

Determining the Feasibility and Viability of Establishing a New Computer Center in Obe Enugu State Nigeria

¹Agu Philemon and ²Nnamani Emeka

¹Department of Business Administration and Management,
Institute of Management and Technology (IMT), Enugu, Nigeria
²Department of Business Administration, Faculty of Management Sciences,
Enugu State University of Science and Technology (ESUT), Enugu, Nigeria

Abstract: The main objective of this paper is to determine whether it is technologically, financially, economically and legally feasible to establish a new computer center in Obe, Enugu State of Nigeria. In Nigeria, most of the computer center installations are located in the cities. There is the need to establish whether a computer center can run at a profit in a town in Enugu state Nigeria. It was established that there is a market for the computer center both from the public and private sectors in the state. It was felt that it was better to run the center as a limited liability company for the advantages of being a going concern and possibility of raising capital. A tentative management structure was designed. The project was found to be technologically feasible as there are reliable hardware and software in some computer supply companies in Nigeria. It was found to be financially feasible, having a Profitability Index of 121.57% and an Accounting Rate of Return of 67.07%. It was also found to be economically and legally feasible and so the project was recommended to be embarked upon.

Key words: Production • Business Environment and Profit

INTRODUCTION

As at 1967, there were over 1,200 areas of computer applications in modern society ranging from Law, Government, Sports, National defence, Music, Languages, Games, Business and Technology [1]. The use of computers continues to be felt in many aspects of human endeavour in the advanced countries and adequate hardware and software abound in all the application areas. However, peculiar problems confront the computer industry in the developing countries. Most of these countries lack continuous and stable electricity supply. This damages most computers easily and in a situation where spare parts are either not available or are in short supply, most computer installations are not functional some of the times. Also often times the computer vendors in developing countries make the selling prices so high that they become practically unaffordable and good after-sales services are sometimes not provided [2].

The use of computers in both the private and public sectors of the economy is an idea whose time has come. It has been suggested and rightly too that the strategy of

developing nations should not be in competition to develop new hardware at this point in time but to develop suitable software to meet the peculiar needs of the third-world countries [3].

There is also the need to take advantage of all available software packages that have been developed worldwide and are suitable to the experiences of the developing nations.

Two urgent approaches have been suggested for developing nations; the first is to utilize existing programmes which can assist them to optimize their limited resources and the second is to promote the development of the programmes which only third-world countries need as of now [4].

The use of computers in resource allocation needs exhaustive examination because the amount of available resources and their utilization account for much of the differences between developed and developing nations like Nigeria. Computer center installations in Nigeria have been increasing from 30 in 1970, 70 in 1977, 82 in 1979, 414 in 1983, 635 in 1984, to 975 in 1985, 1200 in 2005 and 1500 in 2014. The actual number of computers in the country in

those years has been estimated to be up to five times the number for computer center installations. There has been a growing awareness of the need to use computers to improve the timeliness of operations, handle large volumes of data and improve information storage and retrieval for management in both the private and public sectors of the Nigerian economy. Most of the computer center installations in Nigeria are located in the cities. There is the need to establish whether a computer center can be run at a profit in a town in Nigeria.

Aims of the Study: The aim of this study is to find out whether it will be technologically, financially, economically and legally feasible to establish a new computer center as a business venture in a town, Obe in Enugu State of Nigeria.

Market: Obe is an institution town. It has two post primary institution and university. It has also the administrative headquarters of Nkanu central development centre [5]. It has a public utility boreholes of water Board. It is a business horizon because of the university. It has some other business around with some other entrepreneurial activities. It is not lacking either in business enterprises. The distribution of small-scale businesses and industries in Obe has been given as 329 small-scale businesses and 91 small-scale industrial businesses [6]. The town enjoys financial services from two bank branches, Union Bank of Nigeria Limited ESUT Branch and United Bank for Africa ESUT Branch.

These public institutions and private sector undertakings all constitute potential customers of a computer installation if the computer enterprise can identify the information requirements of these potential customers and charge affordable prices to penetrate the whole market. There is currently no supply of computer services in Obe and so there will be no competition initially though there is no doubt that competitors will rush in once there is a good profit margin in the business. Promotion will be done effectively by radio and television advertising and newspaper advertising in the Daily Star (the State newspaper, which enjoys good patronage all through the State). There is the possibility of getting good business in computerization of Government undertakings in Enugu, the State capital and other towns in the State especially the surrounding town to Obe.

