

Customized Application on Selected Modules Based on Enterprise Resource Planning (ERP)

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ABSTRACT

Commercial off-the-shelf ERP systems have been adopted by many large companies to support their inter- and intra-business processes. Midsize market firms are now also investing their use. However, research has indicated that about three quarters of attempted ERP projects are unsuccessful: a common problem encountered in adopting ERP software has been the issue of fit or alignment. This paper presents an ERP selection methodology, grounded in task-technology fits theory, for measuring, at a high-level, the misfit between ERP candidates and the enterprise's Requirements ex-ante implementation. With this approach, organizations can more easily and systematically determine the locations of possible misfit and their degree of importance, thereby understanding the risk in their implementing an ERP. Our research thus contributes practical solutions to the problem of misfit analysis and ERP package selection.

KEYWORDS: ERP, SM, MA, PS, COS, IBP, MMF, Software, CRM

Date of Submission: 27-02-2021

Date of acceptance: 12-03-2021

I. INTRODUCTION

A Customized Application based on Enterprise resource planning (ERP) is an integrated computer-based system used to manage internal and external resources including tangible assets, financial resources, materials, and human resources. It is a software architecture whose purpose is to facilitate the flow of information between all business functions inside the boundaries of the organization and manage the connections to outside stakeholders. Built on a centralized database and normally utilizing a common computing platform, ERP based systems application consolidates all business operations into a uniform and enterprise wide system environment.

Customized Application system can either reside on a centralized server or be distributed across modular hardware and software units that provide "services" and communicate on a local area network. The distributed design allows a business to assemble modules from different vendors without the need for the placement of multiple copies of complex, expensive computer systems in areas which will not use their full capacity had great knowledge but what has ignited Japan is the change in the managerial approach, which has resulted in the production of quality products.

The term Enterprise Resource Planning (ERP) is most commonly referenced in the context of commercially available software systems. ERP based custom Application provide an integrated suite of information technology applications that support the operations of an enterprise and are not, as the acronym ERP implies, limited to planning functions. The activities supported by ERP based systems include all core functions of an enterprise, including financial management, human resources management, and operations. Increasingly, ERP vendors are offering "bolt-on" products that provide specialized functionality to augment the core, such as Advanced Planning and Scheduling (APS), and Customer Relationship Management (CRM).

II. LITERATURE REVIEW

What is ERP?

Enterprise Resource Planning or ERP is an industry term for integrated, multi-module application software packages that are designed to serve and support multiple business functions. An ERP system can include software for manufacturing, order entry, accounts receivable and payable, general ledger, purchasing, warehousing, transportation and human resources. Evolving out of the manufacturing industry, ERP implies the use of packaged software rather than proprietary software written by or for one customer. ERP modules may be able to interface with an organization's own software with varying degrees of effort, and, depending on the software, ERP modules may be alterable via the vendor's proprietary tools as well as proprietary or standard programming languages

Brief History of ERP

The focus of manufacturing systems in the 1960's was on Inventory control. Most of the software packages then (usually customized) were designed to handle inventory based on traditional inventory concepts. In the 1970's the focus shifted to MRP (Material Requirement Planning) systems that translated the Master Schedule built for the end items into time-phased net requirements for the sub-assemblies, components and raw materials planning and procurement.

In the 1980's the concept of MRP-II (Manufacturing Resources Planning) evolved which was an extension of MRP to shop floor and Distribution management activities. In the early 1990's, MRP-II was further extended to cover areas like Engineering, Finance, Human Resources, Projects Management etc i.e. the complete gamut of activities within any business enterprise. Hence, the term ERP (Enterprise Resource Planning) was coined.

Why is it Necessary?

By becoming the integrated information solution across the entire organization, ERP systems allow companies to better understand their business. With ERP software, companies can standardize business processes and more easily enact best practices. By creating more efficient processes, companies can concentrate their efforts on serving their customers and maximizing profit.

