International Journal of Marketing and Communication Studies E-ISSN 2545-5273 P-ISSN 2695-2173
Vol 6. No. 1 2022 www.iiardjournals.org

Innovation Diffusion and Sustainable Development of Deposit Money Banks in South-South Nigeria: The Moderating Role of Entrepreneurial Marketing

Nwokah, N. G. (Professor)*[1] and Poi, Elizabeth Ledisi *[2]
Department of Marketing,
Rivers State University,
Nkpolu-Oroworukwo,
Port Harcourt, Nigeria.
[1]nwokah.gladson@ust.edu.ng [2]elizabeth.poi1@ust.edu.ng
poibeth@yahoo.com

DOI: 10.56201/ijmcs.v6.no1.2022.pg21.36

Abstract
Many deposit money banks in Nigeria are utilizing new technologies to innovate their products and services. But amidst these wins are some legitimate concerns about the credibility of the banks, customer trust, banks' technical competence, capability to adopt innovations and the ability to sustain development. Framed by the diffusion of innovation (DOI) theory, this study explored the relationship between innovation diffusion and sustainable development of deposit money banks in Nigeria and the moderating role of entrepreneurial marketing. A quantitative and cross-sectional survey research design was adopted to consider three (3) hypotheses formulated for the study. Based on a population size of twenty-two (22) deposit money banks in south-south Nigeria, (Nigeria Deposit Insurance Corporation (NDIC), 2022), two (2) respondents; branch managers and marketing managers were drawn randomly from each of the banks for the survey. Therefore, forty-four (44) copies of questionnaire representing the total respondents were suitably designed and administered to obtain primary data. The face validity of the questionnaire was determined by experts comprising of researchers and business practitioners with satisfactory knowledge of the subject matter. The construct and content validity were established from earlier researchers who used it, but with few adjustments. The Cronbach's Alpha Coefficient reliability measure was also applied to determine the internal consistency of items in the questionnaire using Statistical Package for Social Sciences (SPSS). The Pearson moment correlation coefficient was used to determine the degree of relationship between the dimensions of innovation diffusion (product innovation diffusion and process innovation diffusion) and sustainable development. Partial correlation was used to examine moderation of entrepreneurial marketing on the relationship between innovation diffusion and sustainable development. Findings reveal that innovation diffusion has a positive and significant relationship with sustainable development of deposit money banks in south-south Nigeria while entrepreneurial marketing has a positive effect on the relationship. Hence, the study recommends that deposit money banks in Nigeria should encourage the easy diffusion of innovations and entrepreneurial marketing to enhance the achievement of the sustainable development goals in Nigeria.

Keywords: *Innovation Diffusion, Sustainable Development, Entrepreneurial Marketing*

Introduction

The turbulent business environment in Nigeria necessitates organizations to continually innovate by initiating and adopting novel technologies, products and processes to adapt to environmental changes, ensure customer satisfaction and maintain competitive advantage (Poi & Nwokah 2022). Musa & Abubakar (2022) indicate that firms in the banking industry in Nigeria are digitally-driven owing to the fact that successful business processes are performed via new technologies and innovations due to the advancement in Information Communications Technology (ICT). In this context, an innovation is the introduction or modification of an existing idea, product and process or the introduction of a new product or a new process into the organization (Abraham, Edward & Emmanuel, 2016). Twiss, (1989) as cited in Kogabayev & Maziliauskas (2017) opine that an innovation is a procedure that involves science, technology, economics and management, that ranges from the emergence of an idea to its commercialization in the form of production, exchange, and consumption. Therefore, innovation diffusion is the ability to communicate a new idea, product and process through certain channels over time among members of a social system, in this case, business organizations. Innovation diffusion occurs through a distinct way of communicating new ideas. (Everett, 1983).

In recent times, many deposit money banks in Nigeria are focused on utilizing new technologies to innovate their products and services, for instance, Islamic Bonds (e.g. Sukuk), retail-structured products like; electronic banking, unstructured supplementary service data (USSD), point of sales (POS) services, agency banking, short message service (SMS), Alert-Z, partnerships with international money transfer organizations (IMTOs), automated teller machines, debit cards, credit cards, and (lately) the e-Naira (PWC Nigeria, 2017; Musa & Abubakar, 2022). More so, the cash less policy introduced by the central bank of Nigeria (CBN) to curtail money laundering, encourage more electronic-based transactions, reduce the amount of physical cash in circulation, eliminate terrorists financing, eradicate economic and financial crimes and meet the requirements of Nigeria's vision 20:20 20 transformation agenda now Nigeria Agenda 2050 can only drive on the wheels of innovation diffusion (Ovat 2012; Daka, Iyatse & Adekoya, 2020). Deposit money banks in Nigeria are financial organizations responsible for accepting deposits, on-line securities trading, accord loans to businesses and individuals, savings accounts, certificates of deposits etc. Oladimeji, Abosede, & Eze, (2018) report that recently banks like the United Bank of Africa (UBA) introduced a process whereby customers paying in #50,000 naira do not stand in a queue; they just put their monies in bags provided by the bank, stamp their tellers, and drop it in a box to save time. But amidst these wins are some legitimate concerns about the credibility of the banks, customer trust, the technical competence or capability to adopt innovations and sustain development (Awoleye, Okogun & Siyanbol, 2013). According to the United Nations (UN) as cited in (Alamu, 2017), sustainable development is the organizing standard for attaining human development goals while protecting the environment. The seventeen (17) global sustainable development goals (SDGs) were introduced in September 2015, designed to end extreme poverty, hunger, combat inequality, injustice, manage climate change, encourage good health, well-being, quality education, gender equality, clean water, sanitation, affordable and clean energy, decent work and economic growth among others by 2030 (Akinpelu, 2021).

