

THE EFFECTIVENESS OF COMPUTER IN DECISION MAKING IN AHMADU BELLO UNIVERSITY PRINTING PRESS LIMITED

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Abstract

This study examines the effectiveness of computer in assisting printing press in making sound and effective decision in ABU Press Limited. The major source of data to this research is primary data through the administration of questionnaire using Likert scale. Purposive sampling technique was used obtain the samples for the study. The findings show that computer information system is an indispensable tool in decision making in today's technological age. That ABU Press uses some of the current computers and digital printing system which enhance production process and efficiency. The findings also indicate that there is immediate access to all the data they need on customers and their jobs through the computer system. The printing press is however, advised to invest on information technology tools as it improves efficiency, effectiveness and overall performance.

Keywords: Computer, Decision making, Printing press, ABU Press Limited, Effectiveness

Introduction

Computer is an advanced electronic device that takes raw data as input from the user and processes these data under the control of set of instructions (called programme) and gives the result (output) and saves output for the future use (Baraal, nd.). With computers, we calculate process data, solve problems, communicate with each other, create designs and make a decision in an organization (Bohanec, 2009). Decision making is a vital part of any business and a key function for its success. It is the process through which alternatives are selected and then managed through implementation to achieve business objectives (www.cimaglobal.com, 2016).

Harris (2012) sees decision making as the process of identifying and choosing alternatives based on the values and preferences of the decision maker. One of the most important human skills is decision making (judgment and choice) both at personal level and in the context of organizations. Decision making skills strongly affect the quality of life and success (Ephraim, 2013). The increased usage of computer based decision support systems is perceived as transferring decision from authority to software programme (Ngwenya, 2013). This has led to the notion that decision making power has been somewhat transferred from human decision makers and over centralized on the machine in the decision loop. Druzdzel et al. (2005) assert that proper application of decision-making tools in a business has the tendency of increasing productivity, efficiency, and effectiveness and gives many businesses a competitive advantage over their

competitors, allowing them to make optimal choices for technological processes and their parameters, planning business operations, logistics, or investments.

Bohanec (2009) postulates that computer decision making is fundamentally different from human decision making and has an advantage. Computers make decisions according to programme procedures, which can be easily analysed, modified and observed during their operation. Bohanec further explained that the computer has to be programmed to carry out some given tasks in a defined sequence of instructions that can be executed by the computer. Computer decision making in the printing press involves decisions concerning the activities in pre-press, press and post press. They are the three production departments that are overseen by the management of the press. It is in the light of the above that the study sought to evaluate the effectiveness of computer and decision making in pre-press, press and post press at the Ahmadu Bello University Printing Press.

Historical Background of Ahmadu Bello University Press Limited

Ahmadu Bello University Press Limited was established in 1973 and incorporated as a Limited Liability Company on 30th January, 1978 with the mandate of promoting academic excellence through scholarly publishing, printing books and other related materials especially for the tertiary institutions. The Company holds 50,000,000.00 authorized and 20,000,000.00 issued and fully paid ordinary share capital of N1.00 each.

Ahmadu Bello University Press Limited is one of the Company's established and solely owned by the Ahmadu Bello University to diversify its sources of revenue. It's an independent, fully commercialized venture with its own Management and a Board of Directors.

The Press Production department has four sections equipped with machinery/equipment. These sections are:

- i. **Pre- Press Section:** This section consists of Computer and Lithographic units. The Computer Unit carries out all Typesetting, Formatting, Cover design and Colour separation. The Unit has State-of-the art Computers equipped with the latest software, Scanners, 5100 & 5000 series LaserJet, 1100 lesser jet, and A3 size LaserJet, Coloured Printers and colour separation Machine and so forth. The Lithography Unit carries out stripping, filming, plating etcetera.
- ii. **Press Section:** The press section is also known as printing Section, Machinery in the Printing Section includes: Speed Master, Perfecto, 2-colour heavy duty off-set printing machine, Sord-Z Two-colour heavy duty printing machine to mention a few.
- iii. **Post Press Section:** This section is the print-finishing section with different machinery which includes: Wohlenberg 115 Guillotine (Cutting) Machine; Folding Machine (2nos.); Sewing Machine, Stitching Machine (2nos.) and others.

