ENTREPRENEURIAL CREATIVITY AND INNOVATION: STRATEGIC INFLUENCE ON TECHNOLOGICAL ADVANCEMENT OF SMALL BUSINESSES IN NIGERIA

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Abstract
The advancement in global technological applications in businesses behoves on SMEs to tap into the numerous advantages that comes with this evolution. As a result, most SMEs are being left behind due to lack of strategic creativity and innovation, which is the ability to continuously transform knowledge and ideas into new products, processes and systems for the benefit of the firm. Hence, this study empirically examined how creativity and innovation can facilitate sustainable technological advancement of agro-allied small businesses in Delta State Nigeria. This study adopted the cross-sectional survey design, a sample size of four hundred and eighty seven (487) small businesses registered with the Delta State government. Data generated were analysed using descriptive analytical techniques, while hypothesis was tested using multiple regression. The result revealed that, creativity and innovation have capacity to facilitate technological advancement of agro-allied small businesses in Delta State Nigeria, it was therefore recommended that, efforts should be made to support the manufacturing of agro-allied indigenous technologies to promote both local manufacturers and develop innovative creation of local technologies and tools to boost agro-allied business revolution in Nigeria, also small agro-business owners should acquire relevant technical expertise to boost their ability to improvise in order to remain operational and productively grow the business.

Keywords: Creativity, Innovation, Technology, Strategic Entrepreneurship, Advancement

1.1 Introduction

Globally, small and medium enterprises (SMEs) are adjudged to possess entrepreneurial dynamism, internal flexibility and alertness to changing situations (Easterby & Prieto, 2008), which stimulates development of competencies and networks in order to overcome their limitations with regards to resources and

capabilities (Kitenga & Thuo, 2014). The strategic entrepreneurship as averred by Foss and Lyngsie (2011) is an integration of entrepreneurial capabilities and strategic advantages for survival and sustainable growth of small businesses in a turbulent business environment. Extant literature suggests that entrepreneurship goes beyond starting-up of an enterprise and maintaining the status quo, to continuing and leading the organisation to grow (Singh, 2009). Strategic entrepreneurship entails the integration of entrepreneurship and the strategic management concept (Hitt, Ireland, Camp & Sexton, 2001). While the former consists of actions for and behaviours conductive to identifying and exploiting profitable opportunities in the environment (Shane, 2000); the latter involves the set of activities designed to attain competitive advantage and realise above average results through selection of alternatives based on intelligence and facts, leading to such advantage (Akande, 2012). In essence, strategic entrepreneurship is a decision-making and managerial effort guiding process for recognizing the best opportunities (with the highest potential returns) and then for exploiting them through strategic actions.

Globally, agriculture plays a dominant role in the growth and development of every nation's economy; hence, the importance is anchored on the fact that it serves as the bedrock of survival of the human race, provides variety of food for the world's populace, earns foreign exchange revenue through export of surplus produce (Elikwu & Adio, 2015); provides raw materials for the industrial sector, promotes technological advancement and employment for ever increasing population (Akpan, Okon & Udoka, 2014). However, much remains to be learned about the inter-relationship between agriculture value chain and sustainable development of small businesses in Nigeria. Howbeit, Zubeiru (2018) states that, it is a widely recognized fact that increased productivity in agriculture increases broad base development capacity, especially in the less advanced countries. Corroborating the above assertion, it is opined that in most developing countries, agriculture is both the main traditional pursuit and the key to sustained development of modern economy, as diversification of the economy; employment and technological advancement have gone simultaneously with agricultural progress (Abayomi, 1997, Eze, 2010). Hence, any stagnation in agriculture translates to poor economic performance, while rising agricultural productivity leads to industrialization.

Nigeria, according to Onwualu (2009), is greatly endowed with variety of agricultural produces capable of stimulating the growth of agro processing industries. Agricultural value addition provides ample revenue generation and employment creation opportunities. It is an intrinsic component of the strategy towards addressing agricultural productivity, curbing post-harvest losses and ensuring food security (Adama, Obasi & Onwualu, 2006; FAO, 2012). Processing agricultural produce into several new products supports market acceptability and offers the products great economic value (Onwualu, 2012) which increases productivity and contributes to economic growth. Kaplinsky (2000) asserts that, value chains encompass range of activities needed to conceptualise a product or service and take it through intermediary stages of production and delivery to final consumers. The value chain concept is no doubt revolutionizing the agriculture industry (Lyman, 2008), as there is a focus shift to consumers' demands, marketing and products flow coordination from producers to consumers, from mere agricultural farming/production (Olagunju, Babatunde & Salimonu, 2012). Hence, value chains according to Adewumi and Alonge (2008)

resides at the centre of strong impact and sustainable ingenuities concentrated on enhancing productivity, competitive advantage and development of small businesses.