The United States Agency for International Development (USAID), (2021) indicate that the Nigeria's economic growth is limited due to inadequate infrastructure, tariff and non-tariff barriers to domestic and international trade, impediments to investment, lack of confidence in currency valuation, and limited foreign exchange capacity. Additionally, Chinecherem, (2015) reports that though there are issues like; pervasive poverty and corruption, social conflicts, instability of government, mismanagement of resources, but weak financial policy, sharp dealings of covetous bankers, lack of proper oversight of the Apex Bank, exploitation of bank customers through unnecessary charges, bank fraud, poor lending to businesses and credit mismanagement practices made matters worse. The Nigerian economy cannot function appropriately without healthy deposit money banks because they are financial intermediaries to channel savers' money to firms and individuals who seek funding for their businesses. (Adekanye 2010; Omunakwe, Nwinyokpugi & Adiele 2018; Adeleke & Elumah 2018) as cited in Chikere & Poi, (2021) opine that most customers of the deposit money banks in Nigeria have experienced low level of satisfaction due to poor customer service as a result of a lack of market orientation which is at the core of entrepreneurial marketing.

In the past decade, studies have explored the adoption of innovations in Deposit Money Banks in Nigeria (Awoleye, Okogun & Siyanbol,2013; Abraham, Edward & Emmanuel, 2016; Oladimeji, Abosede, & Eze, 2018, Musa & Abubakar, 2022). However, research concerning innovation diffusion and sustainable development, especially in developing countries in Sub-Saharan Africa, appears severely neglected in literature. Moreover, as far as we know, none of the previous studies made any effort to examine the impact of entrepreneurial marketing on the relationship between innovation diffusion and sustainable development of deposit money banks in Nigeria. Therefore, it is necessary to investigate the relationship between innovation diffusion and sustainable development of deposit money banks in Nigeria and how the relationship is moderated by entrepreneurial marketing. The conceptual framework in Figure 1 below demonstrates how the variables relate.

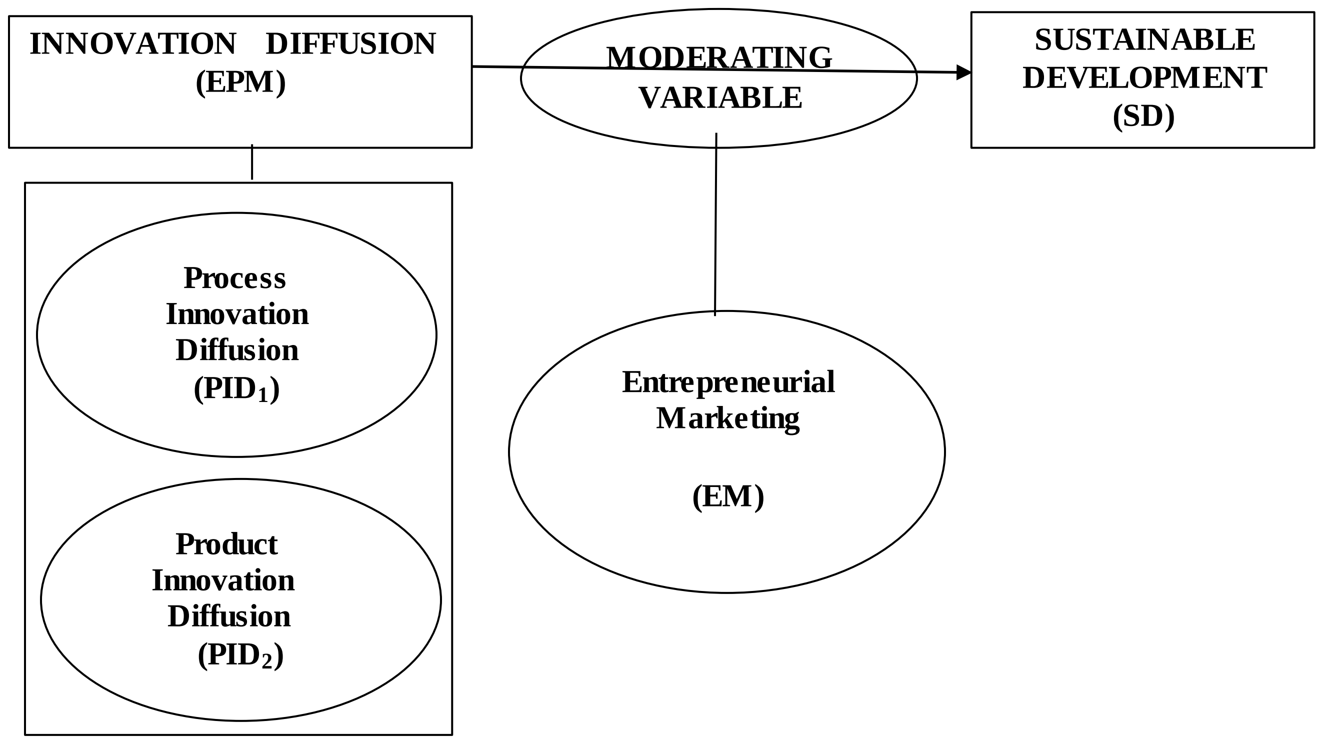

Figure 1: Conceptual Framework of the Relationship Between Innovation Diffusion and Sustainable Development of Deposit Money Banks in Nigeria.
Sources: Researcher's Conceptualization (2022) as adapted from (Kogabayev & Maziliauskas, 2017).