Production Process: The computer hardware consists of the equipment and devices that make up the computer system plus tangible materials such as input/output and storage media. The Central Processing Unit will be

complete with arithmetic-logic, control and primary storage unit and other special purpose devices [7]. The peripheral equipment and media will include all devices that are separate from but are or can be on-line, that is electronically connected to and under control of a central processing unit. The term "peripheral" covers a wide variety of input/output equipment, secondary storage equipment and input/output and data communications interface devices. Auxiliary equipment and media will include equipment that is separate from and not under the control of the central processing unit. These will include input preparation equipment, off-line output and storage equipment and many types of supplies.

Computer software will include all types of programs which will direct and control computer hardware in the performance of the data processing functions. These will include both the system software such as operating systems, which are supplied by the computer manufacturer and application software, which directs the processing of particular applications [8].

A lot of computers abound ranging from large to small. The smallest system are the M1000 micro-computers, which in its turn can be upgraded to be as powerful as some mini-computers currently available in the market. Starting off with a minimum memory size of 512 KB it can be upgraded to 1MB. The amount of storage can be anything from 10 MB to 40 MB of disc space. They are ideal for organizations that have a need for computerizing but cannot afford the comparatively high costs of maintaining mini- or main-frame computer systems. They are idea, for word processing, financial planning/analysis, as well as for maintaining effective data bases.

Microdata M800 Series: These are very powerful multi-purpose mini-computers. They are ideal for use as stand-alone data capture systems. The M8000's also have very powerful processing and telecommunication facilities. Software is widely available for these system and if necessary the customer can develop his own systems using either BASIC or COBOL to suit his requirements. The flexibility and ease of use of these series of systems have made them the popular choice of many organizations in Nigeria.

Microdata M9000 Series: These are very powerful mini-computers built using the latest technology, incorporating a 32-bit architecture and powerful fourth-generation programming language. This is a formidable tool. There is also 2200 LVP Wang mini-computer, including two terminals, A 75 Megabyte hard disk and a printer.

The 2200 LVP is an interactive multi-user, multi-task disk-based computer system. The LVP Central Processor supports up to five terminals (can be upgraded to take thirteen terminals) and sixteen jobs (tasks) concurrently and is programmable among others in Wang Basic 2.

Plant Location: The project is to be located in the Umungwutowo area of 100 hectares of land. Umungwutowo is chosen because of its good road connection to such potential customers as Enugu state university of science and technology, the development centre and other numerous business firms in the Umuikeowo and Umuofujam axis. Moreover, the good road link to Enugu which has an airport will make for air travel to Lagos for procuring software and other supplies.

Fixed Assets: The fixed assets have been costed as shown in Table 1. The buildings include the computer house, Administrative block, Generating plant house and ten staff quarters. The buildings cost four hundred thousand naira (₦400,000) only, Land and site development cost sixty thousand naira (₦ 60,000) only, machinery and equipment seven hundred and five thousand naira (₦705,000) only, furniture and fittings thirty thousand naira (₦ 30,000) only, vehicles (1 Saloon Car and I pick up) one hundred thousand naira (₦100,000) only. The total assets cost one million three hundred and five thousand naira (₦1,305,000) only.

Table 1: Fixed assets at cost

	cost (Naira) ₦	
Buildings		
Computer house	50,000.00	
Administrative block	35,000.00	
Generating plant house	15,000.00	
10 Staff quarters at 30,000 naira each	<u>300,000.00</u>	400,000.00
Land		
Land at cost	50,000.00	
Site development	<u>10,000.00</u>	60,000.00
Machinery and Equipment		
2 Small-sized computers and installation on site	500,000.00	
Software	75,000.00	
Peripheral equipment and media	30,000.00	
Standby generator	50,000.00	
Air conditioners	<u>50,000.00</u>	705,000.00
Furniture and fittings	50,000.00	
Vehicles (1 saloon car and 1 pick-up)	<u>100,000.00</u>	
Total	<u>1,315,000.00</u>	

Source: Survey conducted by the Authors.

Management Structure: The Computer center will be run as a Limited Liability Company for the advantages of its being a going concern and possibility of raising capital by taking loans and issuing bonds and stock (Taylor and Shearing, 2014). The tentative design of the management structure will include a Board of Directors, a General Manager, a Senior Systems Analyst, a Chief Programmer, a Plant Manager, a Chief Internal Auditor, 2 Technicians, 2 Production/purchasing Supervisors, 2 Accounts Supervisors and a Computer Operator.

