

# INTEGRATED MANAGEMENT PLATFORM TO STREAMLINE CUSTOMERS, VENDORS AND EMPLOYEES USING SAP

Asmithaa P M<sup>1</sup>, Nafisa Mukhtar M<sup>2</sup>, Mr. Chandru K S<sup>3</sup>

<sup>1</sup>Department of Computer Science and Business Systems & Bannari Amman Institute of Technology

<sup>2</sup> Department of Computer Science and Business Systems & Bannari Amman Institute of Technology

<sup>3</sup> Department of Computer Science and Business Systems & Bannari Amman Institute of Technology

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**Abstract** - In today's world, SAP is one of the leading solution providers. SAP consists of several modules. It is difficult to access and analyze it separately and it is a time consuming process. It is highly complex and the end user cannot easily understand its functionality. A user-friendly application which would help users understand the process better is necessary. Integration with all the modules would help us to work better. The main objective of the portal development is to make oneself gain business level understanding of the SAP core functional modules. One should design an SAP ERP Portal for a particular organization which is a user-friendly portal. SAP Portal needs to be developed for below given verticals, the front-end portal application needs to be developed using Angular (UI/UX) and the SAP ERP system will be the data center for Angular application. The algorithm would be to create a full stack application with a safe and secure backend, middleware to fetch the data from the backend and give it to the frontend, and an user-friendly interface which will act as the frontend. Integration of the backend database with the front end with the use of NodeJs and we achieve this by testing the authenticity of the WSDL link in postman and SoapUI.

**Key Words:** SAP, ERP, User friendly, UI/UX

## 1. INTRODUCTION

An application is said to be efficient when all the users of the application feel complete ease of operation. Therefore, the objective of this paper is to develop an user friendly and reliable application that integrates three important pillars of any organization i.e. the end users, the employees and the contractors. The effectiveness of an application has a large impact as referred from [14]. In other words, the customers, the vendors and the employees. The employees of an industry directly reflect upon the standards and values followed inside the organizational setup. On the other hand, the customer satisfaction reflects upon the quality of services provided by the organization. Evaluating each of these pillars viz. customers, vendors and employees is an important milestone to increase organizational effectiveness and will be analyzed in the course of this paper.

## 2. LITERATURE SURVEY

There are many players in the enterprise resource planning (ERP) market, including SAP, one of the biggest ERP software providers in the world.

**Oracle ERP Cloud:** With its cloud-based ERP solution, Oracle is one of SAP's biggest rivals [1]. Many of the same features that SAP offers are also available in Oracle ERP Cloud, including project management, financial management, and procurement. **Microsoft**

**Dynamics 365:** Another cloud-based ERP solution that competes with SAP is Microsoft Dynamics 365. Numerous modules, such as financials, supply chain management, human resources, and project management, are available through Microsoft Dynamics 365[2].

**Infor:** significant player in the ERP market is Infor, which provides a broad range of solutions for various markets, including manufacturing, healthcare, and retail [3]. A number of modules are available through Infor ERP, such as financial, supply-chain, and human resource management.

**NetSuite:** Financials, supply chain management, and project management are just a few of the modules offered by the cloud-based ERP system NetSuite. The scalability and simplicity of use of NetSuite are well known [4].

**Epicor ERP:** For manufacturing and distribution businesses. Epicor is a well-liked ERP solution. A number of modules are available through Epicor ERP, including financial, supply chain, and production management from citation [5].

The reason for choosing SAP for this project implementation are briefed below

- **Functionality:** SAP is renowned for its extensive functionality, which spans a wide range of business processes and industries.
- **Scalability:** Large, complex organizations can be supported by SAP, which is highly scalable.
- **User-friendliness:** The ease with which SAP provides solutions is what prioritize SAP above all other ERP players.

Using SAP in the most efficient way possible will simplify the development process as well as to yield better solutions to end users as referred in [19].

### 3. PROPOSED METHODOLOGY

To develop a web application that would incorporate all the verticals under one platform, so the vendor, employee, or customer can log in with their given credentials on the website to look into the details and transactions that take place, which would provide them a clear understanding of their data and make the process even more hassle-free.

In order to build an integrated management platform as stated in [8] we incorporate different verticals, from the procurement of raw materials to the delivery of finished goods, the selection of modules concerning vendor, customer, and employee of the organization is necessary. SAP includes a broad spectrum of modules under it. The main areas of concern here fall on Material Management (MM) as in [11], Sales and Distribution (SD), and Human Capital Management (HCM) modules as stated in [12].