Market Leaders

The top five ERP vendors, SAP, Oracle Corporation, Peoplesoft, Inc. (now Oracle Corp.), JD Edwards & Company, and Baan International, account for 64 percent of total ERP market revenue. These vendors continue to play a major role in shaping the landscape of new target markets, with expanded product functionality, and higher penetration rates. SAP dominates the \$6.7 billion ERP applications market in Europe with 39% market share. Oracle and PeopleSoft come second and third respectively, followed by SAGE Group and Microsoft Business Solutions.

The Future of ERP

Industry analysts expect that every major manufacturing company will buy the software, which ranges in cost -- with maintenance and training -- from hundreds of thousands of dollars for a small company to millions for a large company. AMR Research of Boston says consolidation among the major players will continue and intensify. ERP vendors are expected to put more effort into e-commerce, CRM and SCM initiatives, with leaders redirecting between 50% and 75% of their R&D budget to these projects.

Customized Application Based on ERP- Implementation goals and objectives

Enterprise resource planning (ERP) has been widely implemented application software across all the industries these days. Implementing ERP based customized application is the One of the part of them. Most of the manufacturing companies try to adopt ERP or ERP based customized application to employ the best practice. This article briefs you on goals and objectives of the ERP based custom application implementation. A Customized application based on Enterprise resource planning implementations has a lot of goals and Objectives that most of companies plan to achieve with the help of ERP implementation.

- 1.To achieve the potential growth rate.
- 2.Improves asset utilization (return on investment).
- 3.A abilities of the relevant information on regular basis.
- 4.Decision support system.
- 5.Scalability of the business operations.
- 6.Improve company performance.
- 7.Reduces operational costs and saves time.
- 8.Less time is needed to archive & store batch records.
- 9.In any changes, capability helps to fix problems quickly.
10. Lower cycle times in any process.
11. Less on-hand inventory is needed.
12. Less time is spent on entering, reviewing approving data.
13. Enables better decision-making: managers have visibility to real-time & accurate information (integration of all data into a common framework).
14. Changes can be implementing according to company requirement.

ERP Implementation Methodology

The concept of Enterprise Resource Planning (ERP) system essentially involves a set of applications that functions collectively in a single information system to assist all the cardinal areas of management process.

The system supports efficient project implementation management (for e.g. Market, supply, and negotiations), resource planning (human resources, finance, and materials), various types of accounting, results analysis, etc.

ERP system incorporates several remarkable features, which includes general management models for companies (of all range), almost real-time processing, centralized data repository, compatibility with a wide range of database management system (DBMS) and software platforms, support for holding company.

There is packaged software used in ERP, instead of proprietary software written by or for a single customer.

The ERP modules can usually interface with the software of the organization with varying degrees of effort. Further, the ERP modules can also be modified through the merchandiser's proprietary tools or standard programming languages, depending on the software.

Incorporating an ERP system can escalate the competency of commercial activities and production lines. It consolidates the knowledge and highest practices assembled by practitioners experienced during the numerous projects that have achieved commendable successful.

Different companies may install the same ERP software in totally different processes. The same company may implement different ERP software in the same approach. There are three commonly used methodologies for implementing ERP systems.

The Big Bang

Company's layout a grand plan for their ERP implementation. The installation of ERP systems of all modules happens across the entire organization at once. The big bang approach promised to reduce the integration cost in the condition of thorough and careful execution.

This method dominated early ERP implementations; it partially contributed the higher rate of failure in ERP implementation. Today, not many companies dare to attempt it anymore.

The premise of this implementation method is treating ERP implementation as the implementation of a large-scale information system, which typically follows SDLC (Systems Development Life Cycle).

But an ERP system is much more than a traditional information system in the fact that the implementation of ERP continuously calls for the realignment of business processes. Many parties involved in ERP software systems are not IT professionals. ERP more than automates existing business processes. ERP transforms the business processes.

Modular Implementation

The method of modular implementation goes after one ERP module at a time. This limits the scope of implementation usually to one functional department. This approach suits companies that do not share many common processes across departments or business units. Independent modules of ERP systems are installed in each unit, while integration of ERP modules is taken place at the later stage of the project. This has been the most commonly used methodology of ERP implementation. Each business unit may have their own "instances" of ERP and databases. Modular implementation reduces the risk of installation, customization and operation of ERP systems by reducing the scope of the implementation. The successful implementation of one module can benefit the overall success of an ERP project.

