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Business Enterprise System for ERP on Large and Medium Enterprise

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ABSTRACT: *Enterprise Resource Planning is a cross-functional system that helps in the integration of business processes and the coordination of information systems within businesses. This paper highlights the adoption of enterprise resource planning systems in large and medium enterprises. The paper discusses the changes derived from the adoption of the ERP system in various functional departments such as managerial, operational, and IT infrastructure. Overall, the ERP software leads to better performance management, cost-effectiveness, and the enhancement of business flexibility for both large scale and medium enterprises. The key ERP software in the market includes SAP, Oracle, and Salesforce. The web-based design architecture is the currently adopted structure of all key ERP systems for businesses. They incorporate the use of internet and web-servers to issue and receive commands from users. The paper also highlights how agile methodology has impacted the ERP systems by ensuring high levels of flexibility, customized functionality, and collaborative decision-making in large and medium businesses. Finally, the benefits of the ERP software are felt throughout key functional areas of the business leading to an integrated communication framework, effective decision-making, and smooth flow of information throughout the firm.*

KEYWORDS:*Enterprise Resource Planning(ERP), Web-Based Design, Agile Methodology, SAP, Oracle, Flexibility, Customized Functionality, Integration, Smooth Information Flow.*

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I. INTRODUCTION

The business industry has undergone radical changes over the years as the use of the internet has become an essential component in the day-to-day activities of the firm. The business world has become dynamic, and integration of services within the corporations has become a necessity for businesses both large and small scale. It ensures proper management of the company resources and establishing a steady and smooth information flow system. This ensures an effective and proactive communication framework that shall enhance the operation ability of business entities through high levels of productivity and ambient integrated information systems that result in proper management and data integration. Through the Enterprise Resource Planning(ERP), this has become possible as these platforms have provided viable business environments for business entities to monitor all the functional processes and cohesively ensure strong coordination. This seeks to ensure high-level productivity plus also provides amicable working conditions for high-level innovation and continuous growth of the large and small scale corporations. The ERP packages are created towards specific organizational structures that help in shaping the operations within the firms by ensuring that the management practices embedded by the ERP vendors are strictly adhered to. This makes it much cost-effective to incorporate the use of this business software in determining the objectivity and futuristic growth of the firms.

II. ERP FOR BUSINESS

The enterprise systems, commonly known as the enterprise resource planning business software, have gradually evolved over the years to technological advancements and crucial functional processes. The Enterprise Resource Planning software is created through the development of various modules that support the various business operations and processes in a firm. The modules effectively handle all processes within numerous functional areas of businesses. There are numerous changes effected through the use of ERP software, and their interactions implement changes throughout diverse and unique business processes of the corporations (Aremu et

al., 2020). One of the fundamental changes through the use of ERP software is the smooth information flow throughout the functional areas of the entities. The software leads to the development of cross-functional information system, which helps in coordination among the key functional areas of the business processes (Aremu et al., 2020).

2.1 Managerial Changes

In the top management and leadership of the firm, there is enhanced performance management and the decision making process is more straightforward plus proper resource management. Decision making becomes more comfortable due to the integrated structure of the critical process of the firm. This gives a clear impression of the operations in all business divisions and their effectiveness (Bahssas et al., 2015). The ERP software provides a good flow of information from all business departments; hence the managers can make decisive and well-informed decisions at a much quicker rate due to ready information. Resource planning management becomes effective since the human resource is managed effectively through proper human resource policies and integration of a proactive organizational culture that stirs high employee morale and therefore increased productivity (Bahssas et al., 2015). This results to high profit margins for the firms. Performance management incorporates the objectivity levels of each business process, through Enterprise Resource Planning software, all departments function at optimal levels which results to high performance throughout the firm increasing its objectivity and efficiency towards meeting its predetermined goals and objectives.

2.2 Operational Changes

Some of the essential changes experienced throughout the operational division of the company include reduction of costs, improvements in productivity, data quality improvement, reduction in cycle time, and proactive customer relationship services. Cost reduction helps the company enhance its liquidity position (Golubovskaya & Erohina, 2019). Through the Enterprise Resource Planning software, the business entities integrate lean practices, which help in cutting excess costs, therefore, increasing the profitability of the firms. Top-notch data is generated through the integrated information system that links all the essential business processes.