The advancement in global technological applications in businesses behoves on SMEs to tap into the numerous advantages that comes with this evolution. As a result, most SMEs are being left behind due to lack of strategic creativity and innovation, which is the ability to continuously transform knowledge and ideas into new products, processes and systems for the benefit of the firm. However, the very few SMEs in agro-allied businesses struggle to operate, manage and improve their businesses in order to consistently deliver quality products and services. A review of extant literatures showed, relationship between innovation and increase in profit margins of small businesses (Onwumere & Eleodinmuo, 2015); technological capabilities and firm innovation performance (Kalay & Lynn, 2015), however, there is dearth of literature on how creativity and innovation facilitates technological advancement of SMEs operating within the various agricultural value chains.

The question now is how can creativity and innovation facilitate technological advancement of agro-allied small businesses in Delta State Nigeria?

Based on the above, the specific objective of this study is to examine how creativity and innovation can facilitate technological advancement of agro-allied small businesses in Delta State Nigeria

Therefore, in order to achieve the specific objective, this hypothesis is formulated in the null (H_0) form for testing:

H_{01}: Creativity and Innovation have no capacity to facilitate sustainable technological advancement of agro-allied small businesses in Delta State Nigeria;

2.0 Literature Review

2.1 Concept of Creativity and Innovation

Creativity, self-reliance, and flexibility refer to an entrepreneur's capacity to be open-minded, learn quickly, and develop new capabilities and perspectives (Collura & Applegate, 2000). Previous research by Devanna and Tichy (1990) asserted that creativity is very important for the success of organisations. Thus, encouraging creativity is a strategic choice which small businesses should consider, since it creates a significant contribution to organisational innovation (Amabile, 1996). Creativity is noticeable by the capability to bring something new into being, to design into a different form, to create through ingenious skill. Creativity is not ability to produce out of nothing (only God can do that), however, it is the ability to breed new designs by merging, changing or realigning existing ideas (Okpara, 2007). Some creative concepts are astounding and wonderful, while some are just simple, noble practical ideas no one seem to have thought of yet (Harris, 1998). Creativity is also an attitude, the ability to admit modification and originality, the enthusiasm to play with designs and possibilities, a flexibility of position, the habit of appreciating the good, while considering ways to improve it (Okpara, 2007).

Creativity is the skill to effectively generate original solutions to pertinent problems, can be a basis for competitive advantage, especially in rapidly changing environments. Creativity is important to entrepreneurs because, it is the first phase in the innovation process, providing the inducement for discovering opportunities and new enterprise creation (Ndesaulwa & Kikula, 2016). As new entrants, Rebound

(2008) asserted that entrepreneurs often justify themselves upon the same dimensions as creativity: novelty, usefulness and appropriateness. Arguably, manifestation of creative abilities is the initial tasks demanded of entrepreneurs to conceive new product or market opportunities, and distinctive value propositions (Rouse, 2013). From these first acts of creativity, they are expected to build effective enterprises that can continually bring ideas to commercially valuable forms in order to survive and grow.

Innovation is described as, the introduction of new or improved processes, products or services based on new scientific or technology knowledge and/or organisational know-how (OECD, 2015). An invention is the first occurrence of an idea for a new product or process whereas innovation is the act of putting it into practice. Innovation is the process that modernises something that exist or not, the birth of something new (Gartner, 1988). According to Lawson and Samson (2001), innovation capability is the ability to constantly convert knowledge and ideas into novel products, processes and systems for the advantage of the enterprise and its stakeholders, and it includes several dimensions: vision and strategy; harnessing the competence base; leveraging information and organisational intelligence; possessing a market and customer orientation; creativity and idea management; organisational structures and systems; culture and climate, and management of technology. Terziovski (2003) viewed innovation capability as the provider of potential for effective innovation as it involves many aspects of management, leadership, technical aspects, strategic resource allocation, market knowledge, organisational incentives and others.