Process-Oriented Implementation

The process-oriented implementation focuses on the support of one or a few critical business processes which involves a few business units. The initial customization of the ERP system is limited to functionality closely related to the intended business processes. The process-oriented implementation may eventually grow into a full-blown implementation of the ERP system. This approach is utilized by many small to mid-sized companies which tend to have less complex internal business processes.

Implementation methodology

ERP implementation methodology involves the various processes and procedures, which constitute the condition or means for formulating the actual implementation of ERP projects. There are several ways for handling the project.

The ERP implementation methodology includes extensive services from the vendor. It is important for the companies to analyze each ERP implementation method, since the risk of failure in ERP implementation is existent and can be a highly expensive ordeal.

Different approaches to ERP implementation

Of the different ERP implementation methodology the major one, the most potent one's is the so-called joint ventures with respective companies of the same industry. This method allows the company to begin ERP implementation process on its own or share all the responsibility with the partners. This implies that it would be a shared platform where the files are shared with the joint venture company, as they will be a part of ERP implementation.

This method of ERP implementation has grown widely popular. However, the method suffers a significant set back – unwillingness among companies to share information, for they have to share the company secrets to practically their own competitors. Despite of such anomalies joint ventures are still considered as the one of the best ERP implementation methodology.

There exists another viable approach for ERP implementation methodology, which concentrates on the technical dimensions of the ERP project instead of the actual business. This does not imply that company will never achieve commercial viability. The merit of this method is that it avoids immediate restructuring of the company. The approach is completely hands off to the business structure, after considering all options regarding the technique.

A common method for ERP implementation is by concentrating on business structure. It essentially involves restructuring of the foundation of a business. It transforms the overall structure of the business through deliberate and strategic maneuvering. The modification in structure, the operation of trade and the factors that specify the calls for change and adaptability is received by the body again.

Apart from the above methodologies, ERP implementation is also accomplished by basing all the implementation on the present needs and resources of the company. The company can first go for a total ERP system and then have the ERP implementation on the organization. This would help in connecting the whole process with the people concerned.

However, the underlying fact is that irrespective of the ERP implementation methodology, it is important to choose appropriate software for generative ERP system implementation. The company must be able to utilize the software to its full potential, to have a successful ERP project.

III. RESEARCH METHODOLOGY

After the problem of this thesis is identified, we have to determine implementation problems that arise from inflexibility of database design. Thus, we have decided for a case study of implementation of a part (module) of an ERP system that would identify these problems. Therefore, we setup a two phased case study.

Firstly, we have developed a real application for specific requirements of an organization and for a particular area. Then we implemented the developed system for the same area but for a different organization.

Our aim was to capture more problems while we are implementing the application.

We expected that, specific needs of an organization would not meet the requirements of a different organization at our second implementation. In this context, we can determine the implementation problems at second phase of our case study. Then we can offer a new design to prevent some of the implementation problems. Also our system would be a learning system, because when we extend domain knowledge of a chosen part of ERP system then our program would cover more business processes and business intelligence in itself.

We have used generic database design steps for defense industry budget application needs. Then requirements collection and analysis have been done for construction industry. According to these requirements, we have considered the design again. We listed the problems that could arise, if we would have used the first design. After the determination of problems, we have considered the flexibility in generic database design process, especially in “conceptual design phase”. Our method to identify the problems of implementation is to setup two case studies. Steps of our research methodology involve;

- Select an application domain
- Select two different implementation domains for each case
- Design of a database for requirements of first implementation domain (Case 1)
- Requirements collection of second implementation domain (Case 2)
- Analysis of database design according to the requirements of the second case.

(2. Implementation domain)

- Determine and identify the problems that arise from inflexible design
- Propose a new design to prevent the implementation problems
- Analysis of the proposed design according to the requirements of case 2.