This helps in the production of clearly defined data symbolizing all the operations carried throughout the corporation. The cycle times are greatly reduced through ERP software (Golubovskaya & Erohina, 2019). Through reduced cycle times, the production levels increase exponentially, creating the time value of money. This results to high profit margins. Enhanced customer service relationship is crucial for the success of any business. The software provides an integrated communication network that ensures open and timely communication with the customers through a customer relationship management platform, which provides timely and clearly defined feedback to the customers.

2.3 Information Technology Infrastructure Changes

Information Technology is a crucial component that has led to the growth and adoption of enterprise systems by small and large firms. It has positive implications for the IT infrastructure of the business entities. ERP brings about increased business flexibility, cost reductions in IT management, plus the increased performance of the information technology structure of the organizations. ERP software establishes an integrated information technology system that incorporates all the vital functional departments (Golubovskaya & Erohina, 2019). Therefore, this leads to the development of a single integrated information technology structure that can complete numerous key functional processes such as accounting, human resource management, customer service, and inventory management. There are also significant cost reductions concerning IT costs (Golubovskaya & Erohina, 2019).

The company possesses an integrated information technology framework that runs all operations of the firms. This helps in reduced maintenance and upgrade costs of multiple software but rather just one. Another significant change within the IT department is enhanced business flexibility (Golubovskaya & Erohina, 2019). Business flexibility contributes to strong business resilience, which helps in maintaining the business operations and smooth flow despite changes within the internal or external business environment (Golubovskaya & Erohina, 2019). This helps in the establishment of a steady working environment, which helps the information technology department to upgrade accordingly and adopt new features as new software and technologies are incorporated in the business processes.

III. VALUE ADS FOR ERP SOFTWARE

The value addition from the ERPs is determined through the integration of functional processes within the organization and the endless flow of information from one department to the next. It administers cross-functional coordination and communication (Pavel & Evelyn, 2017). Some of the ERP software includes SAP, Oracle, and Salesforce. SAP has been intensive over the years, and through its advanced business information

system, the level of integration and adaptability is high; therefore, it enhances the productivity of the firm (Pavel & Evelyn, 2017). As compared to SAP, Oracle has been intensive in database management, enhancing complex processes within the firm, and ensuring cordial relations among all departments and divisions of the firm.

IV. PRODUCTS

The three essential Enterprise Resource planning software discussed include SAP, Oracle, and Salesforce. Each of these software was built to establish integration and smooth flow of information throughout the critical functional areas of the business.

4.1 Systems, Applications, and Products(SAP)

The SAP software has been among the earliest enterprise system software to be introduced in the market. The ERP vendor is a multinational organization that was founded in the year 1972. The software has been phenomenal in its integration of both small and large scale businesses across the world (Adiloğlu, 2019). Its high level of integration has led to its widespread use across the world. It provides software solutions that help in managing business operations and maintaining strong customer relations, which helps in building the longevity of the business through effective customer relationship management. The software SAP R/3 runs on a secure application called advanced business application programming (Adiloğlu, 2019). Its high level of integration is phenomenal and has resulted in high efficiency in supply chain management, inventory management, and customer relationship management (CRM). The SAP software focuses on enterprise resource planning; therefore, it helps in cutting down costs and ensuring there are efficiency and effectiveness in the operations within the business.

4.2 Oracle

The Oracle corporation was set up in the year 1977.ERP software has been in the market for over 40 years, and its diffusion in the international market has been remarkable. The Oracle software is cloud-based, which helps in the automation of the back-office processes to ensure the seamless information flow from one process to another, leading to the creation of strong synergy and cohesive forces that result in secure integration. The Oracle RDBMS has been affiliated with extensive database management and the handling of complex business activities and processes. Despite the complexity of various corporate structures, the Oracle ERP software has been known for its excellent resilience and handling of complex organizational structures leading to strong, cohesive forces. Hence, its database management resilience and coordination has built the brand across the world. It is ranked as the second-best enterprise resource planning software in the year 2019. Another critical feature displayed by the Oracle software is its financial analysis capabilities. The Oracle software contains a strong and reliant financial suite that aids in the tasks of accounting, pricing, and budgeting. However, a fundamental limitation is that the Oracle software is designed for only large corporations. Therefore, its implementation in small scale corporations is rendered obsolete.

