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000AIU FUNDAMENTALS OF KNOWLEDGE II

Student's Profile

My role in developing Management Information Systems for International Business College, Fajara The Gambia

ATLANTIC INTERNATIONAL UNIVERSITY

Introduction

The idea of developing an Information System for the college came to light when the management of the college started experiencing some major difficulties in record-keeping, searching for records, querying, sorting of data, performing calculations and manipulations of data, insufficient spaces for filing cabinets, irregularities in collection and keeping records of tuition fees, difficulties in keeping records of present and past students, compilation and storage of grades and assessments, mismanagement/embezzlement of fees and funds, etc.

The Board of Trustees met and decided to find a lasting solution to these problems by proposing the designing of a unique Information Systems using Linux (Fedora Core) program.

Being an Information Technology lecturer who is versatile in many areas with years of working experience, I was then mandated to head and coordinate the team that will compile data, formulate, proposed and execute the development of an automated Information Systems for the college.

At first I saw it as a tedious work, time-consuming, and a big challenge. But when I looked at it in another perspective, I realized it is an opportunity to develop myself, and proof that I am up to the task ahead. I accepted the offer and set straight towards achieving the aims and objectives of the project.

My first step in achieving the objectives of the project is to come up with a Project Plan that will be guidance for as many that are involved so as to meet up with the deadline date set ahead. Then I co-opted a staff each from the four major areas of the college – Academic, Administrative, Records and Learning Center. These will assist in fact-finding, data collection and research works of the proposed system.

Description

Project Plan

Chapter One – Project Outline
1.1 Overview of the Project
1.2 Overview of the development stages
1.3 International Business College Departmental contacts and integration
1.4 Work description and product team

Chapter Two – Project Planning
2.1 Task lists with associated dates and people responsible
2.2 Significant event points
2.3 Responsibilities of the project team

Chapter Three – Software And Hardware Requirements
3.1 Software and Hardware facilities required
3.2 Analysis and design tools
3.3 Additional support requirements
3.4 Specified development strategies
3.5 Required software development standards

Chapter Four – Configuration Management
4.1 Strategies for handling change during development
4.2 Version control requirements

Chapter Five – Documentation Requirements
5.1 Documentation format
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5.3 Publishing and validating responsibilities

Appendices
(A) Test strategies to be adopted
(B) Quality Plan.

General Analysis

Chapter One – Project Outline

1.1 Overview of the Project

All organizations require information for planning, controlling, recording transactions, performance measurement and decision-making. Management Information Systems converts data from internal and external sources into information, and communicates that information in an appropriate form to managers at all levels. This enables them to make timely and effective decisions. Therefore an Institute of higher learning such as International Business College is not an exceptional. It requires information, which could be used in the following areas:

The Role of Information Technology

Information Technology as defined by Peter Bishop (1988, p. 11) is "The equipment used for the three things which can be done with information – processing, communicating and controlling".

The advent of the silicon chip, or integrated circuit, as it is more properly called, has revolutionized the field of electronics. Today a tiny microelectronic processor less than a quarter-inch square can carry a hundred times more computing power than the massive Ferranti Mark I Star, Europe's first commercial computer produced in 1950. Integrated circuits are currently to be found in computers, pocket calculators, automatic bank tills, industrial robots and a host of other applications. Therefore in every area of life we are drawing ever closer to completely automated production systems.

The impact of technology on organization and society in general over the last ten years has been dramatic.

What is Information?

Abel B. Duro-Ishola (1992, p. 33) defined Information as "Data in a useful form".

Peter Bishop (1988, p. 11) said "Information is the raw material of computers".

While Terence Driscoll and Bob Dolden (1979, p. 382) said "Information is the interpretation or meaning of stored data".

In my own perspective, I will define Information as a set of data that have been processed in a specialized format for decision-making.

Users of Information

The information generated by an organization may be used internally or externally. Internal users of information include (by status) the following:

- The Board (or equivalent)
- Directors with functional responsibilities
- Divisional general managers

- Divisional heads
- Departmental heads
- Section leaders, fore people or supervisors
- Employees and students

While external users of information are mainly people at the Strategic level of the organization.

