



Strategies for Advancing Entrepreneurship in a Volatile Business Environment through Artificial Intelligence in Delta State

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ABSTRACT

The main purpose of this study was to examine strategies for advancing entrepreneurship in a volatile business environment through artificial intelligence among businesses in Delta State. Two research questions were raised and two null hypotheses formulated for the study. A descriptive survey design was adopted for this study. The population for the study consisted of 4,124 respondents, made up of 2,062 Employers and 2,062 Employee's from the 2,062 registered Entrepreneurships operating in Delta State. The systematic random sampling technique was employed to select a sample size of 1,238 respondents made up of 619 Employers and 619 Employee's, representing 30% of the population. However, after the distribution of the questionnaire, 1,120 were retrieved and used for the study. Advancing Entrepreneurship through Artificial Intelligence Questionnaire (AEAIQ) was used as the instrument for data collection, containing 15-items. The questionnaire was structured on a five-point Likert rating scale. The face-validity of the research instrument was determined by three experts while the reliability of the instrument yielded a .86 coefficient using Cronbach Alpha Reliability Method. The data collated were analyzed using mean to answer the research questions. However, a t-test statistic was used to test the null hypotheses at a 0.05 level of significance. It was found that the strategies of artificial intelligence of machine learning, visual processing, internet and mobile devices can be used to advance entrepreneurship in a volatile business environment among businesses in Delta State. Amongst others, it was recommended that Potential AI applications in entrepreneurship are therefore recommended in all entrepreneurship.

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INTRODUCTION

The quest for survival, global relevance, maintenance of existing market share and sustainable development have made the exploitation of many advantages of information technology through the use

of automated devices imperative in the business industry. (Adewuyi, 2011). With the development of information technology, the world has become a global village and it has brought a revolution in



businesses. Entrepreneurship appears to be on a fast track for Information Technology (IT) based products and services. Customers are becoming very demanding and it is the extensive use of technology that enables businesses to satisfy adequately the requirement of customers. Technology has become the fuel for rapid change. IT is no longer considered as mere transaction processing or confined to a management information system. The wind of liberalization, globalization, and privatization has opened new vistas in entrepreneurship in the generation of an intensely competitive environment, (Afua 2003).

Among the various IT breakthroughs of recent years, the advancement in Artificial Intelligence (AI) is particularly remarkable. In short, AI refers to computers having cognitive skills similar to humans, which could result in immense efficiency gains for firms and their clients alike. The financial sector has been one of the early experimenters with AI technologies, not least due to its likely contribution to stronger profitability. It is therefore essential to take a closer look at the potential role of AI in banks' digital transformation.

Artificial Intelligence, while far from mature, has finally come of age. In recent years, the confluence of a multitude of factors has accelerated the evolution of AI, which had seen alternating periods of advancement and inactivity in the six decades since it came into being. This appreciation and evolution of AI have had a tailwind in that the key building blocks of AI – machine learning, natural language processing, visual processing, and robotics – advanced rapidly at the same time. This combined with the data and computing

power built over the years drove a spurt of innovation never seen before.

Today, AI is at a crucial juncture in banking. Although banks didn't take long to recognize this emerging trend, they have been relatively slow in adopting and applying the technology. This is largely due to a limited understanding of the technology building blocks, lack of expertise to implement and manage AI, and a fear of change among bank employees. However, with innovative companies and consumers being ahead in the curve, banks can hardly take the wait and watch approach. (Chahira, 2018).

Artificial intelligence is a cutting-edge technology that has been at the forefront of the technological revolution worldwide. Owing to the greater acceptance of new technological innovations, the artificial intelligence sector had been developing at an unprecedented pace and is being applied in many walks of life. (Amer, 2018). According to Omeje (2008), entrepreneurship as the process of creating something new with value by devoting the necessary time and effort, assuming the accompanying financial, psychic and social risks and receiving the suiting rewards of monetary/ personal satisfaction and independence. The main function of entrepreneurship is to inculcate into an individual the creativity enthusiasm, willingness and ability to seek investment opportunities, established and run a business venture successfully applying acquired entrepreneurial skills. It involves all different kinds of activities that have to do with the establishment and operation of a business enterprise. It also entails venturing into activities where others will fear to engage in and the preparedness to take risks associated with a business enterprise.



