Environmental innovation on the productivity of the selected agro-allied businesses in Nigeria

E.A. Dangana (KSU), S.T. Duruowoju (LASU) Faruna, Omaye Stephen (KSU), & Ahmed Shehu Awak (KIU)

Abstract

This study determines the effect of creativity and environmental innovation on the productivity of agro-allied businesses in Nigeria of selected agro-allied businesses in Nigeria. The researcher adopted survey design. Data were collected by structured questionnaire in Five Point Likert Scale format. The source of data was through primary source. The target population of the study comprised of 1,584 owners/managers of all agro-allied businesses in North-central, Nigeria. Sample size of 320 was derived from the population with the application of Taro Yemane's formula for finite population while Bowley's proportional allocation method was adopted to determine the allocation of questionnaire to each organization. A Cronbach Alpha method was used to determine the reliability of questionnaire which gave a reliability coefficient result of .74. Five hypotheses were formulated and tested through Ordinary Least Square Regression and Z-test at 05 level of significance. The findings revealed that creativity and environmental innovation significantly affect the productivity of agro-allied businesses in North central Nigeria. The study concluded that despite the changes in legislation and regulations to protect the environment, Nigeria and various other countries are still facing many environmental problems, e.g., climate change, population growth, overflowing landfills, water scarcity, fuel shortages, and water and air pollution. If we are to solve these problems, the study concluded that creativity and environmental innovation are a major part of the answer. The study recommended that the Nigeria government could do much to strengthen external forces, especially with respect to establishing national standards for the quality of environment and the implementation of these regulations. Further, ecopreneurs, government and society at large could tap international standard in order to support the phasing-out of products and processes that are known to contribute to global warming and ozone depletion. They could also strengthen the consumer movement in the country. Since environmental sustainability promote business growth. Hence, it was recommended that agro-allied business needs to build more on their sustainability concerns as it affect agricultural goods.

Keywords: creativity, environmental innovation, businesses productivity, agro-allied businesses

Introduction

Environmental degradation is perhaps the most prominent global issue of the 21st century. Academics, policymakers, non-governmental agencies and governments are all Concerned about the increasing levels of land degradation, soil erosion, deforestation, and industrial toxins (Volery, 2012). In addition, there are very serious concerns about the negative consequences of ozone depletion, climate change, nuclear radiation, and the destruction of biodiversity (Intergovernmental Panel on Climate Change (IPCC), 2007; United Nations Environment

Programme (UNEP), 2004, World Resources Institute, 2004). A recent joint report by the World Resources Institute, the World Bank, and the United Nations show the diminishing capacity of five of earth's most critical ecosystems.

In a market system, sustainable development requires sustainable innovations and Intrepreneurs are those who can achieve environmental goals with superior innovations that are successful in the marketplace. Market innovations that drive sustainable development do not occur by accident; they have to be created by leaders who put them into the core of their business activities. Actors and companies making environmental progress in their core business may be called 'ecopreneurs'. They generate new products, services, techniques and organizational modes that substantially reduce environmental impacts quality of life.

Companies contribute most to the overall environmental progress of an economy and society if their core business deals with environmental solutions and environmentally superior .products and if their innovations substantially influence the mass market. This is the main thesis for the empirical investigation, outlined in the penultimate section of this paper and the basis for the definition of what is called ecopreneurship.

Computers and the Internet have changed the world in a more fundamental way than have most political programmes. To be innovative means to provide organizational and technical improvements that can be sold successfully in the marketplace. In order to create innovations a firm must overcome thresholds. Technology trends seem to come and go with frightening regularity, some have a lasting impact on business. These are ones that change the way businesses operate and provide dramatic improvement for those that adopt them. Such technologies help organizations become operationally lean, agile and responsive, increase

effectiveness and improve outcomes. Innovative technology empowers executives, managers and workforces to operate their businesses mere effectively.