#### 3.1 MATERIAL MANAGEMENT

The Material Management (MM) module inferred from [11] in SAP is responsible for managing the procurement process, inventory management, and materials planning. It is one of the core modules of SAP ERP, and it integrates with other modules such as Sales and Distribution (SD), Production Planning (PP), and Financial Accounting and Controlling (FI/CO). The MM module provides a range of functionalities such as purchasing, vendor evaluation, inventory management, and material requirements planning. It enables the organization to automate and streamline the procurement process, thereby reducing the procurement cycle time and enhancing the procurement efficiency. The following details are included in the platform to provide the vendors a clear understanding of the procurement process.

- **Procurement:** The MM module enables the organization to automate the procurement

process, starting from the purchase requisition to the purchase order and invoice verification.

- **Inventory Management:** The MM module provides tools to manage the inventory effectively. It includes functionalities like stock transfers, inventory valuation, and inventory reporting.
- **Material Requirements Planning (MRP):** The MM module allows the organization to plan the material requirements based on the demand and supply of materials. It helps in maintaining an optimum level of inventory.
- **Vendor Evaluation:** The MM module provides tools to evaluate the vendor performance based on the quality of goods, delivery time, and service levels.
- **Material Master Data:** The MM module maintains a database of material master data, which includes information about the materials, such as their description, price, and stock level.

This enhances the visibility of the supply chain and helps maintain an amicable relationship between the vendor and the organization, as the vendors will now be able to view all the transactions in it.

### 3.2 SALES AND DISTRIBUTION

One important SAP module that concentrates on sales and distribution procedures is called the SD module. Sales and distribution is the initials SD. Pre-sales activities, inquiries, quotations, sales orders, deliveries, billing, and customer support are all managed by this module. It also handles the entire sales and customer service process.

The SD module's primary duties include the following:

- **Management of sales orders, quotes, and contracts** consists of the creation, processing, and administration of these documents.

- **Pricing:** This entails figuring out how much goods and services cost, including any discounts, taxes, and surcharges.
- **Billing and invoicing:** This includes producing invoices and overseeing the processes involved in charging customers for goods and services.
- **Transportation and delivery:** This includes overseeing the shipment of goods and monitoring their arrival.
- **Managing customer requests, grievances, and returns** falls under the category of customer service and support.
- **Sales analytics and reporting:** This entails creating reports and examining sales data to learn more about how the sales team and company are performing.

This data will throw light on what kind of expectations our customers have on us. It will also help us analyze our performance.

### 3.3 HUMAN RESOURCE

An organization's human resources processes are managed by the SAP HR module, also referred to as SAP Human Capital Management (HCM) as cited in [12]. The HR module covers a variety of HR tasks, such as hiring, managing performance and talent, managing payroll and time, and administering benefits.

Organizational management entails defining the structure, positions, and job descriptions of the organization. This includes

- **Maintaining employee data**, such as personal details, employment histories, and job assignments, falls under the category of personnel administration.
- **Recruitment and Hiring:** Managing the hiring process, from job postings to the choice of new hires, is included here.

- Performance management is the process of establishing objectives, tracking results, and rating employee performance.
- Talent management entails succession planning along with the identification and development of talent within the organization.
- Payroll and Compensation: Managing pay, benefits, and payroll processing are all included in this.
- Tracking employee attendance, leave, and overtime is part of time management.
- Employee Self-Service: This gives staff members access to their personal data and enables them to view and update their payroll information as well as request time off.

This data throws light on how the employees feel about their work environment and also to analyze their performance.

## 4. IMPLEMENTATION

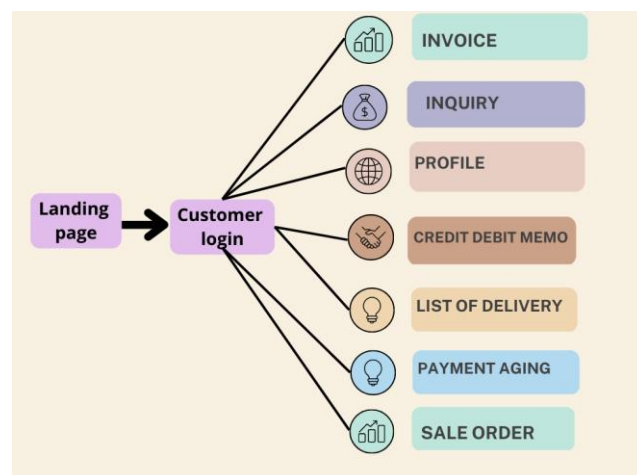
The developed system will have a frontend which would be designed with AngularJS. Navigations have been set up in this landing page so that users specific to that particular area might login with ease hence, the login page is planned to have three navigation links each for customer, vendor and employee.