Literature Review

A review of relevant literature is done to provide foundational knowledge and offer a comprehensive overview of the variables in the conceptual framework presented in Figure 1.

Theoretical Foundation

Analytically, this study is supported by the diffusion of innovation (DOI) theory, established in 1962 by E.M. Rogers; an American communication theorist and sociologist, to describe how, and with time, an idea or product accelerates and circulates through a specific social system (Rogers, 1983). Dearing & Cox, (2018) citing (Rogers 2003) defined diffusion as a social procedure that arises among individuals and organizations in response to learning about an invention or modernization of a thing, such as a new evidence-based approach for satisfying needs and wants. The consequence of innovation diffusion is that individuals and organizations, as fragments of a social system, adopt a new knowledge, behavior, or product. LaMorte, (2019) reports that for innovation diffusion to be possible, it must be perceived as new and communicated via various channels over time amongst the members of a social system. Sherry & Gibson, (2002) opine that the innovation diffusion process has been studied for over three (3) decades and Roger's diffusion of innovation (DOI) theory is one of the most popular models. Researchers in different disciplines have used the model as a framework for technology diffusion; from political science, public health, communications, history, economics and education (Dooley 1999; Stuart 2000). Isleem (2003) used Roger's diffusion of innovations theory to examine the level of computer use for instructional purposes by technology education teachers in Ohio public schools. Medlin (2001), used it to study factors that might impact on a faculty member's motivation and decision to adopt new electronic technologies in classroom instruction. Zakaria (2001) used it as a baseline on issues related to the implementation of information technology in the Malaysian Ministry of Education Polytechnic etc**.** Therefore, we are inclined to use it to extrapolate the diffusion of new products and processes of deposit money banks in Nigeria.

Conceptual Review

Concept of Innovation Diffusion

The concept of innovation diffusion was literally coined out of two words; "innovation" and "diffusion", the term "innovation" was derived from the Latin verb *innovo* which means "I renew" or "I restore" while "diffusion" originated from another Latin word *diffundere,* meaning "to spread". In plain terms, the concept of innovation diffusion means the renewal and spread of a thing or idea. That "thing or idea" could be products and services, processes, people and incremental developments to something that already exists (Godin, 2015; Porumboiu, 2021). The concept of innovation diffusion explains the circulation and adoption of new ideas, products and technologies through awareness, persuasion, decision, implementation, and continuation (Sirk, 2020). Urabe, (1988) indicate that an innovation consists of the generation of a new idea and its implementation into a new product, process or service, which enhances the growth of all economic variables. Innovation diffusion explains how over a period of time, an idea or a product offering gains popularity or spreads through a social system. It is used to explain the dissemination of a new product or new idea over time (MBA Skool, 2020). In business, innovation diffusion is the procedure by which a perceived new idea, product and process spreads over a period of time to consumers and prospects through communication (Mrinalini, n.d). Afuah, (1998) as cited in Kogabayev & Maziliauskas, (2017) report that innovation diffusion is the spread of a new knowledge merged in products, processes, and services. He classifies innovations based on their technological, market, and administrative/organizational features. Rogers (2003) maintain that innovation diffusion is a conscious and unconscious decision to make full use of an idea, product and process and the rejection of an innovation is also a conscious and unconscious decision not to adopt a new idea, product and process.

In this context, adoption means that individuals and organizations within a social system does things contrarily to the norm, for instance, buy or use a new product and method. The concept of innovation diffusion explains how new ideas, practices, products, and services spread within and between communities and the entire social system through mass and interpersonal communication. Hence, Sahin, (2006) infer that the four major components of the diffusion of innovations include:1. the innovation (new idea, product, and process that is perceived as new to individuals and organizations), 2. communication channels (the process and conduit through which individuals and organizations create and share information with one another e.g: mass media and interpersonal communication), 3. Time (the pace of the innovation-diffusion process) and 4. social system (an established group of interconnected units involved in the achievement of common goals like the different categories of adopters which include: innovators, early adopters, early majority, late majority, and laggards). According to LaMorte, (2019), Innovators; (2.5%) of all adopters are adventurous individuals and organizations who contend to be the first to adopt innovations while Early adopters; 13.5% of all adopters are informed open minded, opinion leaders who enjoy leadership roles, and embrace change. But Early majorities; (34%) of all adopters are seldom leaders but they have healthy interaction with other members of the social system, so, they adopt new innovations whereas Late majority; (34%) of all adopters are mostly followers who are skeptical of change, they only adopt a new idea, process and product after it has been tested over time by the majority. Finally, Laggards; (16%) of all adopters are closed minded, conservative and extremely skeptical of change.

Some researchers have tried to distinguish the diffusion of an innovation from its adoption. According to Gabriel & Silva, (2017), various factors impact the circulation and subsequent acceptance of innovations. Typically, while diffusion is a group phenomenon, which describes how a new product or service is spread in the marketplace, adoption is an individual process, which explicates the phases individuals and groups go through from first hearing about the innovation to finally implementing it. In the context of this study, innovation diffusion incorporates both the spread and adoption of the new idea in consonance with Roger's (1983) opinion that the diffusion of any innovation is a type of social change, explained as the process by which modifications happen in a social system. Crossman & Apaydin (2010) defined innovation as the manufacturing and adoption, adaptation, and exploitation of a value-added new idea in economic and social domains; restitution and modification of products, services, and markets; creation of new procedures of manufacturing; and instituting new management structures. Schumpeter (1934) as cited in Marzi, Dabić, Daim, & Garces, (2017) explained innovation within the context of the business organization and describe its components as product, process, and business model. This happens when new ideas, products and processes are invented, diffused, and are adopted or rejected. Therefore, innovation adoption is a subset of innovation diffusion.