The Concept of Computer

The rapid proliferation of computer technology, in the form of mainframe computers, networks of interconnected machines, and stand-alone personal computers, is having a profound effect on many areas of life (Schoenfeldt and Mendoza, 1991). As a result of the spread of computer equipment on many areas of life, the computers have assumed an increasing role in professional practice, including applications in providing services in the area of businesses, industries, organisations and educational institutions.

A computer is a machine that can be programmed to accept data (input), process it into useful information (output), and store it away (in a secondary storage device) for safekeeping or later reuse (<http://homepage.cs.uri.edu>). The computer provides facilities for processing, storage and retrieval of information, and makes available such facilities when needed for the transfer or communication of data and information. According to Baraal (nd.) the computer has four functions which accepts data (Input), processes data (Processing), produces output (Output) and stores results (Storage).

Input (Data): Input is the raw information that entered into a computer from the input devices. It is the collection of letters, numbers, images and others. See examples of input devices in figures 1a, b, c and d below:



1a. Scanner

Source: (<http://www.canon-europe.com>, 2017)



1b. key board

Source : (<http://www.computerhope.com>, 2017)



1c. Digital camera

Source: (www.google.com.ng, 2017)



1d. Mouse

Source: (www.google.com.ng, 2017)

Figure 1 a, b, c and d: Input Devices

Process: Process is the operation of data as per given instruction. It is totally internal process of the computer system.

Output: Output is the processed data given by computer after data processing. Output is also called as 'result'. We can save these results in the storage devices for the future use. Here are output devices below:



2a. Monitor

Source: (www.google.com.ng, 2016)



2b. Projector

Source: (www.google.com.ng, 2016)



2c. Digital printing machine <http://www.printprint.ca/>.2015

Figure 2 a, b, c: Output Devices

The Concept of Computer in Decision Making Process

Gathering information: Information comes from a variety of sources through a variety of means. Reports generated by different computer systems assist management in making a decision.

Recalling knowledge and prior experiences: Computer systems can store information and retrieve them as long as the systems are available.

Understanding the various sides of the issue: Most commonly in a specific problem domain, advances in the area of computing have made it possible to have systems that attempt to reproduce the performance of one or more human experts. Applications such as CorelDraw, Photoshop, AutoCAD and so forth can be deployed as an expert system to aid decision making.

Comparing, weighing and evaluating: Computer systems aid in formatting and manipulating data. Several tools with different capabilities can be interfaced to provide users with a single easily used language to present data in a way that will best support the end-user to compare, weigh and evaluate data. Depending on the nature of the decision to be taken, there is computer aided tools that can facilitate the implementation of the decision. These tools include; computer aided software engineering (CASE) Computer aided recording tools (CART) Computer aided summarization Tool (CAST) Computer aided design (CAD) and Computer aided manufacturing (CAM) for implementing decision.

Application of computer in decision making process in Printing Press

The application of technology to modern printing press practice has resulted in the overall improvement in the performance of the press in terms of fast delivery, quality assurance and productivity. There is no doubt that the contribution of the computer to printing practice in our society is closely linked with the development of information technology. Many activities and services at pre-press, press and post press are amenable to information technology application.

There is a direct link between the increasing advances in information processing technologies and modern printing practice. These advances allow for extensive possibilities for using different computer systems in decision making in all the sections of printing workflow. A decision support system is not a single piece of technology, such as a database, file server, or network. Rather, it is a system for incorporating and integrating disparate data sources to better allow decision makers to access and compile data in a useful format (National Forum on Education Statistics, 2006). Zaigham (2013) added that, most decision support systems include the input device, hardware, software, networking technologies, and operating systems necessary for supplying and supporting databases and/or servers; a user interface with mechanisms for accessing, manipulating, and transferring data; and some type of repository for temporarily or permanently storing data. Figure 3 is a simplified framework of computer and decision making process in a printing press which is inspired from literature and fieldwork.