Innovativeness relates to recognising and acting on enterprise activities in novel and distinctive ways (Robinson, Simpson, Huefner & Hunt, 1991). Innovation denotes the creation or acceptance of an idea or behaviour new to the enterprise (Damanpour, 1996). Innovation is the distinguishing instrument of entrepreneurs as it is a means of exploiting change to accomplish different businesses or services (Mirela, 2008), and also an important factor in a firm's survival, development and business success (Utterback, 1996). According to Mirela (2008), the necessary conditions for achieving a successful innovation are: the existence of a clear strategy; the availability of all essential resources for the innovation effort; the realistic evaluation of individual's innovation potential; the detailed knowledge of market demand, the anticipation of future needs; the evaluation of innovation projects criteria; the maintenance of a close contact with beneficiaries; and the settings for limited periods of accurate objectives to which all innovating efforts should be dedicated to.

There are diverse types of innovation in business (Trott, 2008); though it can be aligned to new products or services, new production processes, new marketing techniques and new organisational structures (Rebound, 2008). Innovation can also comprise intellectual property, technology, physical activity or business (Sundbo, 2003). Ndesaulwa and Kikula (2016) opined that both product and process innovations are important towards sustainable development be it at country or organisational level. Product innovation involves the introduction of a novel or significantly enhanced good or service in terms of its proposed uses, features or qualities; including significant enhancements in its components, materials, user friendliness, incorporated softwares, technical specifications or functional characteristics (OECD, 2015). Rouse (2013) contended that product innovation generally means the organisation's process for

introducing new ideas, new products/commodities, new technology, workflows, new manufacturing methods, new services and new distribution and delivery. An important question arises at this point on what the core drivers of innovation in the business world are. In literature, the following can significantly influence business process innovations, product innovations or their combination. These include industry maturity (Utterback 1994); customer (users) needs and expectations (Hippels 1998); technological opportunities (Schumpeter, 1934); intensity of competition, investment attractiveness (Arrow, 1962; Schumpeter, 1943), business size and origin of ownership (Klepper, 1996; Petsas, 2005).

2.2 Sustainable Technological Advancement

The existence of technology such as office computers; lasers, robotics, integrated circuits and semiconductors change the manner in which businesses are conducted. This affects organisations ability to manufacture goods and services (Ganotakis & Battisti, 2006). Ndubuisi (2016) states that recently, e-business, e-commerce and e-marketing which involves employing business and marketing principles and methods via electronic media and more specifically over the internet is observed to have replaced the traditional ways in which businesses are now being conducted. As such, E-business technologies and practices are changing the tools employees' use (Maxwell & Westerfield, 2012), where they work, who they employ and their interactions with clients, customers, suppliers, managers and colleagues (Colombo & Delmastro, 2010), which require more complex skills and knowledge on how entrepreneurs should handle their businesses (Audretsch, 2011).

In order for entrepreneurs to keep pace with competitors and survive, they must pay attention to their technology and technological innovations by carefully monitoring their current developments (Andries & Debackere, 2006). Also, entrepreneurs are advised to first of all think through their ideas of introducing e-business technologies and practices and how they will affect the work process and not rush in to e-business, forgetting the work process and the training of support staff. This, Ndubuisi (2016) averred helps formulate informed decisions about investments in new technological development, required by operations and manufacturing techniques. It is proven that barely can entrepreneurship be discussed without production. Furthermore, Schumpeter in Holt (2005) postulated that the entrepreneur aims to transform or revolutionize the form of production through inventions or more broadly, an untested technological opportunity for manufacturing a new product or an existing one in an innovative way, by exploring new sources of materials supply or a new outlet for products (Adetoso, Akesinro & Oladejo, 2013).

Technology is the most distinctive ingredient of modern society, which not only determines our standard of living, but also our way of life (Afolaranmi, 2010). Moreover, following the pattern of huge wealth created by industrial means, the desire to consume more is aroused, necessitating the need for increased quality production. However, Ifeanyi (2007) argued that, the traditional technologies are less suited to meet rising expectations of wealth creation. Hence, the urgent need for emerging countries to develop their own appropriate technology; which is the how of doing something and the way an organisation transfers its inputs into outputs (Adetoso. et al., 2013). For technology to be considered appropriate, Adetoso, *et al.*, (2013) assert that such technology must be compliant with the following criteria: raw materials used can be locally sourced;

equipment and capital goods must be available; skill to operate the technology must be readily available; the size of the market must be adequate; there must be availability of utilities; and there must be availability of infrastructural facilities.