Entrepreneurship of the 21st century operates in a complex and competitive environment characterized by changing factors and highly unpredictable climate, thus, information and communication technology is at the centre of this global curve as an absorber and to provide a cooling effect. Hence, the researcher studied strategies for advancing entrepreneurship in a volatile business environment through artificial intelligence among businesses in Delta State.

As well as being driven by consumer demand and a need to cut costs, AI is emerging in entrepreneurship to enjoy better access to improved technology and lower costs for processing tools and data storage than ever before. Artificial Intelligence is expected to be one of the most prevalent technologies of our times that are slowly getting integrated into every aspect of our daily life.

Huge progress in computer hardware, software and internet technologies have irreversibly changed our societies. It is now difficult to imagine an economic agent without computers, the internet or mobile devices. The pace at which AI is evolving offers great opportunities to expand the client base, introduce new products or improve existing ones and increase efficiency in a relatively short period among entrepreneurship. On the other hand, if entrepreneurship misses out on the current AI wave, it might be overtaken by events soon. More so, society is entering an age of reliance on artificial intelligence as opposed to actual intelligence. Therefore, the researcher examined strategies for advancing entrepreneurship in a volatile business environment through artificial intelligence among businesses in Delta State.

Purpose of the Study

The purpose of the study was to examine strategies for advancing entrepreneurship in a volatile business environment through artificial intelligence among businesses in Delta State. This purpose is expressed in the following specific objectives:

1. To examine machine learning and visual processing as strategies for advancing entrepreneurship in a volatile business environment among businesses in Delta State.
2. To examine internet and mobile devices as strategies for advancing entrepreneurship in a volatile business environment among businesses in Delta State.

Research Questions

The following research questions guided the study:

1. What strategies can be used for advancing entrepreneurship through machine learning and visual processing in a volatile business environment among businesses in Delta State?
2. What strategies can be used for advancing entrepreneurship through the internet and mobile devices in a volatile business environment among businesses in Delta State?

Hypothesis

This null hypothesis was tested at a 0.05 level of significance:

Ho₁: There is no significant difference between the mean responses of employers and employees on the strategies that can be used for advancing entrepreneurship through machine learning and visual processing in a volatile business



environment among businesses in Delta State.

Ho2: There is no significant difference between the mean responses of employers and employees on the strategies that can be used for advancing entrepreneurship through the internet and mobile devices in a volatile business environment among businesses in Delta State.

METHODOLOGY

A descriptive survey design was adopted for this study. The population for the study consisted of 4,124 respondents, made up of 2,062 Employers and 2,062 Employee's from the 2,062 registered Entrepreneurships operating in Delta State. The systematic random sampling technique was employed to select a sample size of 1,238 respondents made up of 619 Employers and 619 Employee's, representing 30% of the population. However, after the distribution of the

questionnaire, 1,120 were retrieved and used for the study.

Advancing Entrepreneurship through Artificial Intelligence Questionnaire (AEAIQ) was used as the instrument for data collection, containing 15-items. The questionnaire was structured on a five-point Likert rating scale. The face-validity of the research instrument was determined by three experts while the reliability of the instrument yielded a .86 coefficient using Cronbach Alpha Reliability Method. The data collated were analyzed using mean to answer the research questions. However, a t-test statistic was used to test the null hypotheses at a 0.05 level of significance.

RESULTS

Research Question One: What strategies can be used for advancing entrepreneurship through machine learning and visual processing in a volatile business environment among businesses in Delta State?