Process Innovation Diffusion (PDI_1)

Process innovation diffusion involves initiating and putting into operation a new knowledge or technique for doing something that helps a firm remain competitive and meet customer requirements (Pratt, 2022). It involves the introduction and spread of new procedures into a firm's operations for instance; input resources, job specifications, work and information flow instruments, and machines used to manufacture products and services (Afuah, 1998). Kogabayev & Maziliauskas, (2017) report that the overall purpose of process innovation is to intensify and hasten production procedures, by including invention and modernization into the production circles as well as achieve firms' goals and objectives. It occurs when an organization resolves existing problems or completes business procedures in totally diverse ways to produce something highly profitable. Process innovation diffusion is the application of new manufacturing techniques, or substantial changes in specific procedures, machines and / or software, in order to effectively produce and distribute new or modified products and services, lessen waste and environmental hassles, reduce the cost of manufacturing and distribution, enhance product quality, intensify the efficiency of production and distribution activities and mitigate the risks to the environment (Maier 2014b; Maier 2014; Maier,2015) as cited in (Maier, 2018). Isha, (2020) opines that process innovation diffusion embraces changes in the technology and machines utilized in the design, development, and production of goods and services. By executing implicitly enhanced production or delivery methods to reduce cost and offer healthier customer service.

Product Innovation Diffusion (PDI_2)

Product innovation diffusion is the development and spread of a new or enhanced product with cutting-edge attributes relative to existing ones. This is achieved by enhancing the product's functionality, introduction of a new technologies and utilizing the appropriate promotional tools (Claudia, 2022). Meeus, (2006) opines that it allows a better version of the product to be offered than the existing ones. Consequently, the product offers more functions and satisfies better. Product innovation diffusion is the procedure of creating a new product or refine an existing one to satisfy customers' needs and wants in a new way (Cote, 2022). Therefore, through product innovation diffusion, the business can achieve more competitive advantage by differentiating its brand and enhancing quality and variation of products and services which helps to grow sales, market share, profitability, customer satisfaction and overall business performance (Maier, 2013; Vadastreanu, 2015 a; Vadastreanu, 2015 b) as cited in (Maier, 2018). Maier also asserts that product innovation diffusion can also manifest due to a change of product concept that is grounded in a new idea, adoption of a new technology, new and improved quality of raw materials and component parts with better features than the previous ones, novel designs, which translates to a change of shape or appearance, manufacturing techniques or processes that go with the product and the discovery of new uses of the product. Alegre & Chiva (2008) found that the performance of new product innovations diffusion is dependent on the organizational learning capabilities. Therefore, product innovation diffusion is a function of the firm's access to novel ideas, technologies and their ability to learn, relearn and unlearn.

Concept of Sustainable Development

The concept of sustainable development is made up of two fundamental elements; "development" and "sustainability", and both came before the conception of the concept itself. Sachs (2010) indicate that the two terms are not mutually exclusive as development cannot exist without sustainability or sustainability without development. Development is a growth-oriented framework of the strategies, policies, programs and activities undertaken by some individuals, organizations, and governments (Sharpley 2009). The three basic aspects of the human development index (HDI); health, knowledge and standard of living are the most recognized development dimensions which fit into the socio-cultural, economic, environmental and political growth of particular countries (Willis, 2005). On the other hand, the term sustainability literally means the ability to maintain a thing, result, or process over time (Jenkins, 2009). According to the United Nations General Assembly (1987), sustainable development is a kind of growth that meets the needs and wants of the present generation without compromising the capacity of future generations to meet theirs. Sustainable development is an advancement that safeguards the environment, because a conducive environment aids sustainable development (Duran, Gogan, Artene & Duran, 2015).

In view of the fact that, sustainable development is meticulously related to environmental matters, given that the environment contains important controllable and uncontrollable forces as opportunities and threats to development, the concept of sustainable development involves ecological sustainability. Ecological sustainability is a growth that enhances healthy environmental conditions which aid societal well-being now and, in the future, (Lele, 1991). This ideology does not consider sustainable development without environmental protection from pollution, overpopulation and any negative human impact. In the Nigerian environmental, socio-economic and political context, economic success is measured entirely by the amount of the throughput from the factors of production within the country (Sharpley, 2000; Chinecherem, 2015). It is focused on the economic development, social development and environmental protection for today and future generations. Though, in order to achieve the required environmental settings, some socio-cultural, political, technological and natural conditions have to be achieved bearing in mind their impact of environmental sustainability and unsustainability (Klarin, 2018).

