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Information Technology and the Business Communities: A Case Study of Small-scale Business Enterprises in Nigeria

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Abstract: The world is fast becoming a global village and a necessary tool for this process is information technology. Thus, this study examined the impact of information technology on the economies of small-scale business enterprises, specifically on business growth and income flow, job creation, efficient business management and crime rate reduction. Survey approach was adopted and data was collected from 1000 respondents randomly selected from some commercial communities in Nigeria; Lagos, Abuja, Benin, Ekpoma, Auchi, Ajaokuta and Okpella, using the questionnaire alongside personal interview. The Chi- Square (X^2) statistic was used as an inferential tool. This was used to test the hypothesis formulated in the course of the study. Findings generally indicate that information technology has impact on small-scale business enterprises in terms of business growth and income flow, job creation, efficient business management and drastic reduction of fraudulent activities in business. Thus, it was concluded that the benefits of information technology to small-scale business enterprises cannot be overemphasized. However, information technology resources are still underutilized in the rural areas. Hence, focus should be shifted to optimum utilization of information technology resources for the benefits of all small-scale business enterprises in Nigeria.

Key words: Chi-square, enterprises, hypothesis, information technology, Internet, respondents and small-scale business

INTRODUCTION

Due to globalization of the economy, emergency of information technology, growth of the Internet and other communication network, growing diversity of business transactions and increased competition, companies are changing the way they communicate with new processes that sharpen business performance. The Internet is becoming the foundation for new business models, process and new ways of knowledge distribution (Laudon and Laudon, 2000).

Small-scale enterprises now use the Internet and networking technology to conduct more of their work electronically, reliable linking factories, offices and sales forces around the globe (Dave, 2000). This communication evolution is governed by applied infrastructures with converged services and integrated application (Lucas and Jack, 1994). The convergence of information technology is an important trend influencing both current and future markets, industry and technology (James, 2004). Companies such as the shops, banks and institution interviewed, are extending these networks to suppliers, customers and other groups outside the organization to enable them respond instantly to customer demands and market shifts.

Undoubtedly, information technology is bringing about changes in organization that make firms even more dependent than in the past when it depends solely on the knowledge, learning and decision making of individual employees. Besides, customer service, operation, products and marketing strategies, and distribution are heavily dependent on information technology (Brain and Stacey, 2001).

This research work examines the impact of information technology on the economics of small-scale business enterprises. This is to ascertain the level at which information technology has transformed business processes for specific and applications; efficient business management, crime rate reduction, job creation and improved security of information systems. This will help make available the right kind of information at the right time place for optimum utilization of available resources to enhance the quality of life in the human society.

MATERIALS AND METHODS

In the study, a statistical approach was adopted. Responses from the various business/institutions; shops, factories, eatery, markets, banks, fuel station, bakery, schools, cyber cafe, hospital, poultry, boutique, salon,

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phone call centers, guest houses and sport centers via the questionnaire in some selected cities in Nigeria for over 11 months in 2008 were technically examined and conclusion drawn in line with the hypothesis formulated.

Theoretical Background: The discipline of information theory came into focus with Claude E. Shannon's classical paper, "A mathematical theory of communication" in 1948. This theory deals with the amount of information and does not handle the meaning of information. Similarly, the theory failed to provide necessary help in the design of an information system. As a result, the initial interest on information theory declined. However, the discipline starts to gain widespread acceptance only in the last few years. This is attributed to the fact that information technology now provides the support necessary to build an information system that serves best for some specific and application (David, 1992).

Information technology, as defined by the Information Technology Association of America (ITAA), is the study, design, development, implementation, support or management of computer based information systems, particularly software applications and computer hardware. Basically, information technology deals with the use of electronic computers and computer software to convert, store, protect, process, transmit and securely retrieve information. Examples of information technology include; personal digital assistant, personal computers, telephones, televisions etc (Brain and Stacey, 2001).

Today, the terms information technology has ballooned to encompass many aspects of computing and technology, and the term is more recognizable than ever before. The end objective is to make the effective and efficient use of information to resolve uncertainly and enhance productivity at each level; individual, society and government (Charlse, 2001). On this theoretical background is the hypothesis formulated.

Hypothesis: Two types of hypothesis were formulated in this study; Null hypothesis (Ho) and Alternatively hypothesis (H_1).

Null Hypothesis: Information Technology does not have positive impact on small-scale business enterprise.

Alternatively hypothesis: Information technology has positive impact on small-scale business enterprises.

Decision Rule: When the observed chi-square (X^2) is greater than the critical chi-square (X^2) from tables of chi-square, Hi is accepted and Ho is rejected and vice versa. This decision is similar to (Salami and Usman, 2008).

Data Analysis and Interpretation of Results: The data from this research were analyzed and results interpreted in line with the research questions;

Research Question 1: Does the Introduction of Information Technology have impact on small-scale business enterprises?