Table 1: Mean Responses of Respondents on the Strategies that can be used for Advancing Entrepreneurship through Machine Learning and Visual Processing in a Volatile Business Environment

S/N	Item Statement	N	Mean	Remark
1	Artificial intelligence offers customers more personalized services to cater to their needs in a volatile business environment	1120	3.60	Agree
2	Artificial intelligence can significantly reduce the cost of entrepreneurship services. in a volatile business environment	1120	3.90	Agree
3	Machines of artificial intelligence aids in recognizing security threats for advancing entrepreneurship in a volatile business environment	1120	3.74	Agree
4	Machine learning and its operations give room for lesser human errors for entrepreneurship in a volatile business environment.	1120	3.64	Agree
5	Visual processing can enable and accelerate the automation of all entrepreneurship processes	1120	3.81	Agree
6	Artificial intelligence systems can identify abnormalities in entrepreneurship for advancement in a volatile business environment	1120	3.62	Agree
	Weighted Mean		3.72	Agree

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Table 1 shows that all items regarding the strategies that can be used for advancing entrepreneurship through machine learning and visual processing in a volatile business environment among businesses in Delta State were responded to as agreed. Therefore, since the weighted mean is 3.72 which is within the boundary limit of agreed, this shows that the various strategies aforementioned can be used for

advancing entrepreneurship through machine learning and visual processing in a volatile business environment among businesses in Delta State.

Research Question Two: What strategies can be used for advancing entrepreneurship through the internet and mobile devices in a volatile business environment among businesses in Delta State?

Table 2: Mean Responses of Respondents on the Strategies that can be used for Advancing Entrepreneurship through Internet and Mobile Devices in a Volatile Business Environment

S/N	Statement	N	Mean	Remark
7	The utilization of internet facilities can advance entrepreneurship in a volatile business environment.	1120	3.52	Agree
8	Mobile banking activities engaged by entrepreneurship is made possible by mobile devices for effective service delivery in a volatile business environment	1120	3.87	Agree
9	POS utilizes the internet for business transactions in entrepreneurship for advancement in a volatile business environment	1120	3.68	Agree
10	The Internet enables entrepreneurship to reach businesses in different countries with ease serving as a boost in a volatile business environment	1120	3.64	Agree
11	Mobile phones engender e-payments in entrepreneurship which advances them in a volatile business environment	1120	3.72	Agree
12	Mobile devices are potential strategies for advancing entrepreneurship in a volatile business environment	1120	4.00	Agree
	Weighted Mean		3.74	Agreed

Table 2 shows that all items regarding the strategies that can be used for advancing entrepreneurship through the internet and mobile devices in a volatile business environment among businesses in Delta State were responded to as agreed. Therefore, since the weighted mean is 3.74 which is within the boundary limit of agreed, this shows that the various strategies aforementioned can be used for advancing entrepreneurship through the internet and mobile devices in a volatile

business environment among businesses in Delta State.

Hypothesis Testing

H₀₁: There is no significant difference between the mean responses of employers and employees on the strategies that can be used for advancing entrepreneurship through machine learning and visual processing in a volatile business environment among businesses in Delta State



Table 3: Two-tailed t-test Result of Mean Responses of Employers and Employees on the Strategies that can be used for Advancing Entrepreneurship through Machine Learning and Visual Processing in a Volatile Business Environment

S/N	Employers n=560		Employees n=560		Df	t-cal	t-crit	Decision
	\bar{X}	SD	\bar{X}	SD				
1	4.15	1.07	3.97	1.11	1118	2.65	>1.96	NS
2	4.22	0.90	4.33	0.74		-2.22	<1.96	NS
3	4.31	0.81	4.32	0.84		-0.30	<1.96	NS
4	3.93	1.04	3.96	1.01		-0.46	<1.96	NS
5	4.04	0.95	3.95	1.04		1.42	<1.96	NS
6	3.57	1.33	3.63	1.28		-0.73	<1.96	NS
GM	3.81	1.08	3.82	1.11		-0.03	<1.96	NS

The data in Table 3 showed the analysis of the t-test used in testing the hypothesis of no significant difference between the mean responses of employers and employees on the strategies that can be used for advancing entrepreneurship through machine learning and visual processing in a volatile business environment among businesses in Delta State. The grand mean of the calculated t-value of -0.03 at 1118 degree of freedom is less than the t-table value of 1.96 at 0.05 level of significance. Based on the result, the null hypothesis of no significant difference between the mean responses of employers and employees on the strategies

that can be used for advancing entrepreneurship through machine learning and visual processing in a volatile business environment among businesses in Delta State is therefore accepted. This means that Employers and Employees did not respond differently.

