mechanisms that achieve a competitive advantage, it, however, fails to elucidate the mechanisms it operates with. For the proponents, DCA must do with the flexibility to attain new sorts of competitive advantage by being versatile and quick in coping with the ever-

changing market atmosphere. DCA explores 2 elementary problems why strategy approaches fail these are the firm's inability to renew competencies to adapt to changes in an exceedingly business atmosphere and therefore the ability of strategic management to use those competencies to match with environmental conditions.

Empirical Review

Previous empirical studies on both innovation and environmental scanning intensity are given priority under this subsection.

Bayode, Babatunde, and Adebisi (2012) researched the impact of strategic environmental scanning on organization performance in a competitive environment by studying Nestle Nigeria Plc. and Cadbury Nigeria Plc. A structured questionnaire was used to collect data which were analyzed and interpreted with regression and coefficient of correlation method of analysis. The findings revealed that there was a significant relationship between strategic environmental scanning and organization performance; the coefficient of determination (R^2) was 0.297 showing that 30 percent of the variation or change in organization performance was caused by variation in strategic environmental scanning. The findings also showed that the external environmental forces have a positive impact on organizational performance. The coefficient of determination (R^2) was 0.30 implying that 30 percent of the variation or change in organization productivity was caused by variation in external environmental factors.

Onodugo and Ewurum (2013) conducted an exploration of environmental scanning. The paper assessed the place of environmental scanning as a method of business survival in the Federal Republic of Nigeria. The findings are typically unconcealed that environmental scanning is vital to business survival not solely in the Federal Republic of Nigeria but in different components of the globe. Nigeria's specific information reveals that the academic level of managers considerably impacts their tendency to scan the business atmosphere. The findings are additionally unconcealed that informal sources are more relevant in determining the business environment than formal sources.

Ojo (2008) in his study, sought-after to ascertain whether or not the knowledge of an organization's environment and its scanning has any relationship with company performance. The findings showed that environmental scanning companies crush non-scanning companies. The findings additionally showed that knowledge derived from environmental scanning was progressively getting used to driving the strategic management method. The third finding showed that managers have important knowledge of their atmosphere. Finally, the finding unconcealed that the fold from some banks within the Nigerian banking system was because of their inefficiencies in scanning its atmosphere for threats and opportunities which the scanning intensity in every sector supported the extent of perceived strategic uncertainty in every one of those sectors.

Gathenya (2012) investigated the link between environmental scanning intensity and the performance of Women-led SMEs in the Republic of Kenya. The results of the investigation, however, unconcealed that environmental scanning had no important impact on the performance of Women-led SMEs in the Republic of Kenya. A study was additionally conducted in North Japanese Ohio within us America by Kroeger (2007) examining the link

between environmental scanning and the performance of tiny businesses in Ohio. The results of the study, however, unconcealed a negative relationship between environmental scanning intensity and firm performance.

Alese and Alimi (2014) investigated the extent to that tiny and medium businesses in the Federal Republic of Nigeria build use of strategic management tools for their development. The results of the investigation showed that almost all SMEs weren't victimization all strategic management tools whereas some solely adopted restricted strategic management tools. The finding additionally showed that the bulk of the SMEs didn't have a versatile strategic mechanism in situ so creating it was troublesome for them to be able to respond effectively to environmental changes.

3. Methodology

Research Design

This study adopts a survey analysis style. The employment of the survey analysis style is its ability to assemble monumental knowledge and use interview schedules or forms that target a large population. Which will offer the man of science the chance to come up with data to adequately answer the queries of 'how what, who, wherever, and when' regarding environmental scanning intensity and innovativeness... Additionally, the information gathered through the survey methodology will facilitate the man of science to draw inferences regarding the target population generally (Ibidunni, 2009).

The population of the study

The population distribution of registered SMEs in Oyo State is described in table 1 below there are five zones in all.

Table 1. List of SMEs in Oyo State, Nigeria, and their number in the five zones

S/N	Name of Zone	No of SMEs
1	Ibadan Zone	712,231
2	Oke-Ogun Zone	184,316
3	Ogbomoso Zone	502,849
4	Oyo Zone	300101
5	Ibarapa Zone	165,457
	Total	1,864,954

Source: Ministry of Commerce, Industry, Cooperatives and Empowerment, Oyo State.