From Table 1, the expected frequencies in brackets are calculated using the formula (Egbule and Okobia, 2007).

$$E = \frac{\text{Row total x column total}}{\text{Grand Total}} \quad (1)$$

Where, E = expected Frequency and Grand Total = 1000

ROW I: For observed frequency = 126, using equation (1);

$$E = \frac{256 \times 287}{1000} = 73$$

For observed frequency = 92,

$$E = \frac{256 \times 281}{1000} = 72$$

For observed frequency = 28,

$$E = \frac{256 \times 188}{1000} = 48$$

For observed frequency = 16,

$$E = \frac{256 \times 244}{1000} = 62$$

ROW II:
For observed frequency = 70,

$$E = \frac{190 \times 287}{1000} = 55$$

For observed frequency = 80,

$$E = \frac{190 \times 281}{1000} = 53$$

For observed frequency = 17,

$$E = \frac{190 \times 188}{1000} = 36$$

For observed frequency = 23,

$$E = \frac{190 \times 244}{1000} = 46$$

ROW III:

For observed frequency = 12,

$$E = \frac{280 \times 287}{1000} = 80$$

For observed frequency = 15,

$$E = \frac{280 \times 281}{1000} = 79$$

For observed frequency = 103,

$$E = \frac{280 \times 188}{1000} = 53$$

For observed frequency = 150,

$$E = \frac{280 \times 244}{1000} = 68$$

ROW IV:

For observed frequency = 65,

$$E = \frac{147 \times 287}{1000} = 42$$

For observed frequency = 67,

$$E = \frac{147 \times 281}{1000} = 41$$

For observed frequency = 10,

$$E = \frac{147 \times 188}{1000} = 28$$

For observed frequency = 5,

$$E = \frac{147 \times 244}{1000} = 36$$

ROW V:

For observed frequency = 20,

$$E = \frac{127 \times 287}{1000} = 36$$

For observed frequency = 27,

$$E = \frac{127 \times 281}{1000} = 36$$

For observed frequency = 30,

$$E = \frac{127 \times 188}{1000} = 24$$

For observed frequency = 50,

$$E = \frac{127 \times 244}{1000} = 31$$

Applying the chi-square (X^2) statistic as presented in (Omorogiuwa, 2006);

$$X^2 = \sum \frac{(O - E)^2}{E} \quad (2)$$

Where, O = observed frequency
E = expected frequency
By substituting into equation (2) above;

$$X^2 = \frac{(120-73)^2}{73} + \frac{(92-72)^2}{72} + \frac{(28-48)^2}{48} + \frac{(15-62)^2}{62} + \frac{(70-55)^2}{55} + \frac{(80-53)^2}{53} + \frac{(17-36)^2}{36} + \frac{(23-46)^2}{46} + \frac{(12-80)^2}{80} + \frac{(15-79)^2}{79} + \frac{(103-53)^2}{53} + \frac{(150-68)^2}{68} + \frac{(65-42)^2}{42} + \frac{(67-42)^2}{42} + \frac{(10-28)^2}{28} + \frac{(5-36)^2}{36} + \frac{(20-36)^2}{36} + \frac{(27-36)^2}{36} + \frac{(30-24)^2}{24} + \frac{(50-31)^2}{31}$$

$X^2 = 30.03+5.6+8.3+34.1+4.1+13.8+10.0+11.5+57.8+51.8+47.2+98.9+12.6+16.5+11.6+26.7+7.1+2.3+1.5+11.6$

$X^2 = 463.2$

The degree of freedom is given by

$$df = (r-1)(c-1) \quad (3)$$

Where, r = Number of Rows and
c = Number of Columns

Table 1: Impact of information technology on business growth and income flow

S/N	Items	Strongly Agree	Agree	Disagree	Strongly Disagree	Row Total
1.	Information technology has improved the standard of small-scale business enterprise	120 (73)	92 (72)	28 (48)	16 (62)	256
2.	Every unit of a business has benefited from Information Technology	70 (55)	80 (53)	17 (36)	23 (46)	190
3.	Information Technology is of no positive Impact to small-scale business enterprises	12 (80)	15 (79)	103 (53)	150 (68)	280
4.	Information Technology has attracted more customers to all business enterprises	65 (42)	67 (41)	10 (28)	5 (36)	147
5.	Information Technology is meant for larger scale business enterprises and not for small-scale business enterprises.	20 (36)	27 (36)	30 (24)	50 (31)	127
	Column Total	287	281	188	244	1000

*Observed $X^2 = 463.3$, critical $X^2 = 21.026$, $\mu = 0.05$, df = 12.

Table 2: Job opportunities using Information Technology

S/N	Items	Strongly Agree	Agree	Disagree	Strongly Disagree	Row Total
1.	Information technology has provided a source of income to many young school leavers	201 (149)	152 (119)	35 (78)	29 (77)	417
2.	Information Technology provide holidays jobs for many students	116 (107)	101 (86)	39 (52)	44 (56)	300
3.	Drastic Reduction of mass unemployment since the application of Information technology in business.	40 (101)	33 (81)	98 (49)	112 (52)	283
	Column Total	357	286	172	185	1000

*Observed chi-square $X^2 = 273.6$, critical $X^2 = 12.592$, df = 6, $\mu = 0.05$.