Technology affects product quality and price. Burgelman, Maidique and Wheelwright (1996) explained that a firm's strategy is communicated in the products and services it conveys to the market. Worthy of note is the fact that once technology is mentioned, the means of production is noted. Onodugo (2000) defined technology to be the procedures and techniques engaged in productive activities. Technology changes as a result of breakthroughs in research and development. The responsiveness of management to changes in technology is a determining factor with regards to the effectiveness of the firm's strategic planning. Oyedijo (2012a) observed that technology is among the most prominent factors that determine the rules of competition. A firm that does not follow up with the changing production methods may be forced out of the market. Obsolete or primitive technologies are in efficient in comparison to new technological discoveries. The outcomes of inefficiency in the application of obsolete or primitive technologies includes: high prices of products, low quality products, less quantities of products in the production runs, among others (Ohachosim, Onwuchekwa & Ifanyi, 2016). Technology has gone a long way in the improvement of management effectiveness. The fact that technology has facilitated office communication, management has overcome the biggest challenge in sending messages and receiving feedbacks.

According to Gushesh (2013) technical design is influenced by society, since human needs are seen to have cultural base. Thus, Gushesh asserts that cultures and societies have different descriptions of technology appropriate within the context of that society. This explains why modern technologies recorded to have succeeded in industrialised countries, fail in less industrialised countries, hence, the need to engage local manufacturers in participatory approaches when developing technologies appropriate to their context.

2.3 *Empirical Review*

In a study carried out by Hussain, Afzal, Asif, Ahmad and Bilal (2011) investigated the impact of increased demand, innovation and technology on entrepreneurship. The study employed a sample size of 21 respondents, while data was analysed using descriptive statistics and ANOVA. The findings show the positive relationship between increased demand and Entrepreneurship which is denoted by H1 and the Innovation and Entrepreneurship which is denoted by H2. Technology and entrepreneurship are negatively correlated in the findings, denoted by H3. Which is (β = -.014, $p < .10$) not significant. Also, the study revealed that there is a positive impact of innovation on entrepreneurship with (β = .294 $p < .001$) significance. In western culture there is the positive relationship between Technology and entrepreneurship but in Pakistan its significance show that there is inverse proportion.

Onwumere and Eleodinmuo (2015) in a study critically analyzed the innovation types and the effect on the performance of the leather based manufacturing enterprise in Abia state. The study employed the random sampling technique in selecting 120 firms into manufacturing of leather products, where data was collected using structured questionnaire. The study used statistical tools such as frequency and percentage tables, correlation analysis, probit regression and multiple regression analyses. The findings revealed that, the innovations used to enhance performance

among leather based agro-industries were product, technological innovations and market. Specifically, innovation has a positive and significant effect on the performance (profit) of the enterprise; it was recommended that the enterprise should embark on a continuous innovation to enhance their performance.

Kalay and Lynn (2015) in a recent research examined the impact of strategic innovation management practices on firm innovation performance, with focus on innovation strategy, innovation culture, organisational structure and technological capability. Data collected in 66 firms from 132 managers in the TRB2 zone manufacturing sector of Turkey were analyzed. The partial least squares structural equation modeling (PLS-SEM) method was used to test hypotheses of study. The analyses showed that innovation strategy, innovation culture and organisational structure significantly increased firm innovation performance, however, no significant impacts of technological capability.

Siyanbola, Egbetokun, Olumuyiwa, Olamade, Aderemi and Sanni (2012), in a study aimed to improve the position that Nigeria's indigenous technologies present significant opportunities for local economic transformation and to some extent, for global competitiveness. A content analysis and review of existing literature of three major indigenous technology clusters in Nigeria was done, as well as a review of three successful country cases was performed. The study revealed that, Indigenous Knowledge (IK) and Indigenous Technology (I-Tech) systems over the years have been employed in local production and Agricultural processing in Nigeria. The study recommended that, the government should facilitate and finance acquisition of modern technologies and technical knowledge for improved capabilities of SMEs and local manufactures for global competitiveness.