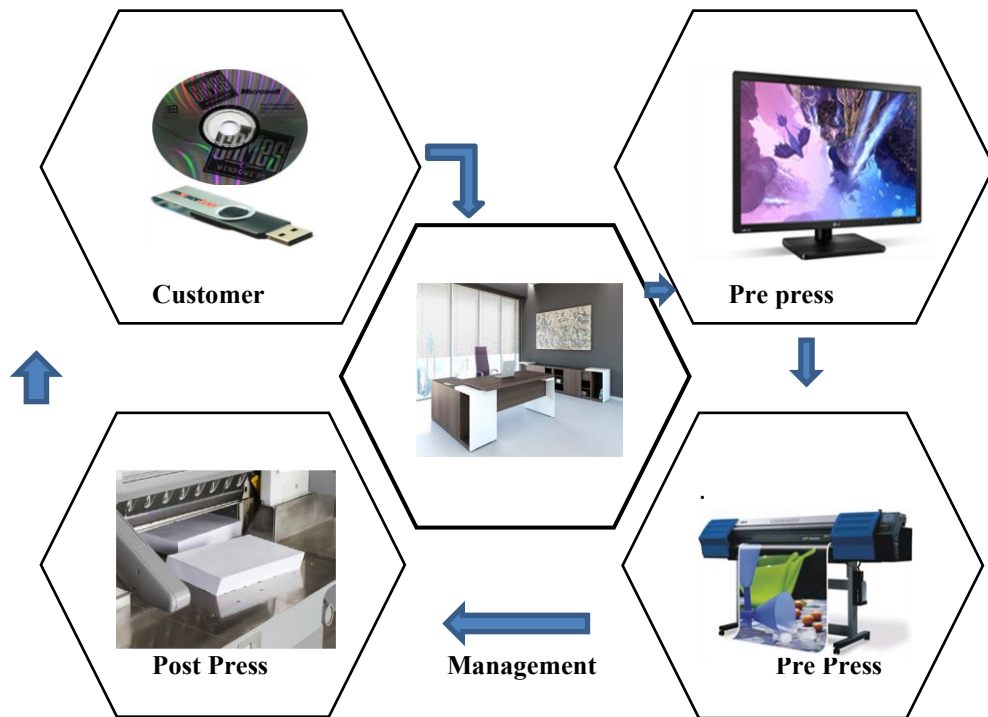


Figure 3: Computer and decision making process in printing press: A Frame work (Baba, 2016).

The customer: A customer is also known as a client, he is the recipient of a service. He directs his problem to the management section in the press. He comes to the press with his soft or hard copies of information which will be edited in the prepress section.

Management section: This section is concerned with the daily affairs of the printing press. The management functions include planning, organizing, commanding, coordinating and controlling (Gwarry, 2016). They collect works from their clients and document the works before directing it to the prepress section.

Pre-press section: This section edits data supplied by client using computer and any relevant CAD software and subsequently send the edited data through wireless, flash or CD-ROM to the press.

Press section: This section is responsible for printing the input data from prepress through digital printing system. The digital printing system is fast and reliable in the printing process. Although some of the printing is done using off-set printing.

Post-press Section: This department is the last section for finishing. It uses operational machines that could easily assist in cutting of papers, binding, folding and so on. Finishing could also be done manually. According to Buckwalter (2006) traditionally, the three production departments have been relatively isolated from each other, with a minimum of information being communicated between them. He further added that in theory the communication between the production department and the management department should have a holistic view of the whole printing plant and up to date information about all customer orders currently in production. This has been even more non-existent. The only time information traveled between departments was when one department handed off the printed product to another department in the form of a job ticket.

The Baba (2016) framework on the computer in decision making in the printing press is a simplified explanation of a typical workflow of various sections of a printing press. The framework is a specific class of computerized information systems that supports printing press decision-making activities. A properly-designed framework will help in giving clear information from the customer, managements and down to the production department of the printing press. With this in place, efficiency and productivity would be enhanced which is the goal of every business organisation.