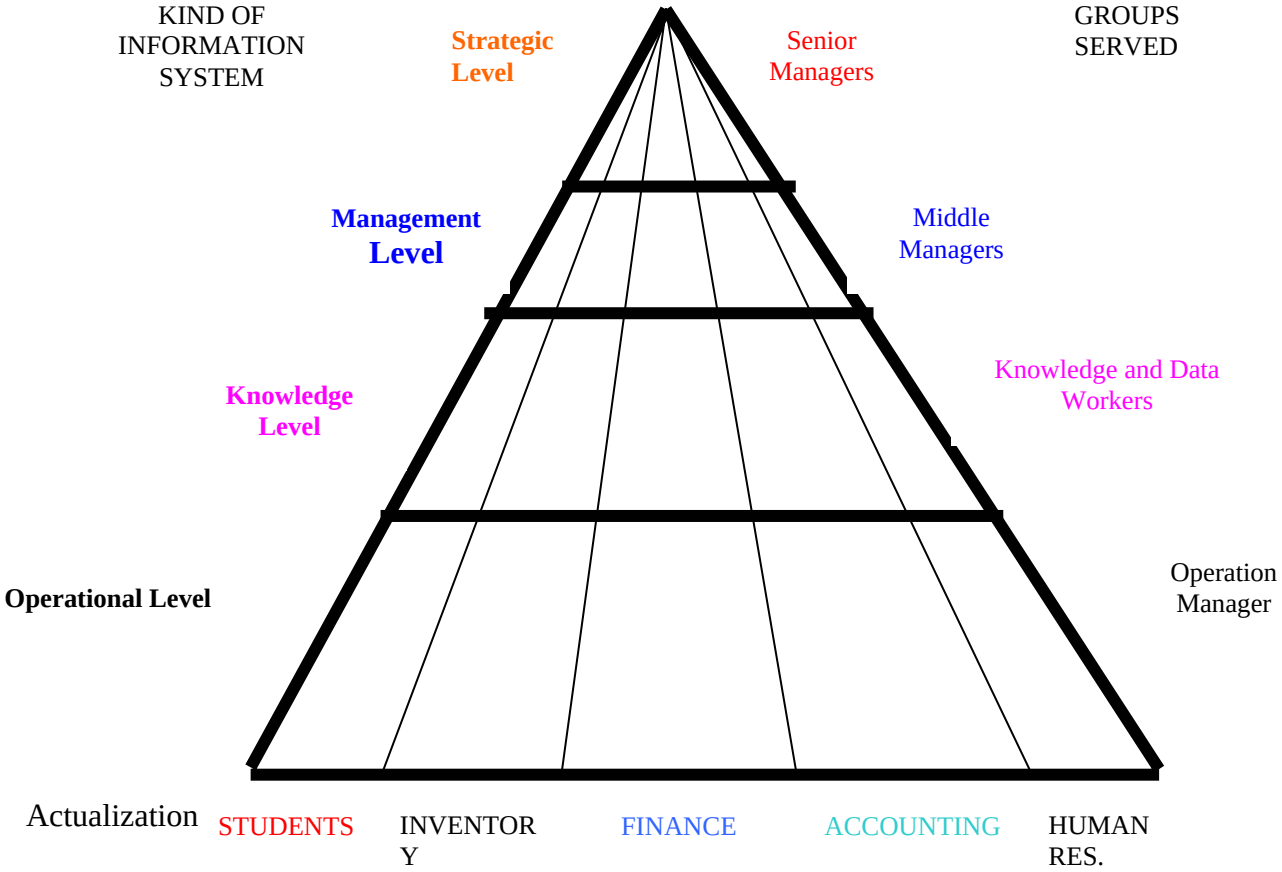
Levels of Information

Information within an organization (as distinct from information provided by an organization to external users, such as share holders, the general public, pressure groups, competitors, suppliers, customers, etc,) can be analyzed into three levels:

(i) Operational Information
(ii) Tactical Information
(iii) Strategic Information

Another way of viewing the flow of information through an organization is in terms of the amount of autonomy permitted when decisions have to be made. Decisions can be viewed as **Structured**, **Semi-structured** and **Unstructured**.