Concept of Entrepreneurial Marketing

Traditionally, marketing and entrepreneurship are considered two different fields of study, but the dynamic business environment, customer sophistication, growing consciousness of the relevance of entrepreneurship to marketing, and of marketing to effective entrepreneurship have made business practitioners and scholars combine the two fields as "entrepreneurial marketing" (Sussie, Morgan & Jonathan, 2010). Entrepreneurship is the willingness and ability to produce, launch, and manage something new with value and devoting the required time and effort all to combat all setbacks for customer satisfaction and profit maximization (Hisrich & Ramadani, 2017; Nilam, 2022). On the other hand, marketing is the procedure by which organizations create value for their target market and maintain healthy relationships with customers in order to capture value from customers in return (Kotler & Armstrong, 2016). Poi & Okwandu, (2021) citing (Chris & Gerhard 2015), defined marketing as one of the essential business functions which identifies, anticipates and satisfies customers' requirements. The concept of entrepreneurial marketing is a practical way of identifying and maximizing opportunities for acquiring, satisfying and retaining profitable customers through innovative methods to risk mitigation, resource leveraging and value creation (Morris, Schindehutte & LaForge, 2002). It is the standards, skills and deeds of the entrepreneur in solving problems and identifying opportunities. Entrepreneurial marketing is a relatively new strategic approach of seeing and doing business other than the traditional methods, it entails taking calculated risks and maintaining profitable relationships with the market (Sabrina, 2010; Olannye & Eromafuru, 2016). It also integrates innovativeness, opportunities, proactiveness, customer focus, value creation, resource leveraging and calculated risk taking with marketing as a medium to create and receive value from customers (Ejiroghene & Ayodele, 2020). Entrepreneurial marketing is only achieved when the customers are well-thought-out as profitable assets to the business (Poi & Opara, 2021).

Innovation Diffusion and Sustainable Development

Maier, (2018) studied contributions from literature in terms of the implications of Product and process innovation: A new perspective on the organizational development. The study found that the role of innovation in economic and social life is dependent on the introduction of the new ideas. In the absence of innovative processes, the economy will become a "stagnant state". As a result, innovation is critical to sustainable economic development.

Akani & Obiosa, (2020) examined the effects of financial innovation on the profitability of deposit money banks in Nigeria. Four hypotheses were formulated and panel data regression used to analyze the secondary data obtained from the annual reports and accounts of the fourteen firms for the period 2009 to 2017. Findings revealed that automated teller machine and electronic fund transfer have negative relationship with return on equity while internet banking, mobile banking and investment on information communication technology have positive relationship with return on equity. The study recommended that deposit money banks should adopt financial innovations, invest in technological innovations and banks should transform banking services by adapting to mobile banking and agency banking to increase market share.

Ibekwe, (2021) investigated the effect of financial innovations on the performance of deposit money banks in Nigeria. The study espoused an ex-post facto research design to analyze secondary data obtained from Central Bank of Nigeria Statistical Bulletin, CBN Annual Report and Statement of Accounts. The result of the study shows that automated teller machine, mobile banking and point of sales services have positive and significant effect on return on asset while internet banking has negative and insignificant effect in return on asset. The study thus concludes that financial innovation has a positive effect on the profitability of commercial banks in Nigeria.

Kasasbeh, Alzureikat, Alroud & Alkasassbeh, (2021) explored the relationship between Intelligent System (IS) and Competitive Advantage (CA) through monitoring the moderating role of Entrepreneurial Marketing (EM) of Jordanian commercial banks. A survey was carried out for the data collection & analysis with three hundred (300) copies of questionnaire, and Smart Partial Least Square (PLS 2.0) software. The findings show that Business Intelligence Systems (BIS) has a positive relationship with competitive advantage, and entrepreneurial marketing moderated the relationship between Business Intelligence Systems (BIS) and Competitive Advantage positively.

Musa & Abubakar, (2022) examined the effect of financial innovation on the efficiency of deposit money banks in Nigeria. It adopted an ex-post facto research design, with a population size of thirteen (13) deposit money banks listed on the Nigeria Exchange Group (NGX). Data from firms' financial statements, central bank of Nigeria (CBN) statistical bulletin, and the NGX fact book were obtained and analyzed descriptively and inferentially. Correlation tests, unit root tests and regression analysis were used for data analysis. Findings reveal that financial innovation has a positive and significant effect on the performance of deposit money banks in Nigeria in terms of efficiency. The study recommended that Nigerian banks should continue to promote the use of various innovative products to guarantee a wider acceptance and ensure better customer service. Building on these findings this study therefore, proposed the hypotheses as follows:

H_{01}: Process innovation diffusion has no significant relationship with sustainable development of deposit money banks in south-south Nigeria.
H_{02}: Product innovation diffusion has no significant relationship with sustainable development of deposit money banks in south-south Nigeria.
H_{03}: Entrepreneurial marketing does not moderate the relationship between innovation diffusion and sustainable development of deposit money banks in south-south Nigeria.

Research Methodology

A quantitative and cross-sectional survey research design was adopted to study the three (3) hypotheses formulated for the study. With a population size of twenty-two (22) deposit money banks in south-south Nigeria, (Nigeria Deposit Insurance Corporation (NDIC), 2022), which included; Access Bank Plc, Sterling Bank Plc, Standard Chartered Bank Limited, Stanbic IBTC Bank Plc, Providus Bank Plc, Premium Trust Bank, Polaris Bank Limited, Parallex Bank Limited, Keystone Bank Limited, Heritage Bank Plc, Guaranty Trust Bank Limited, Citibank Nigeria Limited, Ecobank Nigeria Limited, Fidelity Bank Plc, Fidelity Bank Plc, First Bank of Nigeria Limited, First City Monument Bank Limited, Globus Bank Limited, SunTrust Bank Limited, Titan Trust Bank Limited, Union Bank Plc, United Bank for Africa Plc. Following the small size of the population, no sampling was done. However, two (2) respondents; branch managers and marketing managers were drawn randomly from each of the banks for the survey. Hence, forty-four (44) copies of questionnaire representing the total respondents were suitably designed and administered to obtain primary data. The face validity of the questionnaire was determined by experts comprising of researchers and business practitioners with satisfactory knowledge of the subject matter. The construct and content validity were established from earlier researchers who used it, but with few adjustments. The Cronbach's Coefficient Alpha reliability measure was also applied to determine the internal consistency of items in the questionnaire using Statistical Package for Social Sciences (SPSS) version 22. The Pearson Moment correlation coefficient was used to establish the relationship between the dimensions of innovation diffusion (product innovation diffusion and process innovation diffusion) and sustainable development. Partial Correlation was used to determine the extent of moderation of entrepreneurial marketing on the relationship between innovation diffusion and sustainable development. The reliability test results are summarized in Table 1 as follows:

Table 1: Reliability Measure of Research Instrument

Scale	**Number of items**	**Cronbach alpha**
Process innovation	3	0.901
Product innovation	3	0.828
Sustainable development	3	0.726
Entrepreneurial marketing	3	0.772

Source: Researchers' Desk, (2022)

All scales exceed the 0.7 threshold defined by Cronbach's alpha reliability coefficient (Cortina, 1993). This means that the scales are reliable.

Data Analysis/ Hypotheses Testing/ Bivariate Examination

The results from the test on the hypotheses are presented, Pearson's Product-moment correlation coefficient (r) was used to analyze the study hypotheses to show the degree of relationship between the variables.

Table 2: Pearson Moment Correlation (Process Innovation and Sustainable Development

		Process innovation	Sustainable development
Process innovation	Pearson Correlation	1	.918**
	Sig. (2-tailed)		.000
	N	44	44
Sustainable development	Pearson Correlation	.918**	1
	Sig. (2-tailed)	.000	
	N	44	44

**. Correlation is significant at the 0.01 level (2-tailed).

H_{01}: Process innovation diffusion has no significant relationship with sustainable development of deposit money banks in Nigeria.

Table 2 reveals that the correlation coefficient is 0.918 showing a very strong relationship between process innovation and sustainable development. The relationship is not only strong, it is significant ($p < 0.05$). Hence the null hypothesis would be rejected.

Table 3: Pearson Moment Correlation (Product Innovation and Sustainable Development

		Sustainable development	Product innovation
Sustainable development	Pearson Correlation	1	.923**
	Sig. (2-tailed)		.000
	N	44	44
Product innovation	Pearson Correlation	.923**	1
	Sig. (2-tailed)	.000	
	N	44	44

**. Correlation is significant at the 0.01 level (2-tailed).

H_{02}: Product innovation diffusion has no significant relationship with sustainable development of deposit money banks in Nigeria. Table 3 discloses that correlation coefficient is 0.923 showing a very strong relationship between product innovation and sustainable development. The relationship is not only strong; it is significant ($p < 0.05$). Hence, the null hypothesis would be rejected.

Multivariate Analysis/Results

The study employed the partial correlation technique to evaluate how entrepreneurial marketing moderates the relationship between innovation diffusion and sustainable development of deposit money banks in Nigeria.

Table 4: Test for Moderating Effect of Market Orientation

Control Variables			Sustainable development
Entrepreneurial Marketing	Innovation Diffusion	Correlation	.711
		Significance (2-tailed)	.000
		df	41
	Sustainable development	Correlation	1.000
		Significance (2-tailed)	.
		df	0

**correlation is significant at 0.01 level (2-tailed).

H_{03}: Entrepreneurial marketing does not moderate the relationship between innovation diffusion and sustainable development of deposit money banks in Nigeria

To identify the moderating role of entrepreneurial marketing, it can be observed that the correlation coefficient of the relationship between innovation diffusion and sustainable development is 0.930 and is significant ($p < 0.05$). however, when the entrepreneurial marketing construct is introduced into the relationship, the correlation coefficient becomes 0.711 and is also significant ($p < 0.05$). this shows that entrepreneurial marketing is therefore a significant moderator of the relationship.

Discussion of Findings

This study was designed to determine the relationship between innovation diffusion and sustainable development of deposit money banks in Nigeria. Based on the data analysis, the study found that innovation diffusion (product and process innovation diffusion) and sustainable development are positively and significantly related. Furthermore, entrepreneurial marketing has a significant and positive moderating impact on the relationship between innovation diffusion and sustainable development. Therefore, entrepreneurial marketing reinforces the diffusion of innovation and sustainable development. These findings agree with Kasasbeh, et al (2021) who examined the relationship between "Intelligent System (IS) and Competitive Advantage (CA) and the moderating role of Entrepreneurial Marketing (EM) of Jordanian commercial banks". The findings show that Business Intelligence Systems (BIS) has a positive relationship with competitive advantage, and entrepreneurial marketing moderated the relationship between Business Intelligence Systems (BIS) and Competitive Advantage. The results are also in agreement with Musa & Abubakar, (2022), who studied "the effect of financial innovation on the efficiency of deposit money banks in Nigeria" and found that financial innovation has a positive and significant effect on the performance of deposit money banks in Nigeria in terms of efficiency. The findings also correspond with Ibekwe, (2021) who considered "the effect of financial innovations on the performance of deposit money banks in Nigeria" and concluded that financial innovation has a positive effect on the profitability of commercial banks in Nigeria.

