



## Ensuring Secured Access to Business Data and Making Industries Trustworthy in the Market via SAP ERP

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**Abstract:** *In today's highly competitive business environment, there needs to be much greater interaction between customers and manufacturers. This means in order to produce products tailored to customer's requirements and provide faster deliveries, the industries must be closely linked to both suppliers and customers. In order to achieve this improved delivery performance ERP (Enterprise Resource Planning) Software is developed.*

*Here we are introducing SAP as one of the most widely used ERP product because of its ease of use and highly secure in data access. For customers implementing any ERP product, their first concern is how secured and authorized access to critical business data can be achieved. There are many modules in SAP, handling functional and technical aspects of business process. Here we will come to know how one can manage wide business process through SAP ERP and ensures security of industries valuable data from unauthorized access.*

**Keywords—** *SAP BASIS, SAP SECURITY, ERP, SAP MODULES*

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### I. INTRODUCTION

An Enterprise resource planning system (ERP) is a fully integrated business management system covering functional areas of enterprise like Production, Finance, Accounting and Human Resource. It organizes and integrates operation process and information flow to make optimum use of resources such as material, money, men and machine. In simple words, Enterprise resource planning promises one application, one database and one user interface for the entire enterprise. An ERP system enhances a manufacturer ability to accurately schedule production, fully utilize capacity and meet promised shipping dates.

Following points put some light on advantages of implementing ERP in industries.

#### 1.1 Benefits of ERP:

##### Scalability:

An ERP system is scalable. which means adding new functionality to the system as the business needs changes are easy. That is easy management of new departments, processes and more.

##### Improved reporting:

Much of the inefficiency in operational work comes from improper reporting. With an ERP system, this possibility is eliminated as reporting follows an automated system, making various departments to access information seamlessly.

##### Data quality:

As compared with manual record-keeping or other usual approaches, an ERP system improves data quality by improving the underlying processes. Which results, better business decisions can be reached.

##### Lower cost of operations:

An ERP system introduces fundamental innovations in managing resources, which eliminates delays and thus reduces cost of operations. Use of mobility allows real-time collection of data, which is absolutely essential to lowering costs.

##### Better CRM:

A default benefit of using a good ERP system is improved customer relations as a result of better business processes.

##### Business analytics:

Having high-quality data allows businesses to use the power of intelligent analytics tools to arrive at better business decisions. Many good **ERP systems** have built-in analytics functionality to allow easier data analysis.

##### Improved data access:

Controlling data access properly is always a challenge in organizations. With an ERP system, these difficulties are overcome with the use of advanced user management and access control.

##### Better supply chain:

Having the right ERP system in place means improved procurement, inventory, delivery, etc., essentially improving the entire supply chain and making it more responsive.

### **Regulatory compliance:**

Having the system in control means organizations can better comply with regulations. Further, the most recurring regulatory requirements can be built right into the system.

### **Reduced complexity:**

Perhaps the most elegant argument in the favour of ERP systems is that they reduce the complexity of a business and introduce a neatly designed system of workflows. This makes the entire business resource chain more efficient.

There are many more benefits of an ERP system, but these are the mostly used ones. Implementation of a good ERP system is inevitable in the modern economic scenario.

## **1.2 Top ERP Softwares present in Market:**

Depending on number of customers, business growth and popularity top ERP software are listed below.

**SAP:** Founded in 1972 by five former IBM employees, SAP is the undisputed market leader in the ERP space and is the third largest software company in the world. Its current version has more than 25,000 relational database tables that allow it to handle extremely complex business situations.

**Oracle:** While Oracle was formerly best known for its relational database, for many years the oracle was as database choice for SAP ERP applications. The first Oracle ERP product was Oracle Financials which was released into the market as early as in 1989.

**Microsoft:** Microsoft Dynamics is mostly focused on Tier II clients. It provides solutions in a number of different business domains including in the Customer Relationship Management domain.

**Infor:** Infor Global Solutions is a privately held company that has grown rapidly in the Tier II vendor space since 2002.. It has a global presence to match the footprint of the top 3 and has clients in 194 countries.

**Lawson:** Specifically it is tailored for the small to midsized business, Lawson has a presence in 68 countries and has more than 4,500 installations.

**QAD:** The QAD Enterprise Application is designed to make it easy for first time ERP users to begin using an ERP in their company with the least amount of migration problems.

**Sage:** It is a UK based company and had its beginnings in a 1981 summer job when the first version of a type of accounting software was written.

**IFS:** Founded in 1983, IFS is most useful four core strategic processes - service & supply chain and project management, asset management, manufacturing. It has a user base in excess of 3,000 installations and customers in 40 countries. One key reason for its success is its sharp focus on specific verticals.

