International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 03 Issue: 12 | Dec -2016 www.irjet.net p-ISSN: 2395-0072

Study on the System application product (SAP) development important of ERP tool to organization success goals and performance

Atul R. Junnarkar[1], Dr. Ashutosh Verma [2]

[1] *Ph D Research Student , Maharishi University of Information Technology, Lucknow, India*
[2] *Research Guide , Maharishi University of Information Technology, Lucknow, India*

Abstract - *Systems, Applications, Products in data processing, or SAP, was originally introduced in the 1980s as SAP R/2, which was a system that provided users with a soft real-time business application that could be used in multiple currencies and languages. As client–server systems began to be introduced, SAP brought out a server based version of their software called SAP R/3, henceforth referred to as SAP, which was launched in 1992. SAP also developed a graphical user interface, or GUI. For the next 12 years SAP dominated the large business applications market. It was successful primarily because it was flexible. Because SAP was a modular system (meaning that the various functions provided by it could be purchased piecemeal) it was a versatile system. A company could simply purchase modules that they wanted and customize the processes to match the company's business model. SAP's flexibility, while one of its greatest strengths is also one of its greatest weaknesses that leads to the SAP audit. There are three main enterprise resource planning (ERP) systems used in today's larger businesses: SAP, Oracle, and PeopleSoft. ERP's are specifically designed to help with the accounting function and the control over various other aspects of the company's business such as sales, delivery, production, human resources, and inventory management. Despite the benefits of ERP's, there are many potential pitfalls that companies who turn to ERP's occasionally fall into.*

Key Words: SAP, ERP, organization, operational performance, management

1. INTRODUCTION

1.1. Segregation of duties

Security is the first and foremost concern in any SAP audit. There should be proper segregation of duties and access controls, which is paramount to establishing the integrity of the controls for the system. When a company first receives SAP it is almost devoid of all security measures. When implementing SAP a company must go through an extensive process of outlining their processes and then building their system security from the ground up to ensure proper segregation of duties and proper access. Proper profile design and avoidance of redundant user ID's and super user access will be important in all phases of operation. Along with this comes the importance of ensuring restricted access to terminals, servers, and the data centre to prevent tampering. Because each company will have different modules each company's security structure will be distinctly different.

A typical Example from SAP will be Creating a Vendor and also able to pay an invoice. The Create a Vendor Transaction is XK01 and pay invoice transaction FB60. If the User or Role in SAP has those two transactions then it will create a SOD Risk.

With security it all starts at the beginning with the proper design and implementation of security and access measures for employees. For new employees it is important that their access is set up properly and that future access granted has proper approval. After the system has been implemented the control over system changes and the approval process required for it is vital to ensure the continued security and functionality of the system. Without proper security measures in place from start to finish there will be a material weakness in the controls of the system because of this there will likely be some level of fraud as well.

Through security you are able to monitor who has access to what data and processes and ensure that there is sufficient segregation of duties so as to prevent someone from perpetrating fraud. One of the major advantages of SAP is that it can be programmed to perform various audit functions for you. One of the most important of those is for reviewing user access and using the system to cross check based on an access matrix to ensure that proper segregation is in place so a person with payment request access does not also have access to create a vendor.