MRP, also known as Materials Resource Planning, is a technology that allows users to schedule processes to occur at a specific time in one location. Enterprise Resource Planning, on the other hand, is a technology that can be implemented on an international scale. While MRP is limited in how it can be used, ERP is not. Unlike MRP, ERP can work seamlessly with either the Internet or a company Intranet. Most ERP systems will use a server that is based on UNIX, while some also use Windows. It is also possible for users to install ERP on a mainframe system. In a nutshell, Enterprise Resource Planning could be seen as a form of reengineering.

This technology is responsible for combining consultants, software, and hardware into one unified whole. In this context the word "hardware" is used to refer to the computer. More specifically, it could also refer to a server.

Customized Application Analysis

ERP based customized application has been armed with highly regulated ERP solution for Pharmaceutical industry. With ERP customized application it has become easy to manage your business more effectively.

You are aware that for any Pharmaceutical ERP, compliance with GMP & FDA requirement considered as prime importance. Though 21 CFR Part II has been launched, many companies yet to tackle its practical implementation. User-friendly Customized Application is compliant to all statutory regulation and it is quick to implement. Pharmaceutical Industry has been categorized under Batch Process Manufacturing. Customized Application makes the process of forecasting simple. It is a powerful end-to-end business integration solution.

Benefits at a glance

- It improves GMP compliance: SOP adherence, operator skill set qualification, activity dependency, less operator errors, accurate batch documentation

It reduces operational costs and saves time:

- less time is spent on entering, reviewing & approving data
- lower cycle times (less quarantine time)
- less on-hand inventory is needed
- with less inventory, less storage space is needed
- less time is needed to archive & store batch records
- less product waste is generated
- higher yield are obtained.
- it improves asset utilization (return on investment)
- alerting capability helps to fix problems quickly
- It lowers paper archiving requirements: less storage, less people
- It improves product quality: by enabling people to respond more quickly to problems, the process control limits can be tightened; this enables the manufacture of drug ingredients or products more consistently (with less waste & higher yields)
- It enables people to focus on process improvement, not on compliance issues: people now have the opportunity to be empowered with continuous improvement or lean manufacturing initiatives.
- It enables better decision-making: managers have visibility to real-time & accurate information (integration of all data into a common framework)
- Extensive reporting, workflow and online real-time capabilities
- Increased Operational Effectiveness & Productivity
- Timely and target information feedback system for decision support
- Improved Customer Support
- Improved batch tracking management

Efficiency

Customized ERP Application is designed with operation efficiency in mind. Operational efficiency requires a system that addresses every aspect of your business. It helps to cut costs, enables quick market presence of the product, improve workflow and online real-time capabilities to any changes and comply with regulations.

Quality

Quality tops the priority list as far as any pharmaceutical company is concerned. Keeping this in mind, Customized ERP has been designed in unique style. Quality Control department with its integrated sophisticated Quality Control / Module which not only monitors quality by control plans in purchasing and production but also provides real-time process capability index for quick review.

Operational Problem:

Information technology managers identified three primary reasons for the failure of Customized ERP projects:

- poor planning or poor management
- change in business goals during the project
- lack of business management support
- More Time Require to changes

Since ERP Based Customized Application is an IT-related project, the above are valid reasons for explaining ERP implementation failures.

ERP Application Tools

working in the IT department. These are the people who will be responsible for making sure the software is maintained.

To understand Enterprise Resource Planning, it is first important to understand the applications that are associated with it. Much of the software that is used with ERP is multi-module. This means that it will assist companies in properly integrating their various processes. The most important areas for ERP applications is finance, human resources, and manufacturing. When a vendor sells a ERP module to a company that is related to finance, it will be capable of combining a number of different tasks. For example, some modules may deal with charts related to accounts and balances, while it may also be used to maintain expenses that are connected to the organization.

These expenses could be overhead, orders, or product costs. Perhaps one of the most impressive things about ERP tools is that they can be used to monitor the depreciation and appreciation of company assets. Examples of assets that can be monitored are stocks, equipment, and cash holdings. Another thing that this tool can be useful for is the maintenance of receivables and payables. If a company needs information about the accounts of their customers, ERP finance software can be used for this purpose as well. One area where this type of software is crucially important is ABC or activities based costing. Activities based costing is responsible for finding the true costs involved with a specific business strategy, plan, or operation.

