

Developing Computerized Information System for Industries

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ABSTRACT

A detailed study of the organization, functioning, and requirements for the development of new information system of Cotton Craft (Pvt.) Ltd. was carried out which suggested the features and characteristics of the new information system. Because of the need of coordination with international markets, Cotton Craft (Pvt.) Ltd., needed a fast, feasible, and efficient information system which could hold there huge records over years. The software development tools included Visual Basic 6 and Oracle 8. The visual basic is used front end for developing the front-end i.e. graphical user interface. At back end for managing the data of the company Oracle 8 is used. The present information system is efficient, error free, user friendly and easy to operate.

Key Words: Computerization; Database; Information system

INTRODUCTION

The advent of computers had changed the world. This powerful and revolutionary technology has been affecting the world, nations and as well as the individuals. Now computer is affecting all fields of life and is becoming necessary for every field. Whether we call it the computer revolution, or the age of information, or automation, the arrival of personal computer holds the promise of much change ahead.

In present situation, most of the organizations are manipulating their data manually, putting their precious time and records at risk, without any security. The search for a specific file is cumbersome process and some time they fail in their search, this leads to realization to ease their work, which is possible with computers having sophisticated and user-friendly software.

The present project was aimed at the designing of such database system of some organization that had burdened itself under both the manual work and ill use of computers. For this project, it was decided to use Microsoft Visual Basic 6 and Oracle 8 due to their designing options and data handling capacity. The objectives of the present project included;

- To study the database system
 - To study the provisions of database system to the organizations, industries, and people
 - To study implementation of computer system in organizations, industries and for people
- Cotton Craft (Pvt.) Ltd. one of the developing surgical industries and had great scope for development on modern grounds. The old system of the Cotton Craft (Pvt.) Ltd. was analyzed and after a proper situation analysis, it was decided to develop a complete information system to fulfill the requirements of the company.

METHODOLOGY

A system is an inter-related set of components with an identifiable boundary, working together for some purpose. Hoffer *et al.* (1998) described the nine characteristics of a system. These characteristics are: components, inter-related components, a boundary, a purpose, an environment, interfaces, input, output, and constraints. The development of a system, which fulfills all the requirements of the end user and top management keeping in view all the constraints, is a very complex process that cannot be completed in a single step. The system development is performed in a series of steps and these steps are called phases of the system development life cycle (Shally, 1991). These steps are: a) Preliminary investigation; b) System analysis; c) System design; d) System implementation; e) System operation and support

Preliminary investigation: The purpose of preliminary investigation phase is to identify clearly the nature and scope of the existing problem mentioned in the system request. A written request from the management or end user triggers the start of the system development life cycle. This written request is called System Request (SR). A system request has feasibility if the request can be successfully implemented. Three separate types of feasibility are technical feasibility, operational feasibility, and economic feasibility.

To conduct a successful preliminary investigation, following five basic steps of preliminary investigation should be performed. These steps are followed regardless of the size of the project. These steps are: a) Obtain authorization to proceed; b) Identify the necessary information; c) Perform fact-findings to gather the required information; d) Analyze the information; e) Report to management.

System analysis. During the system analysis phase, the main task is to gather and record the facts about the current system, whether the system is manual or computer based, and what is required to support business needs. In the system analysis phase all the techniques applied in the preliminary investigation phase are applied but in detail.

System design. The most creative and challenging phase of system development life cycle is system design. The logical design of an information system defines the logical functions and features of the system and the relationships among its components. The logical design includes the output that must be produced by the system; all the input needed by the system, and processes that must be performed by the system.

In contrast the physical design of an information system is plan for the actual implementation of the system. The physical design is built on the system's logical design and describes the implementation of a specific set of system components. The system design activities include: a) Review the system requirements; b) Design the system; c) Present the system design

System implementation. The purpose of the implementation phase is to transform design into executable computer software, which will be then tested, implemented, and evaluated. For software development, it is necessary to identify functional requirements of the system. For system development, selection of software and hardware is very vital for success of any system. Developing the software consists of following basic steps:

- Analyzing
- Coding
- Testing
- Documentation

System operation and support. The system operation and support phase begins when a system becomes operational and ends when it is replaced. The system's analyst's most important goal is a system that meets business needs and is efficient, easy to use, and affordable.

After delivering the system, the analyst has two other important tasks. The first is to provide guidance and user training, which can include formal training sessions, technical support, and the creation of a centralized information center. The second responsibility is to perform necessary maintenance to keep the system operating properly and increases its value to users.

A system's performance directly affects the users who rely on it to perform their job functions. To ensure satisfactory support for business operations, the information system department monitors current system performance and anticipates future needs.

Various statistics are available to access system performance. An analyst working on the any system needs to analyze performance by measuring the response time, turnaround time, and throughput time.

Automated tools can also be used that provide valuable assistance during the operations and support phase.

A typical Computer Aided Software Engineering (CASE) maintenance toolkit provides various tools for systems evaluation and maintenance, including a performance monitor, a program analyzer, an interactive debugging analyzer, a restructuring tool or a reengineering tool, automated documentation tools, network activity monitors, workload forecasting software.

RESULTS AND DISCUSSION

Following the System Development Life Cycle (SDLC), the computerized information system was developed for Cotton Craft (Pvt.) Ltd. results regarding different steps of SDLC were similar to those of reported by Shally (1998) are presented in the following script.

On completion of the preliminary investigation phase a preliminary investigation report was presented to the management to inform them about the working of the old system, its drawbacks, proposal for the new system, expected benefits and other facts like cost estimates etc. After getting approval the system analysis phase was started.

During system analysis phase all the steps used for preliminary investigation were applied in detail, data flow diagrams (DFDs) were drafted to examine the flow of data in existing system. The end product of this phase was system requirements document, which was presented to management and their approval was obtained.

System design phase deals in output design, input design, and database design of the project. The results of the queries used for generating the output of the system are similar to those of Gennick (2000), who presented a methodology for developing the queries. The data normalization techniques given by Date (1999) are found effective. At the end of this phase system design specification was made. The findings in this phase are coinciding with those of Tognazzini (1996), who reported that the software design resources can be used their best if we use designers as designers, and programmers as programmers.

The forth phase in which after reviewing all the documents that have been made in the previous phases the coding of the software was started choosing the tools VB and Oracle. VB is an easy approach for developing the software, which is also concluded by the Hadfield (1998). Then the software was tested using different testing techniques like desktop testing, unit testing etc. as prescribed by the Jalote (1998). On completion of this phase complete working information system was in hand.

The last phase of the SDLC consists of checking the performance of the system and observing whether it is working according to the user's requirements. In this phase different types of maintenance are adopted like corrective adoptive and prefective. Different measures for maintenance, and managing system performance were explained to users and management.

After the implementation of the project it was evaluated so that its benefits for the company can be measured. The following advantages were obtained:

- In the new system chances of duplication are minimized
- Only those users are given access that has the authority to use it. By this way human intervention has been minimized in the system
- The new system gave complete and clean reports of all the operations on the requirement basis.
- The system has provided different hot-keys to save time of the operator during data entry. This eases the use of software
- Different alerts have been used in the new database.

CONCLUSION

Every developing organization should computerize their manual system as according to results obtained after this research and project it is concluded that the benefits of

the computerized system over manual or improper computerized system are more, it is the fast way and the need of today's market.

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