When the user clicks on his/her role in accordance with the organization he/she will further be directed to the login pages where the username and password will be evaluated. Invalid credentials will deny the user the access of the information thereby enforcing security of data.

### 4.1 APPLICATION DESIGN AND FLOW

#### 4.1.1 CUSTOMER NAVIGATION FLOW

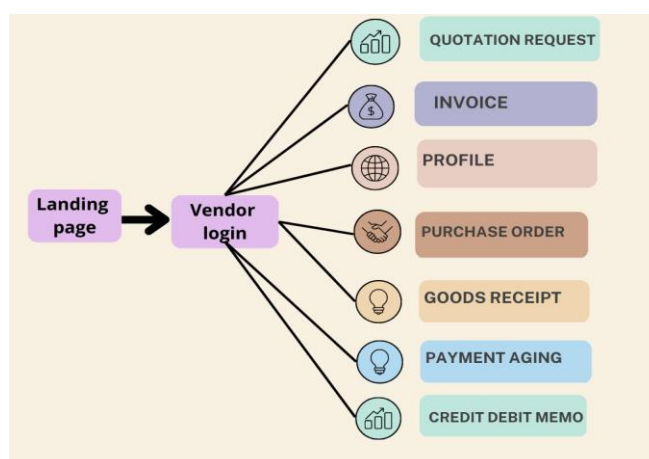
The customer details such as the invoice, inquiry, profile, credit debit memo, list of delivery items, payment aging and sale order data will be displayed when requested by the user.



**Fig 4.1** Customer navigation flow diagram

The customer details will be fetched from the backend SAP system which is developed using ABAP. The backend logic is coded using ABAP in the functional modules respective to its functional group. An RFC middleware is developed to bring this fetched data from the backend to the frontend and the frontend is designed using AngularJS. The middleware RFC's are tested using Postman GET link to verify for bugs/errors made during software development.

#### 4.1.2 VENDOR NAVIGATION FLOW



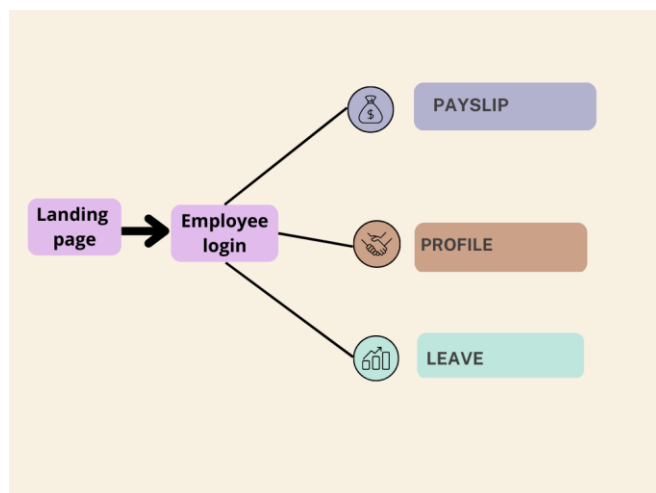
**Fig 4.2** Vendor navigation flow diagram

The vendor details such as the inquiry, profile, credit debit memo, purchase order, payment aging and goods receipt data will be displayed when requested by the user upon authorization.

Similarly, to display the vendor details, the data is fetched from the backend SAP system through the use

of function modules. The backend logic is coded using ABAP in the functional modules respective to its functional group. The middleware to transport data is PIPO. This is also tested in the Postman using GET request and the frontend deployment will be done using Angular JS

#### 4.1.3 EMPLOYEE NAVIGATION FLOW



**Fig 4.3** Employee navigation flow diagram

The employee details will include leave, profile and payslip data. The backend logic is coded using ABAP in the functional modules respective to its functional group. Similarly, to display the employee details, the data is fetched from the backend SAP system through the use of function modules. The middleware to transport data is PIPO. This is also tested in the Postman using GET request and the frontend deployment will be done using AngularJS.

## 5. CONCLUSION

Every product available in the market has gone through an elaborate process to be there. The raw materials are procured, manufactured, and then retailed for sale as per the need of the customer. The Key players involved in this process are vendors, customers, and employees. They are the ones who bring success to the organization. SAP is highly complex, which makes it

difficult for a person to understand. To promote integrity and build friendly relationships with the ones who bring value to our organization, we must develop a system to make their work easier as referred to in [19].

Integrating vendor, customer, and employee portals under one platform enhances the visibility of the process, enables secure payments, and ensures on-time delivery of the products. Employees are the pillars of the organization who keep it running. We can achieve employee satisfaction when the work environment is amicable and by providing numerous benefits like flexible leave, timely salary, and bonuses. Instead of making this process tedious, this application will help them to view their data with a single click and boosts employee retention levels.

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