4.3 Salesforce

Salesforce is among the most significant American multinational corporations within the market. It is an American based cloud software company that helps in providing customer relationship management solutions. There are vital applications that have been geared towards the establishment of applications within the organizations. It leads to integrated customer service relations, automation of marketing activities (Pavel & Evelyn, 2017). This also in ensuring that all the processes are automated in ensuring that the corporations receive long lasting working applications to help in streamlining their business operations and maintaining cordial relations with the clientele (Pavel & Evelyn, 2017). However, the software is majorly based on customer relationship management and the marketing functions of the company; however, some critical functional processes of the company are not addressed accordingly.

Therefore, this means that the Salesforce software needs to be complemented with additional ERP software to ensure effective interaction among all the primary functional divisions of the firm. Hence, it becomes cost-intensive since the Salesforce framework cannot function adequately on its own (Pavel & Evelyn, 2017). As compared to the SAP and Oracle ERP software, the Salesforce software is the weakest. Therefore, the SAP software is significant, Oracle is medium in size, and finally, the Salesforce software is low. The prevalence of SAP software in the international market and high levels of integration in both small and large scale businesses clearly defines its efficiency in smooth information flow in firms (Pavel & Evelyn, 2017).

V. IMPLEMENTATION

The ERP software that shall be described in the SAP software. Since its founding in the year 1972, the SAP software has evolved its architecture and design into a web-based architecture design due to the advanced internet incorporation in the business world. As technology and especially the internet has become an essential

component in the daily business activities, the SAP software has become prolific in its high integration levels and enterprise resource planning (Adiloğlu, 2019). The implementation strategies are undertaken through five primary steps. These involve the preparation of the project, establishing the blueprint, realization, preparation, and finally, going live. The project preparation encompasses the organization of the people and the tasks to be incorporated into the software (Adiloğlu, 2019). Secondly, the blueprinting process helps in providing a critical analysis of the existing business processes. Thirdly, the realization stage encompasses the technical framework of the software and is followed by the final preparation, which conducts tests to determine the success of the software integration (Bahssas et al., 2015). Finally, the go-live stage helps in monitoring and ensuring all processes are incorporated in the ERP framework (Bahssas et al., 2015).

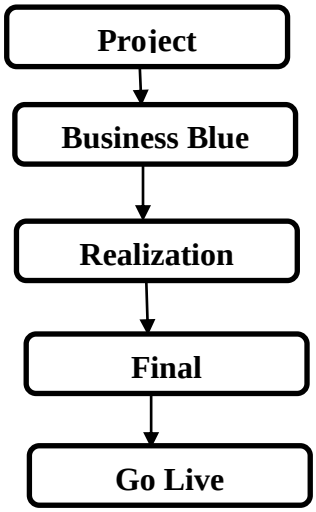

Figure 1: Implementation Strategies.

VI. DESIGN

The SAP software has been developed using a simple and user friendly interface that helps in giving their convenience and user-friendliness. Several interfaces help in guiding their clients to help in effectively running their tasks and ensure effectiveness and efficiency in their services and functional processes (Bahssas et al., 2015). With new interfaces and features such as SAPS Business etc. that have been built to identify the flaws of small businesses and guides them in accomplishing the goals and objectives.it provides a personalized interface; hence every user can carry out their tasks conveniently. For example, marketers in the firm can easily watch and answer to the customer feedback (Bahssas et al., 2015). At the same time, the supply chain management team can conveniently identify their tasks and information from supply chain management. Therefore, none of the workforce members is inconvenienced to carry out their activities.

VII. PLAN and PREPARATION

The SAP software is prepared to help organizations to meet their specific goals and objectives. However, the software is embedded in web-based architectural design that needs the internet to help in the productive interaction and operations of the firm (Bahssas et al., 2015). The software is integrated with the web interface, plus it is linked with various software such as Microsoft Suite of the organization (Bahssas et al., 2015). Hence, the SAP analytics are incorporated with the. Microsoft Excel suites of the firm; hence the accounting and finance department can easily create the financial statements and balance sheets (Bahssas et al., 2015). They help the accountants and financial analysts to transfer their data and financial statements to the SAP software and have deep precision of the financial data hence providing an in-depth analysis of the financial position of the organization.