**Consona Corp:** Deriving its name from 'consonance with the customer', Consona is active in ERP, CRM and other related fields. The company has grown by acquiring a number of specialist ERP companies.

## **II. RELATED WORK**

**Christopher P. Holland** [1] A Critical Success Factors Model For ERP Implementation explains how An effective IT infrastructure can support a business vision and strategy; a poor, decentralized one can break a company. More and more companies are turning to off-the-shelf ERP solutions for IT planning and legacy systems management. The authors have developed a framework to help managers successfully plan and implement an ERP project.

**Jongkyum Kim, Andreas I. Nicolaou and Miklos A. Vasarhelyi.** [4] Explains the use of ERP systems by client firms may help decrease the audit report lag, but it takes time for the full impact of the firms' accounting systems to be realized. research has been conducted on the relationship between ERP implementation and the timeliness of external audits, such as audit report lags. While some of the alleged benefits of ERP are closely related to removing impediments contributing to audit report lags, others argue that the complex mechanisms of ERP systems create greater complexity for control and audit.

**David C. Hayes, James E. Hunton,** [2] The objective of this research is to examine how the capital market responds when a firm announces that it plans to implement an enterprise resource planning (ERP) system. The market response to larger ERP vendors, as reflected by PeopleSoft and SAP, is significantly more positive than to smaller ERP vendors.

**John J. Morris and Indrarini Laksmana** [5] This study examines the impact of ERP systems on earnings management. We use the absolute value of discretionary accruals as a proxy for earnings management, comparing levels for 143 firms in 32 industry groups that implemented ERP systems between 1994 and 2003 to levels for a control group. We find that over a ten-year period surrounding the implementation date, ERP implementers show a significant decrease in the absolute value of total discretionary accruals, while the control group does not.

**Kyung-Kwon Hong Young-Gul Kim** [6] This study defines the concept of organizational fit of ERP and examine its impact on ERP implementation, together with ERP implementation contingencies. The results from our field survey of 34 organizations show that ERP implementation success significantly depends on the organizational fit of ERP and certain implementation contingencies.

## **III. PROPOSED WORK**

In order to compete and win in today's global market environment, better management of resources is an important criterion. Implementation of SAP ERP controls different functions and enhance company efficiency. Latest technologies equipped with in SAP ERP software package helps in better controlling and management of data. If implementation of SAP ERP is done according to company requirements, it assures you more return on investment.

The paper studies ERP concept and importance of implementing it in small as well as large scale industries. To understand how large companies manage their supply chain management process with the help of various available ERP software. The main objective is to have brief knowledge of SAP ERP and handling SAP Security in post implementation of SAP ERP.

#### IV. SAP OVERVIEW

##### Introduction to SAP:

SAP stands for “**S**ystems **A**pplications and **P**roducts in **D**ata **P**rocessing”. It was Founded in 1972 by Hector, Plattner, Wellenreuther, Tschira and Hopp. They were employees of IBM company. SAP is number one in the ERP market. As of 2010, SAP has more than 140,000 installations worldwide, over 25 industry-specific business solutions and more than 75,000 customers in 120 countries. SAP system comprises of a number of fully integrated modules, which covers virtually every aspect of the business management.

Overall functionalities present in SAP Software are categorized in different function specific packages called as ‘SAP Modules’.

##### Modules in SAP:

In order to support functions in small and large industries, SAP Business process support is divided in multiple SAP modules. Following diagram explains available SAP modules.

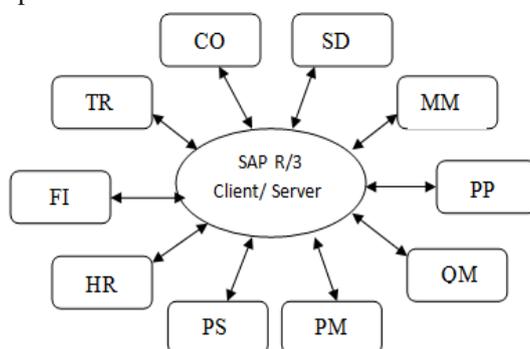


Figure A: Standard SAP Modules

##### Types of SAP Modules:

All SAP modules are mainly divided into 2 types. Technical modules and Functional modules.

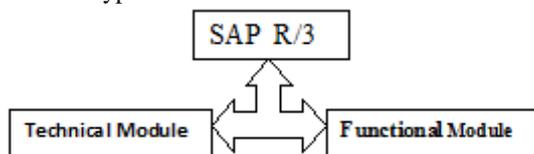


Figure B: Types of Modules

##### Functional modules:

Following SAP modules come under Functional modules.