As you can see, ABC could allow a company to become more productive and give it the ability to make more strategic decisions. In addition to finance, ERP software is crucially important for the human resources department. Before the introduction of ERP, maintaining the human resources element of a company could be challenging. In most cases, a company would be required to deal with extensive amounts of paper. When a new person was hired to the company, a number of forms had to be filled out. Some of these forms were applications, drug test information, and tax forms. As you can imagine, this paper work would grow as the company hired more employees.

As the amount of paper increased, managing it properly became more and more difficult. The process of human resources was first developed in the late 1970s. The few applications that existed were created to run on a single mainframe, and it was often built within the company. Human resources is a very important part of corporations, and a number of companies are using HR tools that are 20 years old. By the 1990s, a number of companies were looking for new ways to maintain their HR information. Some companies used various software tools, and problems arose when these tools were unable to effectively communicate with each other. The introduction of ERP solved these problems, because it allowed HR tools and process to be integrated into one cohesive unit. It allowed HR departments to work seamlessly, and the large piles of paper that had been present for so long There are three different type of software used for Deploy Customized Application

Developing Tools-- Visual Basic 6.0

Database Tools-- SQL Server 2000

Reporting Tools - Crystal Report XI.

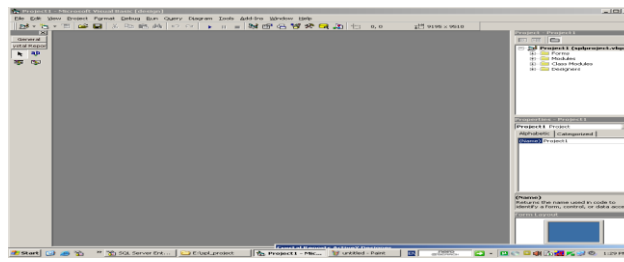
The combinations of among software to complete deploy ERP based Customized Application.

Customized Application on Selected Modules Based on Enterprise Resource Planning (ERP)

Developing Tools - Visual Basic 6.0

Visual Basic 6.0 (developing Tools) platform is use for design ERP based customized application.

Snapshots-

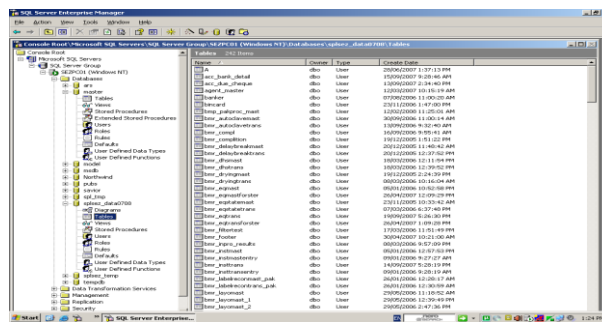


Visual studio Designing Platform

Database Tools - SQL Server 2000

SQL Server 2000 (Database Tools) platform is used for storage of data on server.

Snapshots-

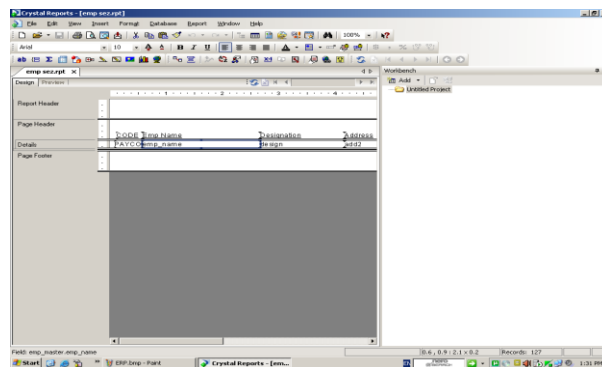


SQL Server Database Platform

Reporting Tools - Crystal Report XI

Crystal Report XI (reporting Tools) platform is used for report generate.