Table 3: Information Technology in efficient business management

S/N	Items	Strongly Agree	Agree	Disagree	Strongly Disagree	Row Total
1.	Information technology enhance proper planning and execution of business strategies	102 (90)	96 (92)	17 (28)	30 (35)	245
2.	Information technology helps to improve on the skills of business-men	90 (71)	90 (72)	6 (22)	7 (28)	193
3.	Business-men are now more time conscious with the advent of information technology	78 (74)	87 (75)	15 (23)	21 (29)	201
4.	Information Technology discourages unwarranted journey.	97 (132)	102 (135)	76 (41)	86 (52)	361
	Column Total	367	375	114	144	1000

*Observed chi-square $X^2 = 120.4$, critical $X^2 = 16.919$, df = 9, $\mu = 0.05$

Table 4: Information technology to fight business fraud

S/N	Items	Strongly Agree	Agree	Disagree	Strongly Disagree	Row Total
1.	Information technology is a weapon for combating fraudulent activities in business	76 (58)	90 (54)	18 (42)	25 (55)	209
2.	Information technology encourages dishonesty in business	39 (78)	45 (72)	17 (57)	112 (75)	283
3.	Only the rich can effectively utilize information technology to fight crime	25 (66)	32 (61)	86 (49)	97 (64)	240
4.	The use of information technology assist in reporting fraudsters to law enforcement agencies	136 (74)	89 (69)	12 (54)	31 (71)	268
	Column Total	276	256	203	265	1000

*Observed chi-square $X^2 = 320.5$, Critical chi-square $X^2 = 16.919$. df = 9; $\mu = 0.05$

From Table 1, r = 5 and c = 4. \ df = (5-1) (4-1) = 12
Critical value of chi-square $X^2 = 21.026$ (from tables) at a testing value $\infty = 0.05$

These results shows that the observed chi-square $X^2 = 463.2$ (from calculation), is greater than the critical value of chi-square $X^2 = 21.026$ (from tables), at a testing value of $\mu = 0.05$ and degree of freedom df = 12. This indicates a significant relationship and it implies that information technology has a positive impact on business growth and generally increases income flow.

Research Question 2: Does the introduction of Information Technology in small-scale business enterprises provide more job opportunities for unemployed Nigerians?

The results of Table 2, show that Null hypothesis (Ho) is rejected and alternatively hypothesis (Hi) is accepted. The observed value of chi-square X^2 equal 273.6 (from calculation not shown for convenience), is greater than the critical value of chi-square $X^2 = 12.592$ (Table 2), at a degree of freedom df = 6, using a testing value $\mu = 0.05$. This indicates a significant relationship implying that the introduction of information technology in business provides more job vacancies for unemployed Nigerians.

Research Question 3: Of what relative impact is the introduction of Information Technology in efficient business management?

The results show that the null hypothesis (Ho) is rejected while the alternatively hypothesis (H_1) is accepted. The observed chi-square $X^2 = 120.4$ is greater than the critical value of chi-square $X^2 = 16.919$ (Table 3), at a degree of freedom df = 9, using a testing value of $\mu = 0.05$. This indicates a significant relationship, which implies that the introduction of information technology helps in efficient business management.

Research Question 4: Has the introduction of information technology reduced the rate of Fraudulent activities in business?

The results show that alternatively hypothesis (H_1) is accepted and the Null hypothesis is rejected. The observed chi-square ($X^2 = 320.5$) is greater than the critical value of chi-square ($X^2 = 16.919$) (Table 4) at a degree of freedom df = 16 using $\mu = 0.05$. This indicates a significant relationship, which implies that information technology has reduced the rate of fraudulent activities in business.

DISCUSSION

The findings of this study provide useful answers to the research questions. On the impact of information technology resources on business growth, general income flow and job creation, results of the study show that a majority of small-scale enterprises have immensely benefited in these areas. It was obvious that some of the respondents engage in retailing of GSM materials and other information technology resources, alongside their goods and services. This invariably, contributes to business growth, general flow of income and provision of jobs for the unemployed.

On the impact of information technology on business and efficient time management, some respondents generally agreed as seen in Table 1-4 using the alternative hypothesis method that it was positive. However, it was discovered that inspite of the use of information technology for business promotions, most business men still lack efficiency in service delivery. This may be attributed to poor business skills or inadequate background. It is therefore not surprising that positive changes in business management are still not achieved. However, it could be hoped that modern information technology will help to sharpen the sense of business and time management skills.

CONCLUSION

In conclusion, information technology has improved small-scale business enterprises in Nigeria. In order to consolidate on the present level of achievement of information technology in business, much more improvement must be welcomed. These include; improvement in the level of information technology services rendered to business enterprises, wide coverage (especially in the rural areas), reduction in tariff and better connectivity.

In line with the research findings, it is recommended that information technology service providers should intensify effort to make maximum use of the high penetration by business enterprises. This invariably, will help to enlighten the populace on the benefits attached to the applications of information technology.

The tariff of all the service providers is too high. Consequently, this reduces the number of users that go online for Internet marketing. In order to reverse this trend, it is recommended that the charge deducted by the service providers should be reduced to encourage more small-scale business enterprises in Nigeria.

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