For a company to have a positive environmental influence it must make a real and substantial contribution to environmental progress. A real improvement can be created only if the production processes, products and services are environmentally superior. A substantial contribution requires that the company exert significant market influence by gaining a large market share or by influencing competitors and other market actors (such as suppliers) to 1 adopt superior environmental solutions. (Ecopreneurs run companies that fulfill both requirements. Ideally, ecopreneurship pulls the whole market towards more environmental progress. Ecopreneurs strive for business success through environmental solutions for the mass market. To measure how well a company has •done, the dimensions of ecopreneurship can be further subdivided. The priority of environmental goal ranges from low priority (environmental protection is regarded as a trustee duty), to medium priority (environmental issues are seen as supplemental to ^conventional business issues) and high priority (environmental issues are regarded as an integral part of core business activities). The market effect of the company and its businesses can be small (i.e. the alternative scene), medium or large (i.e. through a strong influence on the mass market).

Much of the work that has been done to date on ecopreneurship and environmental issues has largely taken the form of anecdotal reports and case study analysis. Large sample studies are needed to demonstrate how ecopreneurship may or may not enhance the innovative ability land performance of organizations. The present study aims to bridge the gap by examining the implications of ecopreneurship activities in sustaining innovative performance in a sample of ;selected agro-allied businesses in Nigeria.

The business activities of agro-allied businesses in Nigeria are not without some inhibiting problems emanating from their various environmental factors such as land degradation, soil (erosion, deforestation, industrial toxins, ozone depletion, climate change, nuclear radiation, | and the destruction of biodiversity. Today, these problems are posing serious challenges to their operational capabilities, survival and "performances. A cursory analysis of some of these problems prompted the crucial need for embarking on this proposed study. The environment factors in the agro-allied industry' in Nigeria tend to be harsh on indigenous firms and their operational activities nowadays. This has brought such consequences as low productivity, increasing risks, low profitability, and tensed competition, heavy investment on equipment, increased operational cost and high rate of business failures with many other threats.

In Nigeria, many local agric-businesses and small and medium scale enterprises have failed to fully imbibe the spirit of ecopreneurship in order to shun out those products that will be environmentally friendly and socially responsible. Only multinational enterprises have put this issue into concern in their want satisfying operations. Most agriculture related organizations complaint on lack of realistic estimates on how to successfully implement eco-market systems particularly in the area of agricultural related business have adversely affected the environment by failing to deal with negative environmental externalities and undervaluing natural resources, leading to their over-exploitation and depletion. Governments have sought to deal with the problem through a mix of command-and-control and market- based instruments, with limited success. One of the most potent alternatives for dealing with such market failures is ecopreneurship, which refers to a process by which entrepreneurs introduce eco-friendly (or relatively eco-friendlier) products and process into the market place.

It is in the light of these problems that this work seeks to examine creativity and innovation as

determinants of innovative performance of agric-allied businesses in Nigeria. The following research questions guided the study: What effect would creativity and innovation have on the productivity of agro-allied businesses in Nigeria?

Conceptual framework

Creativity is sometimes used to mean innovation. This study does not however view creativity as innovation; instead it sees creativity as a start point for innovation. Creativity by individuals and teams is a starting point for innovation. She further opined that creativity being the starting point for innovation is a necessary condition but not a sufficient condition. According to her innovation is the successful implementation of creative ideas within an organization and successful innovation also depends on other factors as well and it can stem from not only from creative ideas that originate within the organization but also from ideas that originated from elsewhere for example technology transfer.

Innovation contributes to achieving a competitive advantage tin several aspects. The most important characteristics of innovations include: A strong relationship between market performance and new products. New products help maintain market shares and improve profitability.

Growth also by means of non-price factors (design, quality, individualization, etc.). Ability to substitute outdated products (shortening product lifecycles). Innovation of processes that lead to production time shortening and speed up new product development in comparison to competitors. Developing successful technological innovations is essential for creating and sustaining an organization's competitive advantage. The expenditures on research, development and

introduction of innovations are the determining characteristics for gaining a dominant part of the market. The ’importance of the role of the regional innovation and they argue that organization must have original strategies and support the knowledge flows from and to organization. It is supported by results of Autant-Bernard (2001). Producing innovations on an ongoing basis, it risks that it lag behind and the initiative will be taken over by other entities. Schumpeter (Tidd et al,. 2006) asserted that entrepreneurs attempt to use technological innovation - a new product or service or perhaps a new process M the course of their production - provided they thus gain a strategic competitive advantage. This creates competition that does not attack profit margins or the outputs of existing organizations, but their essence and their existence as such.

