

COMPUTER SCIENCE FOR ECONOMIC REHABILITATION AND RELIANCE

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Abstract

The advancement of technology in recent times has turned the world into a global village through inter - connectivity in the telecommunication network and Internet services. It must be emphasized that no nation of the world would want to be left behind in the jet age of global technology, developing nations must entirely participate in the information age to remain competitive and to be part of the international economic order. Computers are today effectively used in all spheres of human activities. In education, it is used in form of Computer Aided Learning (CAL), in office with its application in word processing, data based management, desktop publication, in business as payroll system to prepare salaries, in medicine, in homes and in recreation to play computer games.

Introduction

The pre and post - independence era has been marked by dependence on foreign resources for the needs of this country - food, dresses, etc. According to Ojemen (2003): "for some time now, Nigerians went cap in hand to ask for aid for everything". Today, effort is being made by the government to make things change and must continue to change. There is the need for a change -from a dependent and begging nation to a self-reliant nation. As far as it is possible, African nations in general, over the years have emphasized that every country should be organized in such a way that it would be able to provide its own needs in order to ensure self-sufficiency.

Self-reliance, in terms of material resources and means, is the goal to which every African nation is challenged. With good leaderships and administration, judicious husbanding of resources and above all, belief in self - actualization, we can generate enough resources, tailor our needs, invest wisely in economic ventures with a view to increasing the financial and economic self - reliance.

Historical Development of Computer

The need for efficient and accurate account has been with man from the beginning of civilization. Man has progressed systematically from the original uses of figures for counting through the use of 'Abacus' as a calculating device to the basic structure and mode of operation of the first digital computer which was produced by the mathematician, Charles Babbage in the late 1830s which he invented to solve mathematical equations. However, it was not until transistors were used to build them did computers become sufficiently reliable for their full potential to begin to be explored.

Halsall (1980) maintained that "since the first transistor - based machine was produced, computers have been used in an increasing variety of applications". These range from very large systems such as those used by banks to maintain customer accounts; to quite small systems that may, for example, be used by an individual to solve a complex problem. The advent of computer in a single integrated circuit, and consequently the range of its applications is now virtual!; unlimited. It is widely predicted that in the near future computer will be found in almost every area of human endeavour.

Features of the New Millennium

The advent of the third millennium has witnessed the increased access to education, advancement in technology and communication. More and more people have tertiary education and can through travel, modern means of information and social communication be exposed to the gains of modern living, and the world has become a global village through inter-connectivity in telecommunication network and internet services. Even in rural areas radio, television, and satellite communications and internet, global system of mobile communications (GSM) have made it possible for rural dwellers to know what is happening in other parts of the world, it must be emphasized that no nation of the world would want to be left behind in the jet age of global technology. According to Okoro (2002), "it is note worthy that developing nations must entirely participate in the information age to remain competitive and to be part of the international order".

Computer Science for Economic Reliance

In recent times, due to intensive research, enormous successes have been achieved in the use of computer for messages. Bankole (2000) defined a computer as a machine endowed with the ability to obey "blindly" as a result of human guidance. It is a complex electronic device, which can perform basic arithmetic operations at the speed of light, it can perform in few seconds what will take human hand or brain to accomplish in a week. He believes that electronic computer has been developed to the level that it is one of the greatest inventions of the 20th century, which has contributed tremendously to the service of humanity through its capacity and capability.

It is now possible to employ the services of computer in banking transactions, stock control, engineering, e-mail, internet, fund transfer, computer-aided learning (CAL) as teaching tools which has made learning easier and teaching more interesting. In offices with its application in word-' processing in business as payroll system to prepare staff salaries, in medicine, in homes and in recreation to play computer games.

Basically, all digital computers operate in the same way, which to a large extent is independent of the specific application to which they are being put. This arises because a computer-large or small is a flexible, general-purpose machine or device that can be arranged to solve or implement a particular task after it has been produced by the manufacturer. Beck (2000) observed that system software consists of a variety of programmes that support the operation of a computer. This software makes it possible for the user to focus on an application or other problems to be solved without needing to know the details of how that machine works internally. A task is implemented by deciding the sequence of operations needed to perform it. This sequential list of operations is referred to as a programme. A digital computer utilizes a very high speed of execution of each machine instruction-usually a few microseconds by having the required sequence of instructions, or programmes, stored within the computer itself.

Irrespective of the application, however, within the computer itself the same means of storing and coding information is employed. In order to achieve high level of accuracy this coding is based on the binary (two - symbol) system. Information stored using this system in an electronic circuit is capable of being precise. All input data fed into a computer must first be translated into a binary coded form, and similarly the subsequent binary coded output must also be translated into the required form.