2.4 Value Chain Upgrading Strategy Theory

Upgrading denotes the gaining of technological capabilities, market and industry linkages that support organisations to advance their competitiveness and progress into higher-value activities (Kaplinksy & Morris 2001). Upgrading in firms can take place in the form of:

i. Process upgrading - increasing the proficiency of internal processes in order to be considerably better and give advantage over those of rivals within individual links in the chain and between the links in the chain.
ii. Product upgrading - presenting new products or enhancing the quality of old products faster than rivals. This involves changing new product development processes both within individual links in the value chain and in the relationship between different chain links.
iii. Functional upgrading – growing value added via altering the combination of activities carried out within the organisation or moving the locus of activities to diverse links in the value chain.

Upgrading involves the development of both technological capability and market access by the firm, but complementary efforts at the local and national levels are needed to stimulate both. Dolan and Humphrey (2004) explained that one of the most significant lessons of the East Asian experience is that organisations and enterprise expansion policies must consider integration into global markets as a knowledge acquisition opportunity to be maximised through concerted effort and investment by the organisations concerned, backed by public and public-private agencies.

Some aspects of technological knowledge are well articulated, written down in manuals and papers, and taught at various educational levels, while others are largely tacit, mainly learned through practice and practical example. In essence, this is knowledge that can be freely used but cannot be expressed and communicated to others. The tacit element of technological knowledge makes its transfer and subsequent application expensive and challenging. As a result, mastery of a technology may require that an organisation be active in the earlier stages of its development, the close and continuous interaction between the consumer and the manufacturer (or transferor) of such knowledge. Inter-organisational relationships are particularly needed in this context. Tacit knowledge is essential to establishing a useful grouping of economic activities.

3.1 Methodology

This study employed the deductive approach research, which involves collection of data for testing of formulated hypotheses. The choice of research design is the cross-sectional survey design used for descriptive research purpose (Saunders, Lewis & Thornhill, 2009). The population of study comprised of two thousand one hundred and fifty four (2,154) small and medium scale businesses in the twenty five local government areas of Delta State, registered with the Delta State Micro, Small and Medium Enterprise Development Agency (DSMSMEDA, 2017). The study adopted the Bartlett, Kotrlik and Higgins (2001) model, developed by Cochran (1977) in determining the minimum returnable sample size from the given population, which derived the estimated sample size as 519 respondents (65% minimum returnable rate). Thus, of the 519 copies of questionnaire administered, a total of 487 were returned and certified useable.

The instrument was validated using the content and construct validity, while, reliability or internal consistency of the items within the structure of this study was assessed by indication of Cronbach's alpha and gives the average value of 0.83 for the questionnaire. For the purpose of this study, primary and secondary data were used. While the questionnaire was used to collect the primary data from respondents, the secondary data formed the basis for the literature review of this study.

3.2 Method of Data Analysis and Model Specification

Data generated for the study were analysed using descriptive analytical techniques. The analytical techniques included the use of factor analysis and simple percentage frequency distribution tables to analyse data from the questionnaire, while the formulated hypotheses were tested using the multiple regression analysis. The evaluation of the relationship between dependent and independent variables was performed using the multiple regression technique. The first step involved defining the variables of interest.

Strategic Entrepreneurial Creativity and Innovation (SECI) represent the independent variable proxied by Creativity (CRTV) and Innovation (INNV). The model for the independent variable is stated as:

$SECI = f\ (CRTV + INNV)$

Therefore, the specific model for the independent variable adopted is:

$SECI = f\ (CRTV_1 + INNV_2)$

Sustainable Technological Advancement (*STAD)* represents the dependent variable

The econometric equation for the model is specified as

H_0: Creativity and Innovation have no capacity to facilitate sustainable

technological advancement of agro-allied small businesses in Delta State Nigeria

$STAD = \beta_0 + \beta_1 CRTV_1 + \beta_2 INNV_2 + e_1$ …….. *(1)*

Where:

STAD = Sustainable Technological Advancement
$CRTV_1$ = Creativity
$INNV_2$ = Innovation
β_0 = Unknown constant to be estimated
β_1 = Unknown coefficients to be estimated
ei = Error Term
$\beta_1 > 0$