A modern and higher Institution like International Business College requires a wide range of systems to hold, process and analyze information. Organizations require different types of information system to provide different levels of information in a range of functional areas. This concept is shown below within the context of International Business College:



A case study of International Business College Fajara, The Gambia

What are Management Information Systems?

A system, as defined by Abel B. Duro-Ishola (1992, p. 62) is “A set of procedures used to accomplish a unified set of tasks to achieve some objective”.

Management Information Systems for HNC/HND BTEC Core Unit 7 (2002, p. 4) defined a system as “A set of interacting components that operate together to accomplish a purpose”. While a Business System is “A collection of people, machines and methods organized to accomplish a set of specific functions”.

Larry Long and Nancy Long (2005, p. 370) said: “A system is any group of components (functions, people, activities, events, and so on) that interface with and compliment one another to achieve one or more predefined goals”. “Information system is a generic reference to a technology-based system that does two things: providing information processing capabilities and providing information people need to make better, more informed decisions”. While “Management Information system is a computer-based system that optimizes the collection, transfer and presentation of information throughout an organization by using an integrated structure of databases and information flow”.

Management Information Systems for HNC/HND BTEC Core Unit 7 (2002, p. 16) defined Management Information System as “A computer system or related group of systems which collects and presents management information to a business in order to facilitate control”. And a Management Information System “Converts data from internal and external sources into information, and communicates that information in an appropriate form to managers at all levels”.

Management Information Systems are information systems, typically computer based that are used within an organization comprising of all the components that collect, manipulate, and disseminate data or information. It usually includes hardware, software, people, communications systems such as telephone lines, and the data itself.

The starting point for any project is a document that originates from a customer or a user of the proposed system (in this case, International Business College), known as the user requirements. And the aim of the requirements analysis is to produce a specification that is clear, concise, unambiguous and understandable to the customer. This has to be analyzed by the development team in order to produce:

- Functional requirements
- Non-Functional requirements etc;

Functional Requirements

These specify the main functions that are inherent in the user requirements. In this case, the business processes and operations support function is the most basic. It involves collecting, recording, storing and basic processing of data. Information systems for International Business College will support business processes and operations by:

(a) Recording and storing Tuition fees data, purchase data, investment data, payroll data, students and staff records data, inventory of books and materials data, and other records.
(b) Processing these accounting records into income statements, balance sheets, ledgers, management reports, and other forms of financial information.
(c) Recording and storing inventory data, work in process data, equipment repair and maintenance data, supply chain data, and other operations records.
(d) Processing these operations records into inventory systems, and monitoring systems.
(e) Recording and storing personnel data, salary data, employment histories, and other human resources records.
(f) Processing these human resources records into employee expense reports, and performance-based reports.
(g) Recording and storing business intelligence data, and other strategic management records.
(h) Processing these strategic management records into organization's trend reports, mission statement, and portfolio models.
(i) Using all the above to maintain, control and monitor plans, strategies and tactics of International Business College.

In order to achieve these, technological perspective, methodologies, tools (CASE), Database Management Systems and techniques are required.