Innovative Technology in Computer

In the last few years, there has been a measurable growth in the information technology (IT) industry. Information technology, Thornes (1998) refers to as a collection, storage, processing, dissemination and use of information, that is, information technology is a combination of two main technologies — computing and tele-communication.

The need for adequate and essential information dissemination in all works of life cannot be over emphasized, particularly in academics and researches. One of the greatest advances in the world of information technology is the Internet. According to Simon (2004), the Internet has brought dramatic changes in the interactions between individuals, business and governments. This medium gives the opportunity to investors, inventors and entrepreneurs of sustaining investment in research and development. It gives room for interaction between individuals and their computers without regard to geographical location. Large amount of data can be transferred rapidly between parties over the Internet. The other areas of applications of computer are as follows:

- (i) **Business** - Computers are used to prepare payroll and personal records and calculation of

salaries and other personal details of the employee.

- (ii) **Banking** - The computers are used as on-line accounting facility which enables them to interrogate information regarding current balances, overdrafts, interest, charges, deposit, shares and so on. It further provides the opportunity to each branch of a bank, and its customers have access to information.
- (iii) **In Engineering Applications** - It is used for design while required calculations are more quickly and accurately done faster than otherwise be possible. The software can provide graphical and perspective view of the shape of proposed car, road and visibility.
- (iv) **In Medicine** - For patients' records and bills, Medical tests can be performed in couple of minutes.
- (v) **In Legal Profession** - For information retrieval, storage of abstract cases and index.
- (vi) **In Education** - Computer has dual functions. It is a course of study through which after mastering, the learner can use effectively to achieve his objectives in the day-to-day application in science, business etc. and it is a teaching aid. Computers are of value not only because of their speed of operation but because they can be programmed to perform routine operations repeatedly with minimal human intervention. They can repeat a process over and over, until some specified goal is achieved; they can make decisions and can store data for later retrieval. Hence a programmed instruction monitored through the computer, termed computer-aided learning (CAL) can be put in place.
- (vii) **Multi Media** - This is the most exciting area of computer at the moment and it is also great fun to experiment with. Simon (1997) indicates that multimedia is any software of presentation that combines different media - sound, video, images and text. The computer can use video clips, sound recordings, images, animation and text, and can control external devices such as a video recorder, video disc player etc.

In addition to the effective use of computer in the areas mentioned above, it is worthy to note that typical electronic digital computer has the following characteristics:

- (i) It has a very high degree of accuracy such that when the input is properly entered, the accuracy of the output is virtually guaranteed;
- (ii) It carries out its operations at a very fast rate;
- (iii) Given the same set of input data, the same result will always be produced because of its high level of consistency;
- (iv) Computer never gets bored or tired in operations;
- (v) It performs tasks that would not otherwise be feasible or cost effective; (vi) It is automatic, durable and reliable.

A recent development in computer is the invention of "Displaying Data in Thin Air", Paulson (2004) has given an information that Chad Dwyer, a graduate student at the Massachusetts Institute of Technology has invented the Heliodyisplay, which condenses the air above video projector. The device then projects an image into the condensed air. This latest approach to display technology may lead to doing away with the screen. However, while it is most unlikely to replace the desktop computer monitor, it is to be particularly used in product show rooms, museums, military training facilities, corporate conference rooms, trade fairs and advertisement.

Operational Hazard of the Computer

Whenever any piece of electrical/electronic equipment is used, basic safety precaution should be observed, e.g. overloading of plugs, space for ventilation around CPU and video display unit. .

Thornes (1998) asserted that video display units are known to emit low-level radiation from the cathode ray tube and it is possible that other forms of radiation are emitted from the components and circuitry. Although the radiation level is within the international standards it is important that users should be kept informed to reduce the risk

Sabotage has been known to happen when employees are not ready to do genuine work as expected. Remember that the computer can only make an accurate output from an accurate input: For instance, there abound a lot of irregularities in computerized bills (e.g. NEPA). The retrenchment of secondary school teachers in Edo State in 1993 by Governor Adamu Iyam is another case in point. All those who were mistakenly retrenched even when their appointments were confirmed were attributed to "computer error".

Recommendations

Having recognized the effect of computer science for our economic reliance, it is still very important to recommend that Nigeria and Nigerians should not become a mere consumer of both hardware and software. Effort must be made for the nation to develop seriously in the area of computer engineering and technology. This is to say, our country should not be a dumping ground for importation of all sorts of CPU, both old and new as it has been to "tokumbo" cars. Our engineers should be able to produce or manufacture computer sets locally.

Sabotage by employees particularly when dissatisfied with jobs and employers must be guided against seriously. This can be done by improvement of good working relationship between the staff and management.

Conclusion

Times are changing and therefore we must change with time. It is no exaggeration to state here that for a positive action in development through technology, computer science must be embraced by all if we are to achieve economic and industrial development for self-reliance.

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