Ho₂: There is no significant difference between the mean responses of employers and employees on the strategies that can be used for advancing entrepreneurship through the internet and mobile devices in a volatile business environment among businesses in Delta State

Table 4: Two-tailed t-test Result of Mean Responses of Employers and Employees on the Strategies that can be used for Advancing Entrepreneurship through Machine Learning and Visual Processing in a Volatile Business Environment

S/N	Employers n=560		Employees n=560		Df	t-cal	t-crit	Decision
	\bar{X}	SD	\bar{X}	SD				
1	4.22	1.09	3.88	1.15	1118	2.66	>1.96	NS
2	3.79	1.15	3.92	1.09		-1.81	<1.96	NS
3	3.55	1.07	3.51	1.11		0.61	<1.96	NS
4	3.49	1.25	3.49	1.13		1.43	<1.96	NS
5	4.04	0.95	3.95	1.04		1.42	<1.96	NS
6	3.57	1.33	3.63	1.28		-0.73	<1.96	NS
GM	3.82	1.07	3.79	1.10		-0.04	<1.96	NS



The data in Table 3 show the analysis of the t-test used in testing the hypothesis of no significant difference between the mean responses of *employers and employees on the strategies that can be used for advancing entrepreneurship through the internet and mobile devices in a volatile business environment among businesses in Delta State*. The grand mean of the calculated t-value of -0.04 at 1118 degree of freedom is less than the t-table value of 1.96 at 0.05 level of significance. Based on the result, the null hypothesis of no significant difference between the mean responses of *employers and employees on the strategies that can be used for advancing entrepreneurship through the internet and mobile devices in a volatile business environment among businesses in Delta State* is therefore accepted. This means that Employers and Employees did not respond differently.

DISCUSSION

The result of the study revealed that all items regarding the strategies that can be used for advancing entrepreneurship through machine learning and visual processing in a volatile business environment among businesses in Delta State were responded to as agreed. More so, there is no significant difference between the mean responses of employers and employees on the strategies that can be used for advancing entrepreneurship through machine learning and visual processing in a volatile business environment among businesses in Delta State. In corroborating these findings, Bathaee (2018) noted that artificial intelligence of machine learning and visual processing is being tested for real-time identification and prevention of fraud in online transactions among

entrepreneurship. Indeed, credit card fraud has become one of the most prevalent forms of cybercrime in recent years, which is exacerbated by the strong growth in online and mobile payments. To identify fraudulent activities, AI algorithms check the plausibility of clients' credit card transactions in real-time and compare new transactions with previous amounts and locations. AI blocks transactions if it sees risks in businesses.

The result from research question two and hypothesis two showed that all items regarding the strategies that can be used for advancing entrepreneurship through the internet and mobile devices in a volatile business environment among businesses in Delta State were responded to as agreed. More so, there is no significant difference between the mean responses of employers and employees on the strategies that can be used for advancing entrepreneurship through the internet and mobile devices in a volatile business environment among businesses in Delta State. To support these findings, Autor (2015) stated that artificial intelligence of internet and mobile devices enables entrepreneurship to deliver better experiences to their customers, all with lower costs, reduced risks, and increased revenues. Entrepreneurship needs to pay attention to technological advancements within the AI landscape and plan for what's to come. What may be recognized as "amazing" today will be commonplace shortly, which is why entrepreneurship needs to remain relevant in the mobile app market.

CONCLUSION AND RECOMMENDATIONS

Based on the findings of the study, it was concluded that the strategies of artificial intelligence of machine learning,



visual processing, internet and mobile devices can be used to advance entrepreneurship in a volatile business environment among businesses in Delta State.

Based on the findings, the following recommendations were made:

- a) For entrepreneurship, data is essential to almost all business lines, from traditional deposit-taking and lending to investment banking and asset management. Autonomous data management without human involvement therefore offers great opportunities for entrepreneurship to improve speed, accuracy and efficiency. Potential AI applications in entrepreneurship are therefore recommended in all entrepreneurship.
- b) Financial technology is recommended for entrepreneurship. Some existing financial technology tools evolve as true AI solutions over time, too. Good examples include Robo-advisors that enable full automation in certain asset management services and online financial planning tools that help customers make more informed consumption and saving decisions. As these financial technology solutions mature, they increasingly use techniques that search data and find patterns in them autonomously.

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