Discussion

The Pros and Cons of Management Information Systems

Qualities of Good Information

A good information is an information that adds to the understanding of a situation. This is represented in the table below with an acronym: **ACCURATE**

QUALITY	EXAMPLE
Accurate	Figures should add up, the degree of rounding should be appropriate, there should be no typos, items should be allocated to the correct category, and assumptions should be stated for uncertain information.
Complete	Information should include everything that it needs to include; e.g. External data if relevant, or comparative information.
Cost-beneficial	It should not cost more to obtain the information than the benefit derived from having it. Providers or information should be given efficient means of collecting and analyzing it. Presentation should be such that users do not waste time working out what it means.
User-targeted	The needs of the user should be borne in mind, for instance Senior Managers need summaries, and Junior ones need detail.
Relevant	Information that is not needed for a decision should be omitted, no matter how interesting it may be.
Authoritative	The source of the information should be a reliable one. Not from a source that is not trusted.
Timely	The information should be available when needed.
Easy to use	Information should be clearly presented, not excessively long, and sent using the right medium and communication channel (email, telephone, hard copy, report, chart, etc.).

Codd (1982) identifies a number of functions and services that a full scale DBMS should provide. These include:

1. Data storage, retrieval and update - fundamental functions of a DBMS
2. User-accessible catalogue/data dictionary – repository information system that describes the data within the database.
3. Transaction support – ensures that any actions that are carried out on the database are consistent by updating all or none of them.
4. Concurrency control services – ensure that the database is updated correctly when multiple users are updating the database simultaneously.
5. Authorization services – allowing only authorized users access to the database.
6. Recovery services – mechanism for recovering the database in event of an accident.
7. Data communication support – ability to integrate with communication software.
8. Integrity services – a mechanism to ensure that the data and any changes made to the data in the database follow certain rule.
9. Services that promote data independence – inclusion of facilities that support the independence of programs from the actual structure of the database.
10. Utility services – should include utility programs, e.g. monitoring and import facilities and statistical programs.