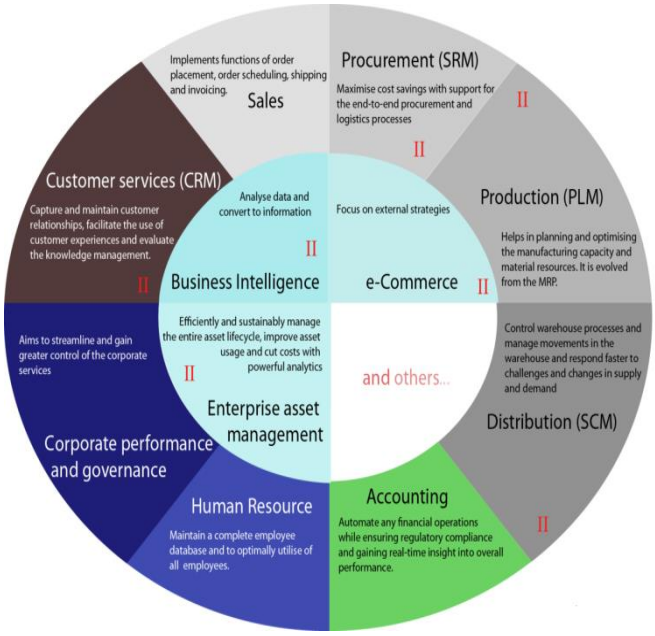

Fig-1.: SAP ERP modules

1.2. System changes

After ensuring that security is set up to ensure proper segregation of duties the next area of concern surrounding security is with regards to system changes. All companies should have three different systems: the development system, the test system, and the production system. All changes to production will need to be run through an approval process and be tested to ensure that they will function properly when introduced into the production system. The security around who can authorize a change and who can pull that change through into production is paramount to ensuring the security and integrity of the system. Review of this process and the people involved with it will be a key to the audit of the system.

The goal of auditing the access, steps and procedures for system updates is to ensure proper controls over change management of the system and to ensure that proper testing and authorization procedures are being used.

1.3. Data integrity issues

Because SAP integrates data from legacy systems it is important to ensure that the mapping of the interaction between the legacy systems and SAP is thorough and complete. Without that, any data received from SAP would be suspect. It is also important that proper backups of the database be maintained along with an up-to-date and practiced disaster recovery plan to ensure continuity after a disaster. A thorough review of these plans along with the mapping of system interfaces will be important in this phase of the audit. However because all SAP data are stored on inter-related tables it is possible for users with certain security to change them. It is important that the output be verified to ensure accuracy. SAP does provide some basic audit programs to assist with the review of data to ensure that it is processing properly. It is also customizable so that a user can create a program to audit a specific function.

The monitoring of change management, the moving of updates to the system from the development stage is one of the key elements of this particular concern. Because of this, review of the process of review and pull through to production needs to be a high priority.

1.4. Controls

Controls around the system need to be reviewed, especially around the accounts payable and accounts receivable sub ledgers. Auditors must perform or review reconciliations between SAP and external information such as bank reconciliation and A/P statement reconciliation. They must review cost centre and responsibility accounting, management review and budgetary control and the route of authorization for non-routine transactions.

The audit review should include a review of validation of data that is input in certain transactions, the design of ABAP statements and their authority checks matching documents prior to closing. Also, with regard to the master file control there must be an independent review of master file changes and creation of transactional responsibilities to identify any redundant master files.

When it comes to data integrity the primary concerns are the integration of data from the legacy systems and then ensuring that data being input into the system for processing has been properly approved and is accompanied by the proper documentation. Through reviewing these aspects of the processing from implementation through to production you can gain reasonable confidence that the controls surrounding the data are sufficient and that the data are likely free of material error. The use of the built in audit functions will greatly assist with this process and the ability to create your own audit programs will allow you to customize the work to the company you are working with.

1.5. Control risks

The two major control risks that need to be monitored with SAP are security and data integrity. To ensure that both are sufficient it is important that both be properly outlined and developed during implementation. User profiles must be designed properly and access must be sufficiently segregated to minimize the chance of fraud. Use of the SAP audit functions to cross check the user

access with the matrix of allowable accesses is the quickest and easiest way to ensure that duties and access are properly segregated. New and old users must be entered and removed promptly and avoidance and monitoring of any super user access is imperative. Review of the access to upload and pull through changes to production and review of the associated authorization process is important from both a security and data integrity point of view.

