Revolutionizing Enterprise Resource Planning System in Nigeria Industries

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Abstract: *Although Enterprise Resource Planning (ERP) is widely used in the developed countries, and has become a vital tool that organizations solely depend on that relates the producers and consumers together which brings about efficient communication between them. But in Nigeria industries we still depend on paper works which inhibit and hamper expansion. Technology has gone beyond hand drafting; ERP integrates CAD/CAM, process planning, bill-of-material and product costing, it thereby makes the job very efficient and effective. Information about how customers relate with the organizations, facilitates easy flow of goods and services between the product managers and customers. I critically researched into technological advancement in the developed countries and concluded that the essence of ERP cannot be over emphasized, and try to build, develop and simulate system that integrates all the production management modules such as production planning, human resources department, customers' activities, financial & accounting, materials management , production process and operations etc.*

Keywords: ERP, Modules, Production, Management

1. Introduction

As the world is becoming a small global and industrial village, there is an urgent need for manufacturing companies in Nigeria to embark on the implementation of Enterprise System. While there was wide acceptance of ERP in developed countries such as the USA, Canada, the UK, and Australia, developing countries lagged far behind. North America occupied 66% of the ERP market at that time; Europe had 22%, whereas the whole of Asia was only at 9% [6]. Enterprise Resource Planning system is software that integrates all the various departments and functions of organizations into a single system. Production process is the conversion of input factors of production such as land (free gift of nature), labor (human resources), capital (all man-made resources) and enterprise (it brings land, labor and capital together to earn profit) for the production of goods and services e.g. design of automobiles, trains, bridges and etc. These factors of production can be equally classified as management, materials, money and machine. Management plays vital roles to ensure adequate controls of machines, money, materials, and which encourages high performance in the production, quality control and inventory reduction. The modules of production management are: Production planning, human resources department, customers' activities, financial & accounting, materials management, quality management, production process and operations etc. In this paper we discuss production management module and its development which plays vital roles in organizations. The essence of production manager platform in coordinating every activity that takes place related to machine, materials and money.

2. Background

Software is a revolutionary ERP system that's assembled to the individual needs of each user. Role-Based ERP is made up of Role-Based workbenches, which are screens configured to match each user's role within the company. [1] ERP was a conception proposed by Gartner Group in the early 1990 as a replacement for Material Requirement Planning (MRP) which dealt with provision of best service to customer, minimize inventory so as to reduce inventory cost and Manufacturing Resource Planning (MRPII) which dealt with production cost, inventory, material purchasing, information about sales, revenue, business plan, purchasing plan of part, finance all combined together and became a management information system that covered the whole production resource of enterprise (Gartner 2001) [4]. Enterprise system is a software solution that integrates all departments and functions into a single system that serve the needs of the entire company.ERP expanded its scope in 1990's to other "back-office" functions such as human resources, finance and production planning (Swartz & Orgill, 2001) [10]. It has extensively incorporated other business extensions such as production, human resources, finance & accounting, sales & distribution, materials management, and planning & demand. The major goal of ERP is to increase operating efficiency by improving business processes decreasing costs (Nah et al. 2001; Beheshti 2006) [7], [2]. ERP thus increase cooperation and interaction between all business units in an organization on this basis (Harrison, 2004) [5]. As a result of its benefits, ERP has become the backbone of business intelligence for organizations by giving managers an integrated view of business process (Parr & Shanks, 2000; Nash, 2000) [9], [8]. ERP is designed to adapt to new business demands easily. The continuous technological advancement and the increasing complexity of ERP require company companies to regularly upgrade their systems. Most ERP vendors provide an opportunity to update procedures and align with perceived best practices to meet changing business needs more quickly (Harrison, 2004) [5]. It is considered that the most common software functions that portal software solutions need to support include: data points and integration, taxonomy, search capabilities, help features, content management, process and action, collaboration and communication, personalization, presentation, administration and security (Collins et al. 2001) [3]. ERP solution usually combines all principal business process thus enabling company's personnel to constantly access up-to-the minute information from all functional departments. ERP software typically consists of modules such as financial management, supply chain management, manufacturing resource planning, human resource

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management and customer relationship management (Question and Answer About Mobile ERP) [11]   As a matter of fact, we need to move away from the traditional technique of production management which does not encourage expansion, efficiency and service delivery to the customers once production is not complete until it gets to the consumers and information about the products can be collected inform of feedback.