With respect to the above said it is important - within the frame of innovations - that are a necessity in today’s knowledge, information and innovative society - to follow large Organizations that engage in innovation and set the direction for others. The present concept of innovations is that they represent an open approach that reaches beyond the threshold of an organization and thus exploits not only inspections and changes in the internal environment, but also changes in the external environment. The internal environment of an organization needs to have a suitably preset innovative culture, since this Type of culture is characterized by the transience of organizational structures, utilization of specialists and temporary teams, mobile offices, the necessity of speedy and flexible changes responding to new opportunities, which increases the innovative potential of such organizations. There is no place for standardization; each project is unique. Its characteristic features include flexibility, openness to changes, searching for -information and resources in the external environment, anticipation, creativity, experimenting and informal communication. Checks in organizations with

Baranano (2005) argued that innovation is a complex technological, sociological, and economic

process that involves a highly intricate set of interactions, both within the firm and between it and its economic, technical, social, and competitive surroundings. Success is therefore not expected to be satisfactorily justified by one or two factors alone. According to the author, no element can be effective by itself and, thus, no single management tool or technique will be able to create an environment that is conducive to innovation. What is actually found is a set of different (though strictly inter-related) factors that must work in an integrated manner to create and reinforce an environment that fosters the success of technological innovation in the company.

The Social Change Theory was postulated by Veblen in 1967. The theory is essentially a technological theory of history. Veblen believes that the society's state of the industrial arts, that is, the availability of technology to a society determines the character of such society's culture. Invention was the mother of necessity. Yet this influence of technology, while crucial, was to Veblen by no means immediate and direct. A new technology does not automatically bring forth new systems of laws, new moral attitudes, or new types of education. Rather, it challenges old institutions and evokes their resistance. Institutions are products of the past process, adapted to past circumstances, and are therefore never in full accord with the requirements of the present. Those who have a "vested interest" in the old order will bend every effort to maintain old institutions even when they are no longer in tune with technological developments. The characteristic attitude of those advocates of the status quo "may be summed up in the maxim: 'What-ever is, is right;' whereas the law of natural selection as applied to human the axiom: 'Whatever is, is wrong." In the end, Veblen believed, new ideas, overcomes vested interests, and reshapes institutions in accord with its needs. But this process may take considerable time, and in that time lag - when, for example, an industrial society is still governed by legal and moral rules dating from the handicraft era - society suffers from the waste that is brought about by the lack of

correspondence between its institutions and its technology.

3. Empirical Review

Hamsa (2014) studied the Impact of Innovation and Managing Technology based business entrepreneurs and explained that both technological innovation and entrepreneurship ices mainly two areas: the organization, development, and commercialization of logy-based innovation in existing firms; and the formation, development, and growth technology-based new enterprises. Technology and innovation businesses also cover a fc range of industries. The paper is a qualitative paper and its study is based on the secondary data collected from different sources and it highlights problems faced by the entrepreneurs globally regarding businesses to stimulate technological innovation and highlight the role of small business in meeting research and development needs and increase its participation in this role. The study recommends that businesses may focus on activities such as researching and developing new products or providing innovative solutions natural ingredients with green technology, produce approved chemical which do not harm or pollute the environment, caused no environmental hazards and do not posed dangers to the environment. The study shows that green marketing is crucial in preventing eco-harm and environmental degradation. The study made some applicable recommendations for business enterprises to produce ecological products which must not only pollute the environment but should protect it, sustain the environment and even liquidate existing environmental damages.