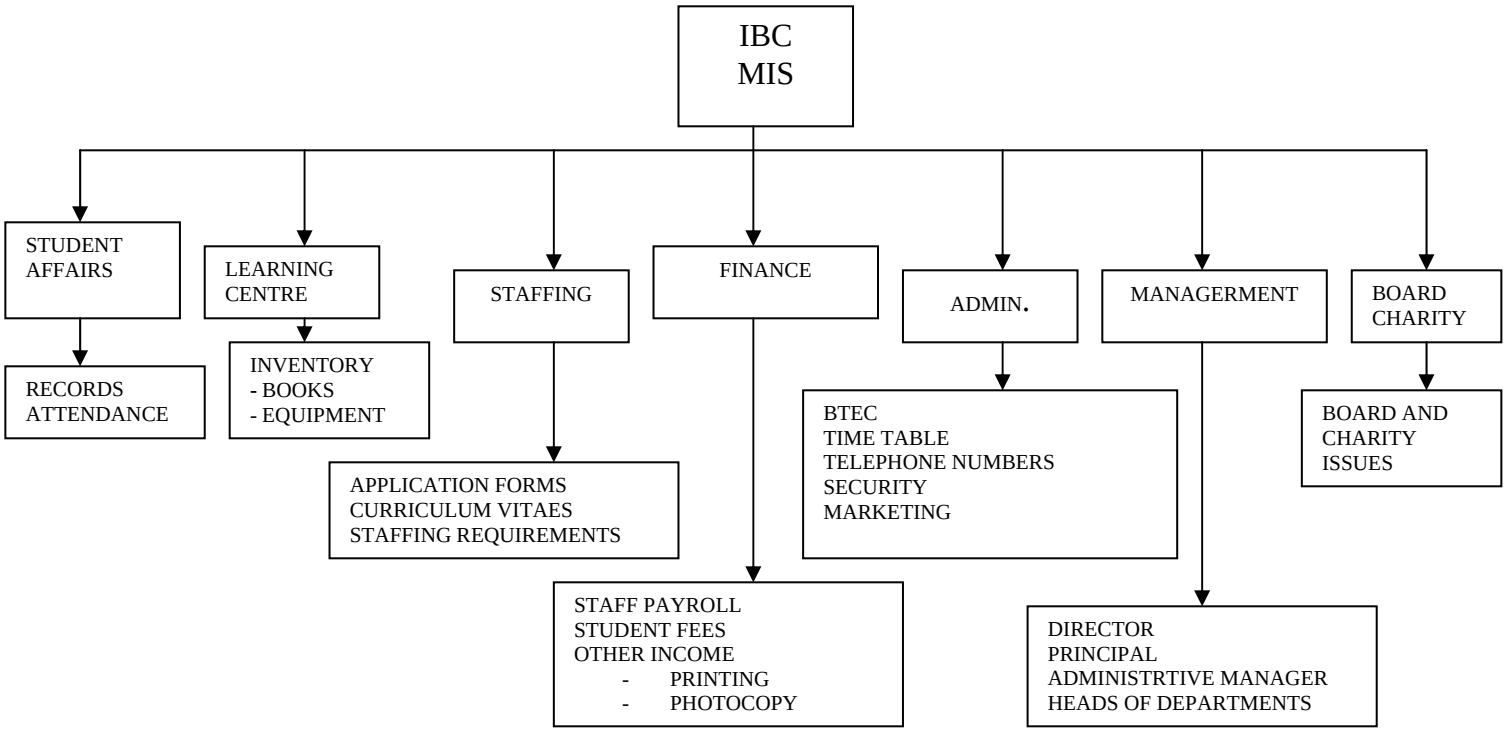
General Recommendations

In the process of developing and maintaining this Information System, I recommended seven phases to the Management of the college which must be strictly followed, with priority given to the necessary financial support which must be released on time as required.

Phase	Meaning
Requirements Analysis	What is the problem? Functions to be developed. Possible future extensions. Amount and kind of documentation. Performance characteristics for functions.
Feasibility study	Fact-finding using techniques. Technical, social and economic facilities.
Design	What is the solution? A system model, which solves the problem for the user.
Implementation	How is the solution constructed? A transformation of the design into an executable form.
Testing	Is the problem solved? Determining if the solution as constructed meets the requirements.
Delivery	Can the customer (IBC) use the solution?
Maintenance	Are enhancements/changes needed? Corrective – Repair errors Adaptive – Modify software to adapt to changes in environment Perfective – Providing new functionality for new requirements Preventive – Improving the system's maintainability.

International Business College – Management Information System Summary Modules

1.3



Conclusion

In conclusion, if the proposed system is properly utilized and staff are well trained, International Business College will be transformed into a new automated phase where things are done without stress. Both the administrative and academic staff will breathe a sign of relief from the years of time-wasting and energy-consuming modes of operation; and a relief from paper jam-packed offices that makes it difficult to lay hand on students' and staff's records on time.

Management Information Systems converts data from internal and external sources into information, and communicates that information in an appropriate form to managers at all levels. This enables them to make timely and effective decisions. Therefore an Institute of higher learning such as International Business College is not an exceptional. It requires information, which could be used in the following areas:

Planning: Planning requires knowledge of the available resources (human, material and financial), possible time-scales and the likely out come under alternatives scenarios.

Controlling: Once a plan is implemented, its actual performance must be controlled. Information is required to assess whether it is proceeding as planned or whether there is some unexpected deviation from plan. It may consequently be necessary to take some form of corrective action.

Recording transactions: Information about each transaction or event is required. Reasons include:

(a) Documentation of transactions can be used as evidence in case of dispute.
(b) There may be legal requirements to record transactions, for example for accounting and auditing purposes.
(c) Operational information can be built up, allowing control action to be taken.

Performance measurement: Just as individual operations need to be controlled, so overall performance must be measured. Comparisons against budget or plan can be made. This may involve the collection of information on, for example, costs, revenues, volumes, time-scale and profitability.

Decision-making: Good quality information should lead to better-informed decisions.

The task of management is carried out in the context of an organization. Over the past eighty years or so the development of coherent theories to explain organizational performance has moved away from approaches that relied purely on a consideration of structural or human relations issues in favour of more comprehensive prospective. Early ideas about management were propounded at a time when organizations were thought of as machines requiring efficient systems to enable them function effectively.

The emphasis therefore was on the efficient use of resources, especially human resources, in the service of a mechanistic model of organization.

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