To further ensure data integrity it is important that proper documentation be reviewed along with confirmation of any external data available either through a legacy system or through a third party. This is important with regard to certain sensitive accounts, such as accounts payable. Review of controls around budgets and management review and also review of authorization for non-routine transactions and physical access will be imperative to ensuring the accuracy of the data input and output from the system. The use of and development of tools within SAP will help accelerate this process and help to ensure that it is accurate. These are the two most vital parts to any SAP audit and successful review of them should allow you to determine the adequacy of control around the SAP system and access to it to determine whether or not there are any material deficiencies with the systems control.

2. RELATED WORK

The phenomenon of globalization has been analyzed under the most different perspectives, but the consensus among all the opportunities created by technological advances in communications and information technology are the key factors that allow the occurrence of a breakthrough as significant as the interaction between individual and organizations around the world.

The remarkable technical progress in memory capacity of computers, software user friendly language to a huge numbers of users, and the development of the Internet and other media between computers, paved the way for the role of computers that is growing irreversibly within organizations, and even inside our homes.

The governments of various countries understand the irreversibility of this process and the importance of its impact on their economies and seek to discuss the rules of inclusion and control. In India this is initiating discussion and there are difficulties in its development, probably due to the complexity of the subject and the dynamic nature of computing itself and its multiple uses by society.

Company leaders, influenced by the effects of globalization, began to give special attention to the creation of more complete information systems that integrate the best internal operational areas between themselves and with their external audiences such as customers, shareholders, suppliers, financial institutions and government agencies. It would also need to rethink and reorganize the company for the new times, to review all procedures and the way they conduct business at the same time go by introducing new information systems that respond quickly to new market demands.

One example is in the area of fund raising. With the growing need for companies to seek funds in capital markets in the country and abroad to facilitate their growth plans, they began to live with shareholders and professional and sophisticated investors that demand continuously detailed information on their performance over time. This is forcing companies, in general, to adopt a new attitude of **"disclosure"** of information and develop new systems that allow them to have the information requested in this new process of investor relations.

Globalization, in short, created the need for systemic integration of the organizations that are responding with the development and adoption of **"enterprise system"**, dedicated to integrating operational areas among themselves and with the external environment and to incorporate knowledge and modern practices in the conduct of business. These systems are essential for companies to develop their competitive capabilities and can operate efficiently with the agents of the global market.

2.1. Benefits SAP ERP

Information Integrity

- Single entry point for information
- Simultaneous processing of inputs from various users
- Automatic updating of the database
- Common Data Base
- Operational aspects, financial and management are satisfied simultaneously

The use of common database involves the integrity of data and the lack of activities for maintenance of data consistency. The whole company will talk the same language. The update online information promotes greater agility and flexibility in the work.

2.2. Benefits of SAP

- Faster time to serve customers, external and internal.
- Smaller rework-integration between people and information.
- Point of contact for customers
- Easier to measure results
- Optimization of costs.

2.3. examples of modules:

CONTROLLING: Represents the flow of costs and revenues of the company and is a management tool for decision making.

FINANCE: Supports the Company's financial activities: accounts payable, accounts receivable, taxation, taxes, among others.

MATERIAL MANAGEMENT: This module supports the activities of supplies and inventory.

SALES AND DISTRIBUTION: This module helps the company optimize all activities related to sales, deliveries and collections.

PRODUCTION PLANNING: This module is used to plan and control the activities and manufacturing company. Develop Products and Processes.

Activities necessary to maximize the performance of products / parts and services (marketing, planning, engineering, manufacturing, quality, etc...)

Generate Demand

Activities needed to capture the request, commit to your care and subsequent recovery (marketing, promotions, planning, sales, sales management, credit, accounts receivable, etc …)

Meet Demand

Activities necessary to ensure the attendance of applications (sales, purchasing, accounts payable, manufacturing, quality, physical distribution, fiscal, etc.)

Consumer Watch

Activities necessary to extend the final consumer satisfaction with the product delivered (warranties, service and parts, etc.)

Manage the Business

Activities necessary for planning, control and general maintenance of business processes (strategic planning, controlling, finance, HR, quality, information technology, etc.)