Sample and sampling techniques

The study employs the multi-stage sampling technique. In the first stage, Oyo State is stratified into five (5) based on the state administrative zones, while each of the zones formed a stratum. In each stratum (zone), all the SMEs are numbered. A proportional random sampling technique is used in determining the number of SMEs that are represented in all the strata. This is calculated as follows;

The total population of SMEs in Oyo State is One million, eight hundred and sixty-four thousand nine hundred and fifty-four (1,864,954). The sample size for this study was determined to be 400 by applying Cochran's (1977) formula.

Model 1 (Innovativeness)

$$INO = \alpha_0 + \alpha_1 ESI + \alpha_2 TECH + \alpha_3 RES + \alpha_4 GOVT + \alpha_5 ORGS + \mu_i, \dots, \dots (3.2)$$

Where INO is innovations, ESI is Environmental Scanning Intensity, TECH is Technology, RES is Resources, GOVT is Government Policy, ORGS is Organizational structure and μ_i is the error term for the innovation model α_i (where i is from 0 to 5) are the parameter estimates of the innovation model.

The model is estimated using regression analysis. Pre-estimation test for normality is done first to determine the type of regression analysis to embrace. The result from the study indicates that ordinal regression rather than linear regression is more suitable for the analysis. This is what is used in this study.

4. Results and Discussions

This aspect of the research presents interprets and explains the empirical results obtained on the relationship between Innovation and Environmental Scanning Intensity among the SMEs in the Oyo States in Nigeria.

Bio data results

A sample of 400 SMEs was covered in Oyo State for this research work and the demographic analysis is as follows.

Table 1 Sex Distribution for Oyo State

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	160	40.0	40.0	40.0
	Male	240	60.0	60.0	100.0
	Total	400	100.0	100.0	

The SMEs covered in Oyo State have more male owners than female owners. The target respondents are the owners of these SMEs and the analysis from table 1 is an indication that 60% of the SMEs amounting to 240 SMEs are owned by males while the remains 40% which is about 160 SMEs belong to female entrepreneurs. It was discovered that during the survey some managers of these entrepreneurs stood in for their bosses to attend to the questionnaires. Notwithstanding, the sex of the owners is demanded and not that of the representatives.

Table 2 Marital Status Distribution

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	40	10.0	10.0	10.0
	Married	360	90.0	90.0	100.0
	Total	400	100.0	100.0	

Table 2 indicates that the majority of the SME owners are married precisely about 90% of them are married and this is 360 SME owners while just 10% are not married. This is an indication that some degree of responsibility is incumbent on them which portends the expectation of good and fair responses from them.

Table 3 Distribution of Years of operation of the SMEs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-5 years	160	40.0	40.0	40.0
	5-10 years	120	30.0	30.0	70.0
	10 years and – above	120	30.0	30.0	100.0
	Total	400	100.0	100.0	

It is obvious from the analysis in Oyo State that SMEs are relatively young. In other words, they are mostly at the early strategic of their years of operation. 160 of the SMEs which is 40% of the total SMEs covered in the survey are still within one to five years of existence. This is where their Innovation counts a lot because the sustainability of the business at this stage is crucial. Notwithstanding, about 120 of them which is about 30% of the entire SMEs covered are relatively old as well. This will also enable exploration of how they have applied strategic management in their operations over the years.

Table 4 Staff Strength Distribution of the SMEs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0- 5	280	70.0	70.0	70.0
	5-10	40	10.0	10.0	80.0
	10 and above	80	20.0	20.0	100.0
	Total	400	100.0	100.0	

The distribution in table 4 shows that many of the SMEs in Oyo State are very small in size. About 280 of them which represents 70% of the entire population of the SMEs covered in the State have less than six employees. Again, 30% of them are also big having above 10 employees in their workforce. The distribution shows that they fall into the category of SMEs regarding the definition of SMEs by SMEDAN.

Table 5 Distribution of educational qualifications of the SMEs owners

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	OND/HND/BSC/DIP	160	40.0	40.0	40.0
	MSc/MBA/PGD	120	30.0	30.0	70.0
	PhD	120	30.0	30.0	100.0
	Total	400	100.0	100.0	

Many SMEs are relatively educated. The majority of them are with first-degree and post-secondary school certificates. This population is about 40% of the entire SMEs used in the survey. In addition, 60% of them have a post-graduate qualification which is an indication that

the respondents will know the questions and be able to provide appropriate answers to them since their levels of education indicate that they can read and communicate very well in English.