Methodology

The study was conducted in Ahmadu Bello University Printing Press Ltd. Zaria. Qualitative research design was adopted to describe the effectiveness of computer and decision making in the ABU Press. The main instrument used for data collection in the study is the questionnaire. The questionnaire is the Likert scale type of questions which required the respondents to answer by indicating his/her choice of the possible answers that is 1 = strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, or 5 = strongly agree

and these items were used to measure respondents attitudes. Purposive sampling technique was used to obtain the target respondents for the study. Respondents included the production department manager and the heads of the three sections with two staff from each, in the production department of the ABU Press Ltd. The questionnaire was administered to the respondents in ABU printing press. The questionnaire contained the following items:

- i. Management control in printing press with 5 questions
- ii. Decision making in prepress with 4 questions
- iii. Decision making in the press with 6 questions
- iv. Decision making in post press with 4 questions

Discussion of Results

1. Management control in the printing press

The position of the production manager in ABU press is a senior management. The production manager organizes, controls and monitors the flow of printed materials in the ABU Press. He is also mandated to check schedules, confirm product specifications, oversee the work of staff in the department, monitor the quality of the product and ensure deadlines are met. In the press, the respondents agree on using network, through network they can collect information from their respective customers and also information on current trends in printing and as well as new technologies. Acting in accordance with the respondent, the ABU press uses a Pentium III computer operating system and relevant printing technologies. The respondents also recognise the role of computer in managing the activities of the pre- press, press and post press departments.

2. Computer and decision making in prepress

The head of pre-press in ABU press is responsible for overall management of the prepress department, including computers, design, plotting, stripping, proofing, plating, reviews production orders and implement production schedules in the department. The respondents in the pre-press which include the head of department and two staff agree that all print data supplied by customers go through several prepress production and checks. They also agree that a prepress department prepares customer material for print using computer aided design (CAD). Furthermore, they are undecided that pre-press send input data to the press through wireless, flash or CD Rom because most of their printing jobs were done using off-set printing machine which passes through the lithography section before reaching the press and sometimes done with digital printing system.

4. Computer and decision making in press

The head of the press department is in charge of overall management of the off-set printing and digital printing department. He reviews production orders and implements production schedules in the

department. He also ensures departmental compliance with safety and environmental rules. The respondents in the press department, which includes the head of the section and two staff, strongly agree that they use both digital printing system and off-set printing in production. They revealed that input data are submitted by pre-press to the digital printing system which is fast and reliable in the printing processes.

5. Computer and decision making in post press

The head in the post press department is in charge of overall management of cutting, folding, gathering and binding. He reviews production orders and implements production schedules in the department. The respondents in this department, which is the head of section and two staff, strongly agreed that post press uses operational machines for finishing. The respondents were undecided that the post press department outputs finished printing products. However, they agreed that printed sheets are forwarded to the post press department that cuts, gathers, folds, and binds them using a digital system or manually. The findings of this study supported the assertion of Druzzdel et al (2005) which affirmed that proper application of decision-making tools in a business has the tendency to increase productivity, efficiency, effectiveness and more give many businesses a competitive advantage over their competitors.

Major Findings

This study revealed the following:

- i. The management plays vital functions in decision making, organizing, staffing, planning, controlling, communicating and directing the activities of the printing press.
- ii. The ABU Press uses some of the current computers and digital printing system which enhance production process and efficiency.
- iii. There is immediate access to all the data they need on customers and their jobs through the computer system.
- iv. Computer system helps in decision making which simplifies all prepress, press and post press production and gives the best quality required in ABU Press.

Conclusion and Recommendations

Since computer information system is an indispensable tool in decision making in today's technological age, the use of Computer Aided Design (CAD) in ABU Press allows for extensive possibilities for using different computer systems in decision making in all the sections of printing workflow. That printing press should have a very good model or framework that will direct or guide the operations of the printing press and printing press companies should invest on information technology tools as it will improve their efficiency, effectiveness and their overall performance.

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