Snapshots-

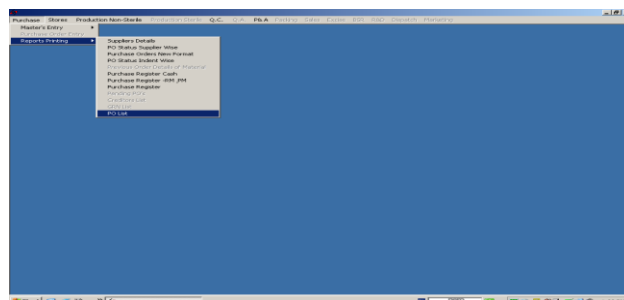


Crystal Report Generate Platform

Customized Application and User –

A platform where user interact with Customized Application and work at centralized location.

Snapshots-



Customized Application Platform

Modules Identified

The following modules are identified in the system.

(a) Purchase Order creation .Pending Material status .sending the system generated PO to Party all the king of activity comes under this module.

(b) Store GRN preparation. GRN approval .material transfer to stock Sample quantity approval .along with the GRN printing .Pending GRN status watch. All this activity comes under this module.

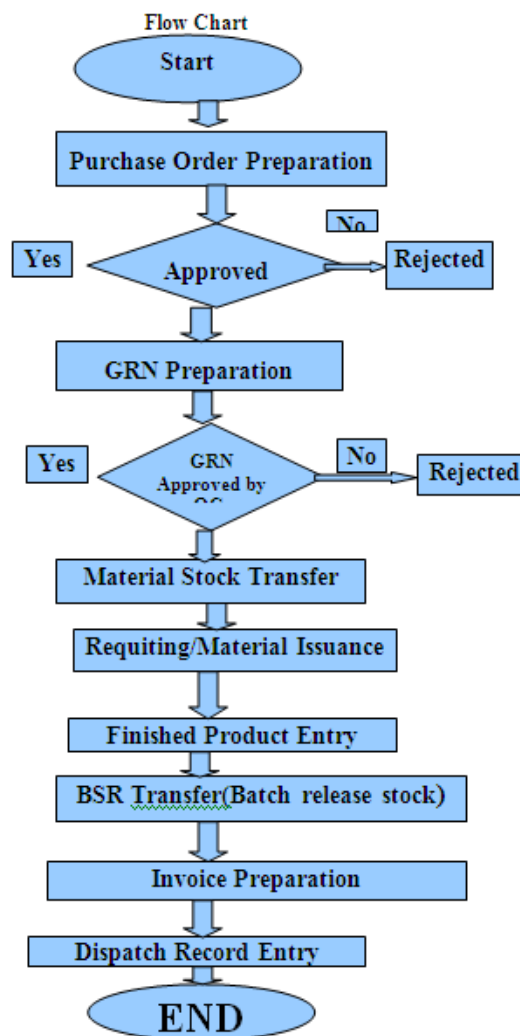
(c) Production module Creation of BMR .printing BMR .Material Consumption entry such type of Activity comes under this module

(d) Invoice System This Module dealing with the daily Invoicing. What product going to be dispatched to which party at what price . All the information are punched in this module

(e) Payroll system Leave Management .Salary generation, Bonus, Gratuity. Employee master Entry Maintenance .all such activity come s under this module

Module Selected for Implementation

All These modules are going to be specific module which may be used by many departments. So these modules are to be developed in generic and extendable way. These are achieved through the development of a spited sub modules which are then need to be integrate on to a single centralize platform to Form fully functional ERP based Application.



GRN= Goods Receipt Note

IV. CONCLUSION

ERP Based Customized Application systems provide a mechanism for implementing systems where a high degree of integration between applications is required.

The Business Case or Value Proposition for implementation must be outlined.

To successfully implement a proper mix of people, processes and technology should be maintained.

Too successfully work in proper way changes can be implementing in the customized Application according to company requirement.

Enterprise resource planning based customized application will bring the entire department on to the single database and eventually helps to company to achieve better communication between the departments.

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