Conclusion and Recommendations

The purpose of this study was to determine the degree of relationship between innovation diffusion and sustainable development of deposit money banks in south-south Nigeria and how the relationship is moderated by entrepreneurial marketing. Product and process innovation diffusion were adopted as dimensions of innovation diffusion (independent variable) and sustainable development (dependent variable). Forty-four branch and marketing managers formed the respondents of the study and primary data were sourced from them. The hypotheses were tested with Pearson moment correlation coefficient and partial correlation with the aid of Statistical Package for Social Sciences. The study found that innovation diffusion has a positive and significant relationship with sustainable development of deposit money banks in south-south Nigeria while entrepreneurial marketing has a positive effect on the relationship. Hence, the study recommends that deposit money banks in south-south Nigeria should encourage the easy diffusion of innovations and entrepreneurial marketing to enhance the achievement of the sustainable development goals in Nigeria.

References

Abraham A., Edward, M. & Emmanuel, E. (2016). The effects of financial innovation on financial savings: Evidence from an economy in transition. *Journal of African Business*, 2(2), 23-34.

Afuah, A. (1998). Responding to structural industry changes: A technological evolution perspective. *Oxford University Press, USA*, .6,(1),183-202.

Akani, H. W., & Obiosa, R. L. T. (2020). Effects of financial innovations on the profitability of deposit money banks in Nigeria. Eur. *J. Accounting, Audit. Financ. Res*, 8(1), 52-73.

Akinpelu, Y. (2021). *Interview: What Nigeria must do to achieve SDGs 1 and 8 by 2030 – Social Advocate*. Retrieved from: https://www.premiumtimesng.com/news/top-news/502878-interview-what-nigeria-must-do-to-achieve-sdgs-1-and-8-by-2030-social-advocate.html on 27the August, 2022.

Alegre, J., & Chiva, R. (2008). Assessing the impact of organizational learning capability on product innovation performance: An empirical test. *Technovation*, 28(6), 315-326.

Awoleye, O.M., Okogun, A. O. & Siyanbol, W. O. (2013). Technological assessment of banking innovation in Nigeria. *African Journal of Accounting, Auditing and Finance*, 2(2),157-174.

Chikere, P. C. & Poi, E. L. (2021). Market orientation and brand performance of deposit money banks (DMBS) in south-south Nigeria. *Central Asian Journal of Innovations on Tourism Management and Finance*,2(8), 14-28.

Chinecherem, U. M. (2015). Deposit money banks and financing of small and medium scale enterprises in Nigeria. *Journal of Economics and Sustainable Development*, 6(8), 185-195.

Claudia F. (2022). *Product Innovation: Types & Examples.* Retrieved from: https://study.com/academy/lesson/product-innovation-types-examples.html on 4th September, 2022.

Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology*, 78(1), 98.

Cote, C. (2022). *Product Innovation: What Business Leaders Need to Know*. Retrieved from: https://online.hbs.edu/blog/post/product-innovation on 4th September, 2022.

Crossan, M. M., & Apaydin, M. (2010). A multi-dimensional framework of organizational innovation: A systematic review of the literature. *Journal of Management Studies*, 47(6),1154-1191.

Daka, T., Iyatse, G. & Adekoya, F. (2020). *Nigeria Abandons Vision 20:2020*, *Dreams Agenda 2050*. Retrieved from: https://guardian.ng/news/nigeria-abandons-vision-202020-dreams-agenda-2050/ on 24th August, 2022.

Dearing, J. W., & Cox, J. G. (2018). Diffusion of innovations theory, principles, and practice. *Health affairs*, *37*(2), 183-190.

Dooley, K.E. (1999). Towards a holistic model for the diffusion of educational technologies: An integrative review of educational innovation studies. *Educational Technology & Society* 2(4), 35-45.

Duran, C.D., Gogan, L.M., Artene, A. & Duran, V. (2015). The components of sustainable develop-ment - a possible approach. *Procedia Economics and Finance*, 26, 806-811.

Ejiroghene, P. A. & Ayodele, A. A. (2020). Entrepreneurial marketing dimensions and market performance of small and medium-scaled enterprises in Niger Delta, Nigeria. *International Journal of Small Business and Entrepreneurship Research*, 8(2)43-58.

Everett, M. R. (1983). *Diffusion of Innovations*. New York, The Free Press A Division of Macmillan Publishing Co., Inc.

Francis, D., & Bessant, J. (2005). Targeting innovation and implications for capability development. *Technovation*, *25*(3), 171-183.

Gabriel, M. L. D. S. & Silva, D. D. (2017). Diffusion and adoption of technology amongst engineering and business management students. *International Journal of Innovation*, 5(1), 20-33.

Godin, B. (2015). *Innovation Contested: The Idea of Innovation Over the Centuries.* New York, Routledge.

Hisrich, R. D., & Ramadani, V. (2018). *Entrepreneurial Marketing: A Practical Managerial Approach*. Edward Elgar Publishing.

Hisrich, R.D. & Ramadani, V. (2017). *Effective Entrepreneurial Management*, Cham: Springer.

Ibekwe, A O. M. (2021). Financial innovation and performance of deposit money banks in Nigeria. *International Journal of Business & Law Research* 9(1), 162-173.

Isha, U. (2020). *What is Process Innovation? Everything to Know in 4 Easy Points*. Retrieved from: https://www.jigsawacademy.com/blogs/design-thinking/process-innovation/ on 3rd September, 2022.

Isleem, M I. (2003). Relationships of selected factors and the level of computer use for instructional purposes by technology education teachers in Ohio public schools: a statewide survey (Doctoral dissertation, The Ohio State University, 2003). *ProQuest Digital Dissertations*. (UMI No. AAT 3124087).

Jenkins, W. (2009). *Berkshire Encyclopaedia of Sustainability: The Spirit of Sustainability*, Berkshire: Berkshire Publishing Group.