3. ERP Software Development

In a short word, ERP software is as other software, it is constituted by three modules shown in figure 2. Enterprise resource planning is an enterprise-wide information system that facilitates the flow of information and coordinates all resources and activities within the organization.

3.1 Database

Database plays an essential role in dynamic web pages; database is the collection of related files. The collection of related data with an implicit meaning that contains information relevant to an enterprise is systems designed to manage large bodies of information. The database system must ensure the safety of the information stored, despite system crashes or attempts at unauthorized access. The data are to be shared among several users; the system must avoid possible anomalous results. The Structured Query Language (SQL) is used to create and manipulate relational databases, Microsoft SQL Server was used to build relationship between data known as mathematic model design database for product manager platform; it serves as a messenger between the data and an application known as ERP system. Every module has its data separately, for example customers' information. To make sound decisions, managers need reliable, accurate data that can be transformed into information. Organizations use many methods to collect data, including surveys, interviews and document reading [12]. In ERP systems data are usually stored in database management systems (DBMS), the ERP systems can operate directly on data maintained by DBMS for the storage, manipulating and retrieval of data from a database such as update, insert, or delete. The cached data are periodically exchanged with data in the database tables. The main of the Content Access Engine is to convert data from a database into XML-based documents.
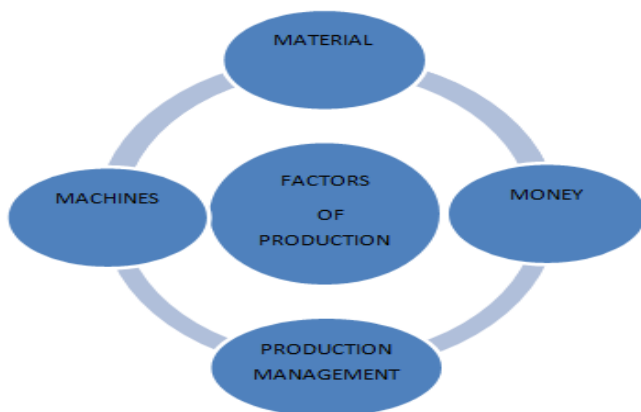

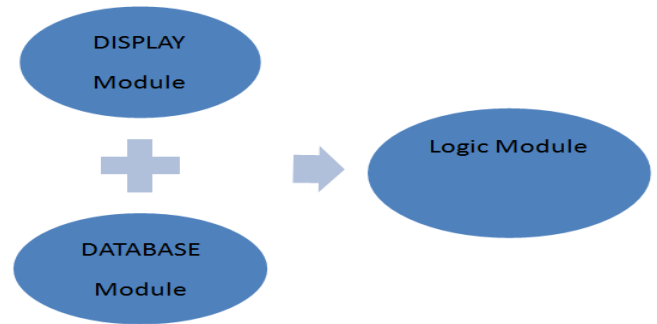**Figure 1:** Factors of Production schematic diagram

Figure 2: ERP Software Modules

3.2 Display Interface

Recently web pages are widely used to dispose data input and output. A custom program in (Hypertext Markup Language, html), which runs on standard client which is called browser, it communicates with web server which creates display result.

3.3 Logic Module

Java takes responsibility for data processing arithmetically or logically, and data are transported from database. After result is invoked, it is sent to display unit. HTTP defines the way in which web browsers interact with web server, it retrieves information about devices' features from HTTP headers and performs appropriate metadata transformations. It determines the form of presentation depending on the relevant characteristics of a device supported markup language, graphical formats, and size of the display area. It interprets and prepares web page to respond to Java object residing on a server that receives requests via internet, accesses resources and send the responses back to the network. The logic module is more closely with enterprise's activities. Although enterprise's activities are various which response their special laws, but a few types can be classified, such as stock management includes material in and out, and material stores; production plan which includes material processing serial, device process time serial, etc; purchase planning and sales planning is more similar to some degree.

4. Conclusion

In the course of carrying out this work, we developed a software called Production Manager Platform that has various modules integrated together and simulated it, which is user friendly. It made us to discover against the backdrop that ERP system is very expensive and difficult to install, it depends on the software vendors and providers that determine the implementation cost. It is users friendly, and users only need to be educated on how to use modules that concern their departments respectively. It will help to eliminate losses due to inventory risk, operation and production managers will have adequate communication system with improved reporting and compliance that enhance improved production efficiency. Problems associated with what, when and how to produce will varnish and improve decision making yielding competitive advantage in market. I strongly encourage our organizations to implement ERP system; it has economic advantage and positive results that project companies globally.

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