The Board of Directors will have the basic function of policy formation and will also see to it that policies are executed. The Board will consist of one financial expert, a data processing expert, an influential person in the state.

The General Manager will be the Chief Executive of the center. He will be a member of the Board and will be in charge of the day-to-day administration of the center. The Chief Executive will be the organization leader, a personal leader and architect of organization purpose (Christenson et al., 2014). He must devise productive, co-operative and favourable relationships with the various input suppliers. He must co-ordinate the design of systems, conducting of feasibility studies and handling of various electronic data processing applications for clients in an effective and efficient manner. He will also integrate and balance the internal flows and, importantly, be able to generate and maintain Government support. The senior system's analyst, chief programmer, plant manager, chief internal auditor, production/purchasing supervisors will report to the General Manager.

The senior systems analyst will design information and data processing systems based on the information requirements of various customers. It is the responsibility of the senior systems analyst to produce a detailed description of the present systems of client organizations and to complete the analysis of the procedures and techniques to be employed in the part of the data processing system under review. The chief programmer will prepare computer programs based on the specifications of the systems analyst. The computer operator will operate the computer.

The plant manager will implement planned service schedules for the Center's plant. The chief internal auditor will be responsible for auditing all accounting, commercial and operational systems and procedures and ensuring that they are in compliance with company policies and guidelines. The two technicians will be involved in equipment maintenance and spare parts up-keep.

They will report to the plant manager. The two production/purchasing supervisors will assist the general manager in production scheduling and sequencing, production and quality control and library and warehouse stock keeping. The two accounts supervisors will assist the general manager in accounting matters, supervise book keeping and other financial and cost accounting jobs in the Center.

The resume of key staff are given hereunder. The financial expert in the Board will be a chartered accountant or a holder of a degree of finance with a minimum of ten years post qualification experience in financial management, preferably in a computer center. The data processing expert in the Board will be a holder of B.Sc. or equivalent qualifications in Computer Science or Engineering with a minimum of ten years post qualification experience in the management of a computer center.

The senior systems analyst will be a holder of B.Sc. in Computer Science or Systems Engineering or equivalent professional qualifications like the Diploma of Institute of Data Processing with eight years post qualification experience in system analysis and design in a computer center. The chief programmer should hold degree in Computer Science or Systems Engineering or Diploma in computer programming and have a minimum of five years experience in programming in a computer center. Knowledge of a variety of computer languages will be an advantage. The plant manager should be a holder of B.Sc. or H.N.D. in Mechanical or Electrical Engineering with a minimum of five years experience in servicing and maintenance of computer hardware. The chief internal auditor should be a chartered accountant with a minimum of eight years experience in auditing in a computer center.

The technicians should be holders of National Diploma (ND) in Mechanical or Electrical Engineering with minimum of three years experience in the servicing and maintenance of computer hardware.

The production/purchasing supervisors should be holders of National Diploma (ND) in Production Engineering or Business Administration, with a minimum of three years experience in a similar capacity. The computer operator should be a holder of a certificate in computing with a minimum of three years experience as a computer operator in a computer center.

Operating Costs: The operating costs for the proposed Computer center are shown in table 2. The total operating cost for the proposed computer center.

Table 2

	Cost (naira)	₦
Salaries of 4 Board members	20,000	
Salary of general manager	20,000	
Salary of senior systems analyst	15,000	
Salary of chief programmer	10,000	
Salary of plant manager	12,000	
Salary of chief internal auditor	13,000	
Salaries of 2 technicians	16,000	
Salaries of production/purchasing supervisors	10,000	
Salaries of 2 accounts supervisors	12,000	
Salary of computer operator	8,000	
Salaries for 3 clerks	6,000	
Salary for 1 secretary	4,000	
Salary for 1 typist	2,400	
Salaries for 2 messengers	4,000	
Salaries for 2 librarians	4,800	
Salary for 1 security man	2,000	
Salaries for 2 night guards	6,000	
Salaries for 2 drivers	<u>6,000</u>	171,200
Transport allowance, 150 naira per month per senior staff, 75 naira per month for Junior staff		21,600
Housing allowance for 14 Junior staff at 50 naira Per month per staff		8,400
Medical bills		50,000
EEDC bills including National Grid		10,000
Fuel		20,000
Promotion cost		12,300
Administrative expenses		10,000
Insurance	<u>131,500</u>	435,000
<i>Total operating costs</i>		435,000

Source: Survey conducted by the Authors.