Table 6 Age Distribution of the SMEs owners

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	26-35years	40	10.0	10.0	10.0
	36-45years	240	60.0	60.0	70.0
	46-55years	120	30.0	30.0	100.0
	Total	400	100.0	100.0	

It is clear from table 6 that the majority of SME owners are youth. About 70% of them are between the ages of twenty-six to forty-five years. This speaks volumes of the involvement of the youth in SMEs in Oyo State. About 30% of the SMEs which is about one-twenty belong to adults. The ages in this category are from 46 years and above.

Normality test

It would be recalled that the determination of the type of method of analysis to use ultimately depends on the results of the normality test. This underscores the importance of the test. Either linear or ordinal regression analysis application rests on the outcomes of the normality test which is presented in table 5.

Table 7: Test for Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Innovation	.209	340	.000	.886	340	.000
Environmental scanning intensity	.136	340	.000	.949	340	.000
Government policy	.135	340	.000	.903	340	.000
Resources	.141	340	.000	.947	340	.000
Organization structure	.136	340	.000	.949	340	.000

Table 7 presents the normality test on data collected on the SMEs. The results show that both Kolmogorov-Smirnov and Shapiro-Wilk for all the variables are statistically significant at 5%. However, since the data set in this study are more than 100 we stick with the Kolmogorov-Smirnov statistics. Since all the variables have significant statistics, we conclude that they are not normally distributed, hence nonparametric approach to estimating techniques will be more suitable for the data analysis.

Correlation analysis

As stated above the establishment of the non-normality status of all the variables has shown that the spearman rank correlation approach is suitable for the computation of correlation coefficients among the variables. The results are presented in the table

Table 8. Spearman rank correlation

		ESI	TECH	RES	GOVT	ORGS	INNO
ESI	Correlation Coefficient	1.000	.399**	.326**	.693**	.151**	.756**
	Sig. (2-tailed)	.	.000	.000	.000	.002	.000
	N	400	400	400	400	400	400
TECH	Correlation Coefficient	.399**	1.000	.708**	.205**	-.014	.487**
	Sig. (2-tailed)	.000	.	.000	.000	.781	.000
	N	400	400	400	400	400	400
RES	Correlation Coefficient	.326**	.708**	1.000	.247**	.505**	.425**
	Sig. (2-tailed)	.000	.000	.	.000	.000	.000
	N	400	400	400	400	400	400
GOVT	Correlation Coefficient	.693**	.205**	.247**	1.000	.102*	.443**
	Sig. (2-tailed)	.000	.000	.000	.	.042	.000
	N	400	400	400	400	400	400
ORGS	Correlation Coefficient	.151**	-.014	.505**	.102*	1.000	.277**
	Sig. (2-tailed)	.002	.781	.000	.042	.	.000
	N	400	400	400	400	400	400
INNO	Correlation Coefficient	.756**	.487**	.425**	.443**	.277**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.
	N	400	400	400	400	400	400

Results in Table 8 show the bivariate relationship among the variables used in the study. Environmental scanning intensity ESI is the first variable in the table and the result has shown that it has a very strong relationship with all the variables in the model. The correlation coefficient with all the indicators of Innovation is positive and significant. This is coupled with the fact that it also has a significant relationship with Environmental Scanning Intensity. This result underscores the importance of environmental scanning in Innovation. For Technology, the coefficients with Innovation are positive and significant. But not for Organizational structure. The third variable in the table is the Resources. Just like ESI the variable also exhibits a strong and positive relationship with innovation,

Ordinal Regression analysis

Table 9: Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	1092.927			
Final	602.536	490.391	5	.000
Link function: Logit.				

The model fitting information shows the extent to which the model fits the data. The null hypothesis is that the model does not fit the data. From the results in the table, the chi-square statistic of 490.391 is statistically significant at 5%. Therefore, the null hypothesis is rejected and it is concluded that the model fits the data very well.

The next test is the goodness of fit test. This is presented in table 10. This is similar to the coefficient of a determination under the linear regression analysis.

Table 10. Innovation Goodness of fit test for Oyo State

	Chi-Square	df	Sig.
Pearson	3.974	22	.089
Deviance	2.536	22	.097
Link function: Logit.			