Zainab and Shafaat (2015) carried out a study on “Green activities: Environmental concern and customer satisfaction”. The study empirically examined the level of awareness of green issues and whether green products are fulfilling their needs apart from benefiting their living environment and to create awareness about green products and green marketing. The imitative

research technique was employed in the study and the questionnaire method adopted. The study revealed that green marketing is helping to save the environment. That product with green features plays a significant role in helping to save the environment. The Study also showed that using green products can help to reduce environmental problems. The study recommends that; companies should be transparent in describing what they are actually living for green marketing and their policy should be consistent with their work about environmental friendliness. Furthermore, government should develop policies to take strict actions against those companies that produce products that are harmful to the environment. A paper work titled 'Impact of Innovation and Managing Technology Based Business for entrepreneurs' conducted by Hamsa (2010), who explains that technological innovation and entrepreneurship embraces mainly two areas: the organization, development, and commercialization of technology-based innovation in existing firms; and the formation, development, and growth of technology-based new enterprises. Technology and innovation businesses also cover a wide range of industries. These businesses may focus on activities such as researching and developing new products or providing innovative solutions to ^existing processes. This paper highlights problems faced by the entrepreneurs globally Regarding businesses to stimulate technological innovation and strengthen the role of small business in meeting research and development needs and increase business participation in this role. This is a qualitative paper and its study is based on the Secondary Data collected torn different sources.,a work conducted by Mutura, Nyairo, Mwangi and Wambugu (2016), titled 'Analysis of Determinants of eco-systems among Firms in Lower Central Kenya', The study analyzed the determinants of eco-practices among small holder of dairy farmers in Lower Central Kenya and discover that such practices lead to high gross margins, influences choice of marketing channel and improves market participation, encouraging commercialization of dairy

smallholder farming. A logit regression model was used to determine the likelihood of a household to introduce eco-practices in its dairy enterprise. A multistage sampling technique was used, and data was collected from 288 small holder dairy farmers in Kiambu County. Processing and analysis of the survey data were carried out using SPSS version 20 and STATA version 12. Fixed investment cost, storage type, milk cost share, the percentage of milk sold and dairy enterprise turnover were hypothesized to be key factors in explaining a household's likelihood to eco-practices into its dairy enterprise. An increase in total fixed investments, turnover and volume of output contribute to the probability of a household integrating vertically. The paper recommends that farmers should establish and strengthen existing associations and practices ecological activities more than before.

Methodology: Model Specification

Model specification, the general formula for the Regression Analysis is:

$$Y = a + \beta X + e$$

.

where;

Y = Dependent Variable, X= Independent Variable

a = constant

β = coefficient of X

e = error margin.

Model to be estimated is functionally stated as

PRO = f(INC)

PRO=a+βINC+e

Where,

PRO= productivity,

INC= innovation and creativity

Results and discussions

One-sample statistic

	N	Mean	Standard deviation	Standard error mean
Decision on Creativity/innovation and Productivity	309	31.1100	21.16231	5.41121

Source: SPSS analysis of field data

The analysis in the above table revealed the grand mean of 28.41 and standard deviation of 22.12.

One-sample Z-test: Test value =0

					95% confidence interval of the difference	
	Z	DF	Sig.2-tailed	Mean difference	Lower	Upper
Decision on Creativity/innovation and Productivity	28.220	308	0.003	31.110	20.8800	54.1900

Source: SPSS analysis of field data

The result of the Z value at 28.220 is higher than the Z critical value. the alternate hypothesis which states that 'creativity and innovation would have positive influence on the competitive advantage of agro-allied businesses in Nigeria' is therefore accepted. This Z value is significant at 0,003 because it is less than 0.05.

In line with the data analysis, the following are the major summary of findings:: Creativity and environmental innovation significantly affect the productivity of agro- allied businesses in North central Nigeria.

Discussion of Findings

Findings revealed that creativity and environmental innovation affected the productivity of agro allied businesses in Nigeria. This result is in line with the work of Cohen and

Winn(2007),McEwen(2013), Oskamp(2000)who recommended that the creativity and invention in the delivery of agroallied product have longrun effect on the market position and size of firm.This also extends to the result of the study of Gbadeyan and Omolekan (2015), which indicated that competitive advantage of launching innovative agricultural products. Although, the findings of some studies such as Zainab and Shafaat (2015) supported Mutura, and Wambugu (2016) suggested that agricultural invention may not for long sustain firms productivity due some of hidden problems such as the problem of imitation and cloner. This study result also dissociate from Dorsey and Boland (2009) findings. This study counters this stance based on the findings of this research which suggests that using creativity to boost performance is not always reliable in the agricultural setting.