4.1 Results and Discussion

Table 4.1: How creativity and innovation facilitates sustainable technological advancement of agro-allied small businesses in Delta State Nigeria

Variables	Agreement Scale				
	SA (%)	**A (%)**	**UN (%)**	**D (%)**	**SD (%)**
Creativity and Innovation can facilitate better usage of manual technology for various value chain processes	131 (27%)	273 (56%)	24 (5%)	44 (9%)	15 (3%)
Creativity and Innovation can facilitate ease and optimum utilization of locally manufactured technology	161 (33%)	292 (60%)	10 (2%)	19 (4%)	5 (1%)
Creativity and Innovation can facilitate productive use of modern technologies for all operation processes	141 (29%)	326 (67%)	10 (2%)	10 (1%)	5 (1%)
Creativity and Innovation can facilitate effective use of technology for optimal movement and distribution of products	170 (35%)	302 (62%)	5 (1%)	5 (1%)	5 (1%)
Creativity and Innovation can facilitate and ensures the use of technology for storage and preservation are highly effective	166 (34%)	292 (60%)	15 (3%)	5 (1%)	10 (2%)

Source: Field Survey (2018)

Table 4.1 shows analysis of data on research question two, which sought to determine whether creativity and innovation can facilitate better usage of manual labour for various value chain processes. The analysis revealed that, 27% of the respondents strongly agreed and 56% agreed with the statement, 5% remained undecided, while 9% and 3% disagreed and strongly disagreed respectively. This implies that, 83% of the sample size agreed that, creativity and innovation can facilitate better usage of manual labour for various value chain processes. On whether creativity and innovation can facilitate ease and optimum utilization of locally manufactured technology, the analysis indicates that, 33% of the respondents strongly agreed and 60% agreed with the statement, 2% remained undecided, while 4% and 1% disagreed and strongly disagreed respectively. This implies that, 94% of the sample size agreed

that, creativity and innovation can facilitate ease and optimum utilization of locally manufactured technology.

On whether creativity and innovation can facilitate productive use of modern technologies for all operation processes, 29% of the respondents strongly agreed and 67% agreed with the statement, 2% remained undecided, while 1% and 1% disagreed and strongly disagreed respectively. This implies that, 96% of the sample size agreed that, creativity and innovation can facilitate productive use of modern technologies for all operation processes. Also, on whether creativity and innovation can facilitate effective use of technology for optimal movement and distribution of products, 35% of the respondents strongly agreed and 62% agreed with the statement, 1% remained undecided, while 1% and 1% disagreed and strongly disagreed respectively. This implies that, 97% of the sample size agreed that, creativity and innovation can facilitate effective use of technology for optimal movement and distribution of products.

Finally, on whether creativity and innovation can facilitate and ensures the use of technology for storage and preservation are highly effective, 34% of the respondents strongly agreed and 60% agreed with the statement, 3% remained undecided, while 1% and 2% disagreed and strongly disagreed respectively. This means 94% of the sample size agreed that, creativity and innovation can facilitate and ensures the use of technology for storage and preservation are highly effective.

4.2 Test of hypothesis

H_{02}: Creativity and innovation have no capacity to facilitate technological advancement of agro-allied small businesses in South-South Nigeria

Table 4.2: Regression result on creativity & innovation and capacity to facilitate sustainable technological advancement

Model: $STAD = \beta_0 + \beta_1 CRTV_1 + \beta_2 INNV_2 + e_1$ ……..…….. *(1)*

Dependent Variable: STAD
Method: Least Squares
Sample: 487
Included observations: 487

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CRTV	0.027630	0.055492	3.497919	0.6188
INNV	0.350397	0.041358	8.472280	0.0000
C	0.916400	0.380658	2.407409	0.0164

R-squared	0.594043	Mean dependent var	8.732218
Adjusted R-squared	0.405957	S.D. dependent var	3.181354
S.E. of regression	2.024732	Akaike info criterion	4.263288
Sum squared resid	1930.883	Schwarz criterion	4.324349
Log likelihood	-1011.926	Hannan-Quinn criter.	4.287294
F-statistic	117.7710	Durbin-Watson stat	1.696468
Prob(F-statistic)	0.003849		

Source: Author's Computation, 2018 (E-views 9.0)