INTEGRATION AND BEHAVIOR

SAP works in an integrated manner, which facilitates the activities of various areas in an integrated and independent way.

Emphasize that SAP integrates the activities performed by each department, requiring the user to have a different mentality it has today.

His actions have, since the implementation of the new system, impact on the activities of other areas of the company.

Show that today, the focus is still in activity and that with SAP, the focus will be in the process. With the integration between different areas, the Company will be able to work efficiently, serving its customers properly and supporting their activities more simply, through an integrated resource planning, saving waste of time with redundant activities.

This new view implies visible results internally and externally to the company, such as better management of resources (costs, needs and timelines), satisfied customers with an efficient and accurate service (no mistakes and false promises), and product development in an integrated way and so fast.

3. LITERATURE SURVEY

Although, ERP SAP and its use in manufacturing segment is comparatively a new stream of knowledge in Management arena, a lot of literature is published on internet and on print media. Following reviews of major Literature published during 2003 to 2013 are considered for the study.

Joseph R. Muscatello (2003) "Implementing enterprise resource planning (ERP) systems in small and midsize manufacturing firms", analyzed various ERP implementations & discussed the reasons of inefficiencies or failures of implementations in small and midsize manufacturing firms. The focus is on 4 case studies of ERP implementation projects in US & the process adapted so as to result into a successful implementation.

Injazz J. Chen (2003) "Planning of ERP systems: Analysis and future trends" has elaborated the importance of complete planning process of ERP implementation via selection of ERP application matching business processes, understanding organizational requirements and economic and strategic justification for the ERP implementation. On addition the new areas of opportunities & challenges faced in managing enterprise systems are also discussed in the study

Sachin Borgave and Chaudhari J.S (2010) "Indian Auto Component Industry: Challenges Ahead" encompass the strength of Indian Auto Component Industry as well as the challenges faced by the industry. Because of globalization, global market is open for industry but there is a need of substantial improvements in quality and service standards. On the other hand, globalization also posed a global competition in the industry segment

Young Moon (2007) "Enterprise Resource Planning (ERP): a review of the literature" has performed in depth literature review about the ERP. Various papers submitted related to this topic are collected by him for the reference of anybody who is doing further research on the subject.

The set of papers he has collected to various topics related to ERP such as implementation of ERP, Optimization of ERP, ERP management, ERP software, ERP case studies etc.

Deloitte research study published with the support from national science foundation (2005) "Globalizing Indian Manufacturing – Competing in Global Manufacturing and Service networks" focuses the state of Indian Manufacturing industry in Global competitive scenario. The study focuses on the potentials, growth opportunities, strategies the industries should adapt. The policy issues, challenges in supply chain collaborations, means of operational excellence, are mentioned in greater details.

4. RESEARCH METHODOLOGY

The most commonly used methodology for SAP implementation is ASAP (Accelerated SAP) methodology. Its purpose is to help design SAP implementation in the most efficient manner in a given situation. Its goal is to effectively optimize time, people, quality and other resources, using a proven methodology to implementation. ASAP focuses on tools and training, wrapped up in a five-phase process oriented road map for guiding implementation.

The road map is composed of five well-known consecutive phases:

- Phase 1 Project Preparation
- Phase 2 Business Blueprint
- Phase 3 Realization
- Phase 4 Final Preparation
- Phase 5 Go-Live and support