6. Conclusion and recommendation

After a critical consideration of the finding and discussions so far, the following

recommendations were offered: The Nigeria government could do much to strengthen external forces, especially with respect to establishing national standards for the quality of environment and the implementation of these regulations. It could also take more proactive measures through the state-level cleaner production centres. This will encourage the ecopreneurs to develop more environmentally friendly goods and as well enhance their level of involvement in green product.

Ecopreneurs, government and society at large could tap into international standard in order to support the phasing-out of products and processes that are known to contribute to global warming and ozone depletion. They could also strengthen the consumer movement in the country. Since environmental sustainability promote business growth, it is recommended that

agro-allied business needs to build more on their sustainability concerns as it affect agricultural goods

During the next decade, the agro allied business in Nigeria will most certainly be marked by further disaggregation and reaggregation due to the described shifts in the sector's value chain. In order to keep their status quo, agro-allied business must consider continued invention, innovation and creativity as the most viable method to get instant access to industry- or operations-specific knowledge and keep abreast with the pace of technological change. Non-innovative in nature may provide benefits to such firms only in the short term. Therefore, in the long-term an articulated developed ecological friendly innovation will control rival and give firms a sustainable and non-imitable competitive advantage.

Ecopractices must not just be a back runner is agro-allied organizations anymore. It is the critical aspect of organizational turn-around and must be given its rightful place during policy making and through this process that ecopreneurs can enjoy the long-run benefits without undue pressures and inconsistencies in Nigerian. Agro firms must therefore engage their managerial team, through training and development to know, understand, and apply, the principles of ecopreneurship practices and ecological management in their daily decision making, especially as it concerns agro-allied operations.

In the final analysis, it is the education of producers, consumers and regulators that will pave the way for a major transformation of agricultural industry. This will stimulate the ecopreneurs to develop more ecoprenerial practices that would not only give them competitive advantage but will also go a long way in developing the sector.

References

Baranano A. M. (2005). Gestao da inovacao technological: estudo de cinco pmes portuguesas revista brasileria de inovacao, rio de jaaneiro, 4(1), 57-96.

Cohen, B.and Winn, M, I. (2007). Market imperfections, opportunity and sustainable entrepreneurship. Journal of Business Venturing, 22(1), 29-49.

Dorsal, M. , and Boland, G. (2009). Ecopreneurship: Pre-emptive merging. The Journal of Industrial Economics. 43(3), 323-337.

Gbadeyan, O. and Omolekan, R. (2008). Ecopreneurship and Networks, Scientific Management Journal, 15(3),113-127.

Hamsa, S. (2014). Impact of innovation and managing technology-based business for entrepreneurs. Issues in General Management. 12(2),51-55.

McEwen, T. (2013). 'Ecopreneurship as a solution to environmental problems: Impecations for college level entrepreneurship education. International Journal of Academic Research in Business and Social Sciences. 3(5), 264-288.

Mutura, S. A. C. , Nwangi, J. V. and Wambugu, K. L. (2016). Impact of ecosystem management of manufacturing firms in Nigeria. An International multidisciplinary Journal, Ethiopia, 9(2), 156-167.

Oskamp, S. (2000). Psychological contributions to achieve an ecological sustainable future for humanity. Journal of Social Issues, 56(3), 373-390.

UNEP, (2004). United Nations Environment Programs 2005 Annual Report. Nairobi, Kenya: United Nations Environment Program.

Volery, T. (2012). Ecopreneurship: rationale, current issues and future challenges. In U. Figlisteraller, H. J. Pietner, T. Volery, W. Weber. (Eds). Radical change in the world: Will SMEs soar or crush? St. Gallen: KMU Verlag,

World Resources Institute (2004). World Resources 2002-2004. Washington, D.C: World Resources Institute.

Zainab, H. and Shafaat, I. (2015). Entrepreneurship and ecopreneurship on firm's reputation. A paper delivered at Brown University, UC Berkeley.