Kasasbeh, E., Alzureikat, K., Alroud, S., & Alkasassbeh, W. (2021). The moderating effect of entrepreneurial marketing in the relationship between business intelligence systems and competitive advantage in Jordanian commercial banks. *Management Science Letters*, 11(3), 983-992.

Klarin, T. (2018). The concept of sustainable development: From its beginning to the contemporary issues. *May Zagreb International Review of Economics and Business,* 21(1), 67-94

Kogabayev, T, & Maziliauskas, A. (2017). The definition and classification of innovation. *Holistica*, 8, (1), 59-72.

Kogabayev, T. & Maziliauskas, A. (2017). The definition and classification of innovation. *Holistica*, 8(1), 59-72.

Kotler, P. & Armstrong, G. (2016). *Principles of Marketing*. Boston, MA: Pearson.

LaMorte, W. W. (2019). *Diffusion of Innovation Theory*. Retrieved from: https://sphweb.bumc.bu.edu/otlt/mphmodules/sb/behavioralchangetheories/behavioralchangetheories4.html on 4th September, 2022.

Maier, D. (2018). Product and process innovation: a new perspective on the organizational development. *International Journal of Advance Research and Innovative Ideas in Education*, 3(6):132-138

Marzi, G., Dabić, M., Daim, T., & Garces, E. (2017). Product and process innovation in manufacturing firms: a 30-year bibliometric analysis. *Scientometrics*, 113(2), 673-704.

MBA Skool, (2020). *Diffusion of Innovation Theory - Meaning, Importance & Example*. Retrieved from: https://www.mbaskool.com/business-concepts/marketing-and-strategy-terms/10839-diffusion-of-innovation.html on 2nd September, 2022.

Morris, M. H., Schindehutte, M. & LaForge, R. W. (2002). Entrepreneurial marketing: a construct for integrating emerging entrepreneurship and marketing perspectives. *Journal of Marketing Theory and Practice,* 10(4), 1-19.

Mrinalini, L. (n.d). *Diffusion of Innovation*. Retrieved from: https://www.yourarticlelibrary.com/innovation/diffusion-of-innovation/99839 on 2nd September, 2022.

Musa, A., & Abubakar, H. (2022). *Examining the Effect of Financial Innovation on Efficiency of Deposit Money Banks in Nigeria. Available at SSRN 4003730*.

Nilam, F. (2022). *Entrepreneurship Meaning, Types, and Importance*. Retrieved from: https://www.hashmicro.com/blog/entrepreneurship-meaning/ on 4th September, 2022.

Oladimeji, M. S., Abosede, A.J.& Eze, B.U. (2018). Innovation and Internationalization of Nigeria deposit money banks. *Emerging Market Journal*, 8(1), 1-11.

Ovat, O.O. (2012). The central bank of Nigeria's cashless policy in Nigeria: Benefits and challenges. *Journal of Economics and Sustainable Development*, 3,14,128.

Poi, E.L. & Nwokah, N.G. (2022). Inventory management and customer satisfaction of petroleum marketing firms in Rivers State: The moderating role of market orientation. *Advanced Journal of Accounting, Marketing and Management,* 8(2), 1-16.

Poi, E.L. & Okwandu, G.A. (2021) Supply chain integration and marketing performance of oil servicing firms in Nigeria. *Innovative Journal of Accounting and Management Research*, 7(1), 120-138.

Poi, E.L. & Opara, B.C. (2021). Inventory optimization and customer satisfaction of petroleum marketing firms in Rivers State. *Journal of Accounting, Marketing and Information Technology*, 8(2),118-133.

Porumboiu, D. (2021). *Product Innovation – What is it and How to do it Right*. Retrieved from: https://www.viima.com/blog/product-innovation on 4th September, 2022.

Pratt, M. (2022). *Process Innovation.* Retrieved from: https://www.techtarget.com/searchcio/definition/process-innovation on 8th September, 2022.

PWC Nigeria. (2017). *Nigeria Fintech Survey 2017.* Retrieved from https://www.pwc.com/ng/en/publications/nigeria-fintech-survey-report.html on 25th August, 2022.

Rogers, E. M. (1983). *Diffusion of Innovations*, New York, The Free Press: A Division of Macmillan Publishing Co, Inc.

Sahin, I. (2006). Detailed review of Rogers' diffusion of innovations theory and educational technology-related studies based on Rogers' theory. *Turkish Online Journal of Educational Technology-TOJET*, *5*(2), 14-23.

Sharpley, R. (2009). *Tourism Development and the Environment: Beyond Sustainability?* London, New York: Earthscan.

Sirk, C. (2020). *Diffusion of Innovation: How Adoption of New Tech Spreads*. Retrieved from: https://crm.org/articles/diffusion-of-innovations on 3rd September, 2022.

Sussie, C. M., Morgan, P. M. & Jonathan H. D. (2010). Entrepreneurial marketing: Acknowledging the entrepreneur and customer-centric interrelationship. *Journal of Strategic Marketing*, 18(4), 303-316.

United Nations General Assembly (1987) *Report of the World Commission on Environment and Development: Our Common Future*. Transmitted to the General Assembly as an Annex to document A/42/427 – Development and International Co-operation: Environment.

Willis, K. (2005). *Theories and Practices of Development*. London, New York: Routledge.

Zakaria, Z. (2001). Factors related to information technology implementation in the Malaysian Ministry of Education Polytechnic. *(Doctoral dissertation, Virginia Polytechnic Institute and State University, 2001*).