STAD = 0.92 + 0.03 CRTV + 0.35 INNV …….. (2)
SEE = 0.38: 0.06, 0.04
t^* = 2.41: 3.49, 8.47
F^* = 117.8: Prob (F-statistic) = 0.0038
R^2 = 0.594: *Adj*. R^2 0.405

From table 4.2, the calculated t-values for CRTV is 3.49 while INNV is 8.47 (STAD model) and the tabulated value is given as ±1.96, under 95% confidence levels. Since both calculated t-values are greater than the tabulated value (3.49 and 8.47 > 1.96), we therefore, reject the null hypothesis (H0). ***We conclude that creativity and innovation have capacity to facilitate sustainable technological advancement of agro-allied small businesses in Delta State Nigeria.***

Also, by examining the overall fit and significance of Sustainable Technological Advancement (STAD) model, it can be observed that the model does have a good fit, as indicated by the relatively high value of the *F*-statistic, 117.8 and it is insignificant at the 5.0 per cent level; that is, the P Value (rho value) of 0.0038 being less than 0.05 probability levels implies that there is a 0.0038 chance that the equation as a whole is not significant.

More so, the R^2 (R-square) value of 0.594043 shows that the model does have a good fit too. It indicates that about 60 percent of the variation in Sustainable Technological Advancement explained by INC, while the remaining 40 percent is captured by the error term.

4.3 Discussion of Findings

The test of hypothesis as shown in Table 4.2 shows that, the calculated t-values for creativity (CRTV) is 3.49 while innovation (INNV) is 8.47, and the tabulated value given as ±1.96, under 95% confidence levels. Therefore, since the calculated t-values are greater than the tabulated value (3.49 and 8.47 > 1.96), the null hypothesis (H_0) was rejected, which implies acceptance of the alternate hypothesis, which states that, creativity and innovation have capacity to facilitate sustainable technological advancement of agro-allied small businesses in Delta State Nigeria.

The finding is in agreement with Hussain, Afzal, Asif, Ahmad and Bilal (2011) whose study found that there is a positive impact of innovation on entrepreneurship with (β = .294 p < .001) significance. The finding is in agreement with the findings of Onwumere and Eleodinmuo (2015) whose results revealed that, the innovations used to enhance performance among leather based agro-industries were product, market and technological innovations. The study also aligns with the findings of Siyanbola, Egbetokun, Olumuyiwa, Olamade, Aderemi and Sanni (2012), whose finding revealed that, indigenous knowledge (creativity and innovation) and indigenous technology (I-Tech) systems over the years have been employed in local production and agricultural processing in Nigeria. However, the finding of the study was in contrast to the findings of Kalay and Lynn (2015), whose finding showed that that innovation strategy, organisational structure and innovation culture had no significant impacts on technological capability.

5.1 Conclusion and Recommendation

Based on finding of hypothesis 2, the study concludes that, innovation and creativity has capacity to facilitate technological advancement of agro-allied small businesses in South-South Nigeria. This is confirmed by the analysis of research question two which shows that, innovation and creativity as indicators of strategic entrepreneurship management can facilitate better usage of

manual labour for various value chain processes; ease and optimum utilization of locally manufactured technology, productive use of modern technologies for all operational processes; effective use of technology for optimal movement and distribution of products; and can also the use of technology for storage and preservation.

Since the finding revealed that, creativity and innovation have capacity to facilitate technological advancement of agro-allied small businesses in Delta State Nigeria, it is therefore recommended that;

i. Since the focus of the government is on agriculture as a viable means of diversifying the mono economic nature of Nigeria, it is recommended that, concerted effort should be channelled towards incentivising participation to stimulate creative and innovative ideas to transform the agricultural sector into the theatre of technological innovations for sustainable development of small businesses.

ii. Since the findings revealed that majority of the respondents make use of manual and locally manufactured technology for operational processes, it is recommended that efforts should be made to support the manufacturing of agro-allied related indigenous technology to promote both local manufacturers and develop innovative and creation of local technologies and tools to boost agro-allied business revolution in Delta State Nigeria.

iii. Since it has been established that supportive infrastructure and needed resources are grossly inadequate, it is therefore recommended that agro-allied small business owners and entrepreneurs should acquire relevant technical expertise to boost their creative and innovative efforts to improvise in order to remain operational and productively grow the business.

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