The allowances for the Directors are got by totalling 9,600 naira as personal allowance of 200 naira per month for monthly sittings of four Directors, hotel accommodation for 2 nights per sitting at 50 naira per night giving 3,600 naira. Transport allowance of 100 naira per sitting for 3 Directors and 320 naira for entertainment.

The sales for the first year of one million naira is got by the assumption that the computer center will get a big job like the computerization of First School Leaving Results in Enugu State. The cost of sales figures for the first year are got by totalling the amounts needed for purchases of software and fuel for the year. The expenses for the first year are got by taking the operating costs less fuel cost of 20,000 naira (see table 2). The projections for the next four years after the first year allow for increases at 10%, which is very realistic with good management and adequate advertising effort for the Center.

Table 3: Five-years project of income of the computer center

	Year 1 (100%)	Years 2 (110%)	Years 3 (120%)	Year 4 (130%)	Year 5 (140%)
Revenue	1,000,000	1,100,000	1,200,000	1,300,000	1,400,000
Less cost of sales	95,000	104,500	114,000	123,500	133,000
<i>Gross profit</i>	905,000	995,500	1086,000	1,176,500	1,267,000
Less expenses	415,000	456,500	498,000	539,500	581,000
<i>Net profit</i>	490,000	539,000	588,000	637,000	686,000

Table 4: Quarterly cash flow projection for the first year

	First quarter (naira)	Second quarter (naira)	Third quarter (naira)	Fourth quarter (naira)
<i>A. Receipts</i>				
Capital	100,000	—	—	—
Loans	175,000	—	—	—
Revenue	250,000	250,000	250,000	250,000
Total receipts	2,100,000	250,000	250,000	250,000
<i>B. Payments</i>				
Operating expenses				
Software	18,750	18,750	18,750	18,750
Salaries	42,800	42,800	42,800	42,800
Administrative expenses	2,500	2,500	2,500	2,500
Transport allowance	5,400	5,400	5,400	5,400
Housing allowance	2,100	2,100	2,100	2,100
Medical bills	12,500	12,500	12,500	12,500
EEDC bills	2,500	2,500	2,500	2,500
Fuel	5,000	5,000	5,000	5,000
Promotion cost	3,075	3,075	3,075	3,075
Insurance	<u>32,875</u>	<u>32,875</u>	<u>32,875</u>	<u>32,875</u>
Total payments	127,500	127,500	127,500	127,500
<i>C. Period surplus (A-B) 1,972,500 1,972,500 1,972,500 1,972,500</i>				
<i>D. Allocation of Surplus</i>				
Repayment loan	-	-	-	-
Dividend	-	-	-	-
Payment of taxes	-	-	-	-
<i>E. Cummulative surplus b/f-1,972,500 2,095,000 2,217,500</i>				
<i>F. Cumrnulative surplus c/f1,972,500 2,095,000 2,217,500 2,109,500</i>				

Table 5: Computational details of the profitability index

Yeas	Net profit (naira)	Depreciation (naira)	Net annual Cash flow (naira)	Present value factor (naira)	Present value (naira)
1.	490,000	141,000	631,000	1/1.2	525833.33
2.	539,000	141,000	680,000	1/(1.2) ²	472222.22
3.	588,000	141,000	729,000	1/(1.2) ³	421875.00
4.	637,000	141,000	778,000	1/(1.2) ⁴	375192.90
5.	686,000	141,000	827,000	1/(1.2) ⁵	<u>332352.75</u>
Total Present Value					2,127,477.20
Initial Investment = 1,750,00.00 naira					
Profitability Index = (Total present Value/Initial Investment) x 100 = (2,127,477.20/1750000) x 100 = 121.75% (Cost of capital is taken as 20%).					

Technological Feasibility: There are reliable hardware and software in such companies as Nigerian Cash Registry and International Business Machines in Nigeria. Technical know-how is available as the Departments of Computer Science at the Enugu state university of science and technology and Nsukka are within one hour road journey from Obe.

Legal Feasibility: There is no existing law restricting the establishment of computer centers. The Government has realised the need to computerise some Government ventures.

CONCLUSION

The project has been shown to be legally, economically, financially and technologically feasible. In particular, the project has been shown to be viable having a Profitability Index of 121.57% and an Accounting Rate of Return of 67.07%. The rate of cash flow generation shown from the two-year cash budget shows that out of eight quarters there is no deficit. The project has a short payback period of 2-6 years. This shows that the initial investment can be recouped before the third year. This is alright in terms of riskiness.

It is recommended that the project should be embarked upon because it will be feasible and viable especially with the proposed capable management.

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