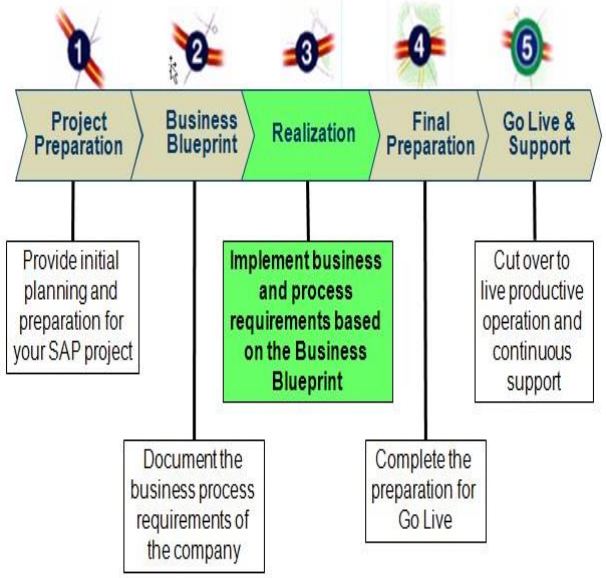

Fig-2: Accelerated SAP

Although the ASAP methodology is most commonly used in most of the implementations, different companies may implement SAP with totally different approaches. There are three commonly used methodologies for implementing ERP systems

The Big Bang Approach:

In this approach, the implementation of SAP 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 SAP implementations and also it partially contributed the higher rate of failure in initial period...

Modular Implementation Approach:

The method of modular implementation goes after one set of SAP module at a time and not all. This limits the scope of implementation usually to fewer functional departments. This approach suits companies that do not share many common processes across departments or business units. Independent modules of SAP systems are installed in each unit, while integration of all modules is taken place at the later stage of the project. This has been the most commonly used methodology of SAP implementation in recent days. The successful implementation of one module can benefit the overall success of an SAP project.

Process-Oriented Implementation Approach:

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 SAP 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 SAP system. This approach is utilized by many small to mid-sized companies which tend to have less complex internal business processes.

3. CONCLUSIONS

This paper discussed about the SAP development in organization any module in the ERP system is implemented by the consultants engaged by the company. After the implementation (installation), the system has to be used by the employees of the company who are called the end-users. They have to be accustomed to the way the system works to get optimum benefit from the system. Using the software at the end or after the implementation is an End User is the one who performs transactions in SAP after it goes live. Since the financial position of Indian farmers is very weak, the loan facility provided by the industries through Bank encourages the farmers to grow

more cane and also motivates the farmers. The loan amount is paid immediately to the Bankers from the farmers through factory will also increase the transactions of the Bank in turn both bankers and farmers are mutually benefitted.

REFERENCES

[1] IBEF (2007) "Auto components: Market and Opportunity – Report published by Indian Brand Equity Foundation (IBEF)", pp.1-14.

[2] S.Hanumanth Sastry, Prof. M.S.Prasada Babu (2013) "ERP implementation for Manufacturing Enterprises", International Journal of Advanced Research in Computer Science and Software Eng. (ISSN: 2277 128X) Vol 3, Issue 4, pp. 18-24

[3] Subhash Chander Verma (2013) "A study of factors responsible for growth, sickness, and Mortality of SMEs (bought out parts and ancillary) in MIDC Pimpri-Chinchwad", ASM's international E Jourinal of ongoing research in Management and IT, (e-ISSN-2320-0065), pp. 1-6. Muralikrishnan R (2012) "SAP Architecture History and Evolution" – A web article on basis on demand, pp 1-6

[4] Linda K. Lau (2005) "Managing Business with SAP: Planning, Implementation and Evaluation" (ISBN 1-59140-380-4), , pp.1-345

[5] IBM study (2009), "Challenges for the automotive industry in an on demand environment" – pp 1-27

[6] Timothy J. Sturgeon and Johannes Van Biesebroeck (2010) "Effects of the Crisis on the Automotive Industry in Developing Countries" WPS 5330, pp.1-31

[7] Mckinsey (2012), Delivering large-scale IT projects on time, on budget, and on value, 2012, pp.1-11

[8] Geneca (2010) "Interview based study of software project failure by Geneca, a software service company", pp. 1-3

[9] NSDC (2009) "Human resources and skill requirement in Auto and Auto component sector (2022)", Report by National Skill development corporation, pp 1-94

[10] Indian Brand Equity Foundation (IBEF) (2007) "Auto components: Market and Opportunity. A report by IMacs for IBEF, pp 1-28