Table1: Functional Modules

Module	Description
SAP CRM module	Customer Relationship Management
SAP FI module	Financial Accounting
SAP TR module	Treasury
SAP MM module	Materials Management
SAP PM module	Plant Maintenance
SAP PP module	Production Planning
SAP HR module	Human Resources
SAP SD module	Sales and Distribution.
SAP FSCM module	Financial Supply Chain Management
SAP PLM module	Product Lifecycle Management
SAP QM module	Quality Management.
SAP CO module	Controlling
SAP RE module	Real Estate

SAP SCM module	Supply Chain Management
SAP SM module	Service Management

**Technical Modules:**

Following SAP modules come under Technical modules.

Table 2: Technical modules

Module	Description
SAP BASIS module	Basis Admin, administration of SAP
SAP ABAP module	Advanced Business Application Programming
SAP BI module	Business Intelligence
SAP BPC module	Business Planning and Consolidation

Technical people in the SAP system need to support technical modules of SAP system. Like SAP security and administration which comes under SAP BASIS module. Thus SAP BASIS module mainly focuses on security and administration of system.

**SAP SECURITY:**

SAP Security is same as normal security concept around the globe like removing or restricting unauthorized access to system. In other words who can do what in SAP?

SAP Security starts with some key points such as User master record, Roles and Profiles, Authorization Object. User master record contains information about user e.g. Username, Roles, Authorizations, User type and Validity of user. Whereas Roles and profiles are collection of authorization objects that provide necessary rights to user to access SAP system. Finally authorization objects are the smallest entities which actually define authorizations that user have.

All above activities in SAP are done using transactional codes called as ‘SAP TCODES’.

**SAP TCODES:**

SAP Transaction code is a short cut key attached to a screen. Instead of using SAP easy access menu we can also navigate to a particular screen in SAP by entering the transaction code. By entering a transaction code instead of using the menu, one can go to a task and start the function in a single step.

**SAP SECURITY TCODES:**

Most frequently used Tcodes in SAP Security are listed below. These are very important and critical Tcodes, only Security consultant should have access to these TCODES in SAP environment.

Table 3: SAP Security Tcode

Tcodes	Description
SU01	User Maintenance
SU01D	User Display
SU02	Maintain Authorization Profiles
SU03	Maintain Authorizations
SU05	Maintain Internet users
SU10	User Mass Maintenance
SMLG	Maintain Logon Group
SUPC	Profiles for activity groups
SUIM	Info system Authorizations
PFCG	Profile Generator
PFUD	User Master Data Reconciliation

**Need of Security:**

SAP Security is nothing but the way of controlling and restricting unauthorized access to SAP system. As information stored in SAP is one of the most valuable assets of company, it should ensure confidentiality, Integrity and availability of business data.

Confidentiality: Prevent users from viewing and disclosing confidential information.

Integrity: Ensure the accuracy of the information in company’s system.

Availability: Prevent the accidental or deliberate loss or damage of company’s information resources.

Besides all of these, security is must to fulfil legal requirements like SOX, HIPAA and ITAR ACTs which prevents frauds in company and makes company trustworthy for stock holders.

**Sarbanes–Oxley Act (SOX):**

The Sarbanes-Oxley Act of 2002 (often shortened to SOX) is legislation passed by the U.S. Congress to protect shareholders and the general public from accounting errors and fraudulent practices in the enterprise, as well as improve the accuracy of corporate disclosures.

**HIPAA:** It is the federal Health Insurance Portability and Accountability Act of 1996. The primary goal of the law is to make it easier for people to keep health insurance, protect the confidentiality and security of healthcare information and help the healthcare industry control administrative costs.

**ITAR:** (International Traffic in Arms Regulations) and the EAR (Export Administration Regulations) are export control regulations run by different departments of the US Government. Both of them are designed to help ensure that defense related technology does not get into the wrong hands

SAP provides standard mechanism to avoid any violation of above ACTs and fulfils all legal auditing. By following standard SAP Security matrix one can easily pass auditing process for the company and can become SOX certified company.

These functionalities of SAP come under SAP Security Module and Person taking care of it is known as SAP security consultant.

## V. CONCLUSIONS

Implementation SAP can provide a lot of benefits to organization such as decreased cost, increase level of data security and consistency, enable different departments such as Distribution, Manufacturing and Marketing etc. to share information together, increasing ability to do e-business. SAP provides SAP BASIS security module to ensure secured and authorized access to business data. Overall SAP is very useful ERP product to maintain financial and nonfinancial transaction records which eventually helps to decrease overhead of audit process. An implementation of SAP ERP can build the foundation for future growth, and converts into improved productivity, cost savings, and a much better bottom line.

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