Both the person and the deviance approaches are used to test for the goodness of fit of the model. It analyses the extent to which the data explained the model and vice versa. The null hypothesis here is that the data fits the model. The significant values are all greater than 5% for both Pearson and deviance. The implication is that the model showed a good fit. Hence it is suitable for estimation.

The next step is the presentation of the pseudo R square result. It explains the percentage of variation in the dependent variable that is explained by the independent variables. The result is presented in Table 11

Table 11. Innovation Pseudo R-Square for Oyo State

Cox and Snell	.707
Nagelkerke	.756
McFadden	.449
Link function: Logit.	

The pseudo R square is the equivalent of the R square for linear regression and it explains the percentage of the systemic variation in innovation that is explained by all the variables of the strategic practice management. The Nagelkerke value is the point of reference here and the value is 0.756. The result implies that about 76% percent of the systemic variation in innovation is explained by all the independent variables and Environmental Scanning Intensity. The next stage is the estimation of the ordinal regression parameter estimates the result is presented in Table 12

Table 12. Ordinal regression estimates for Innovation

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[INNO = 2.00]	16.809	1.840	83.480	1	.000	13.203	20.415
	[INNO = 3.00]	22.196	2.426	83.710	1	.000	17.442	26.951
	[INNO = 4.00]	23.978	2.469	94.303	1	.000	19.139	28.818
Location	ESI	4.698	.543	74.827	1	.000	3.633	5.762
	GOVT	.194	.196	.973	1	.324	-.191	.578
	RES	1.362	.524	6.748	1	.009	.334	2.389
	TECH	-1.213	.254	22.722	1	.000	-1.712	-.714
	ORGS	.907	.223	16.559	1	.000	.470	1.344
Link function: Logit.								

The results of the ordinal regression for innovation are shown in table 12 that environmental scanning intensity has a coefficient of 4.698 and the coefficient is statistically significant at 5% the implication of this is that ESI is very crucial to innovation and it follows that any organization that wants to grow must invest in the scanning of the environment, this will promote the innovative ideas of the SMEs owners and propel them to have an edge over their competitors in the environment.

Resource RES, Technology TECH and Organizational structure ORGS are other variables used as shift factors of innovation the result shows that the coefficients of these variables are significant at 5% thus indicating that they also have a significant impact on innovation. The implication is that for innovation to be very encouraged among the SMEs owner's good resources, technology, and favorable organizational structure must be available before innovative ideas can be promoted

The only variable without a significant impact on innovation in government policy. The study analysis has shown that Nigeria's government policy does not have any significant effect on innovation. This follows the position of ...who concluded from his study that the government of Nigeria rather than making policy that will encourage innovation and self-reliance, the policy is making them more dependent on the government thus killing innovative ideas in people.

Table 13. Innovation tests of parallel lines

Model	-2 Log Likelihood	Chi-Square	Df	Sig.
Null Hypothesis	602.536			
General	.000 ^a	2.536	10	.048

The null hypothesis is that the odds for each explanatory variable are consistent and the same across the different thresholds of the dependent variable. The null hypothesis needs to be accepted before the estimates of the ordinal regression can be valid otherwise the multinomial logistic regression will be used. In this case, the non-significant value is 0.068. This is an indication that the null hypothesis is accepted and it is concluded that the odds for each explanatory variable are consistent and the same across the different thresholds of the dependent variable

5. Conclusions and Recommendations

The study concludes that environmental scanning is a necessity for innovation among SMEs in Oyo State Nigeria. It further shows that an entrepreneur that wants to thrive in this competitive world nowadays needs to think outside the box and leverage the weakness of its competitors in the environment to create new products and services. It is pertinent also to underscore the importance of environmental scanning as it exposes what benefit the environment can offer the business that the competitors are not aware of. This study has joined some other previous studies to confirm that the intensity at which an SME scan its environment is very germane to developing the innovative idea that will stand the business out among its competitors in the same environment.

Finally, the study concluded that government policy in Nigeria has not been encouraging innovation and this is one of the banes of the growth of the SMEs in Nigeria particularly Oyo State which is the case study in this research work. Notwithstanding, the resources available, the level of technology, and the flexibility in organizational structure are important factors that will also aid innovation among SMEs.

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