VIII. ARCHITECTURE

Every ERP software has been designed through a unique architectural framework to help in its integration and effectiveness. Over the years, there have been several architectural designs of software and have evolved because of consumer needs and advancements in technology in the market. The ERPs began in the mid-20th century. This started with two-tier architecture, which was majorly based on the client and server relationship (Chofreh et al., 2020). This brought a lot of inconveniences as there was no framework or layer to help in transmission or interpreting the data fed to the server. This led to the development of the three-tier framework. However, with the advancements of the internet, this led to the development of the web-based

architectural design. The SAP software is built on the web-based design, starting from the SAP R/3 (Chofreh et al., 2020).

IX. WEB BASED ARCHITECTURAL DESIGN

Through the internet, the web design was established as it was the fundamental technological innovation at the moment. The design employed by SAP has three-layer user interfaces. They include a web browser, web server, and application data from the server. The design is multi-tier in nature hence provides access to multiple users; therefore, its interoperability enhances convenience, and the user can efficiently execute their tasks without having to wait through the multi-tier client-server interface, which helps via giving personalized attention to each user interacting with the SAP software. This is the web browser, which is the user interface and the clientele framework (Chofreh et al., 2020). The web server is the interface that aligns the client's requests and works on the provision of feedback and requests.

The server reads and responds to all the client' s demands and sends back webpages, which help in the execution of commands made by the user. The design of the SAP software also gives access to remote databases and applications through the incorporation of the webserver gateway (Chofreh et al., 2020). Through web-based design, there is web-based systems technology, which helps to ensure smooth integration between systems; therefore, the users can function optimally between various systems or functional business processes of the firm. This leads the organizations to have a high-level performance, which leads to smooth resource planning and synchronized information flow throughout the firm (Chofreh et al., 2020). The design also encompasses the middle tier of the communication software layer, which helps in performing through the extraction and conveying of parameters run through the HTTP protocol to various applications and the format applications which help in formatting the results within the webpage.

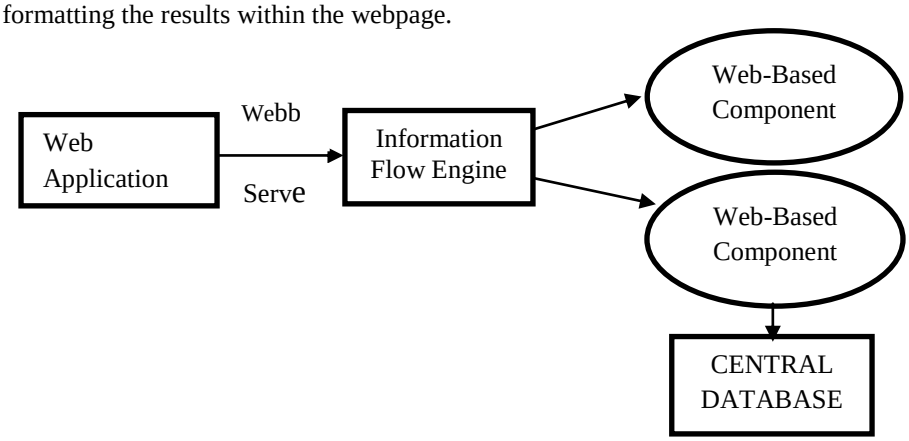

Figure 2: Web-Based Architectural Design

X. METHODOLOGY OF IMPLEMENTATION

Over the years, the waterfall methodology has been the methodology utilized in the software development of ERP software; however, the waterfall methodology has negatively influenced the development of software since it made the process much cumbersome and lengthy. This resulted in the development of the agile methodology, which has been incorporated in the ERP software implementation.

XI. AGILE METHODOLOGY

Agile methodology provides significant benefits that have streamlined ERP software implementation in businesses. They include team building and collaboration, flexibility, customization on functionality, and confidence-building within the workforce and business processes (Wijaya, 2018).

11.1Team building and collaboration

The agile methodology is useful in ERP implementation, which enhances collaboration through the collaborative framework of the agile methodology, which makes a strong emphasis on team development and a high level of accountability (Wijaya, 2018). ERP implementation is created to help in meeting all the user needs, which helps in creating cohesiveness between various departments within the corporation (Wijaya, 2018).

11.2Business Flexibility

Agile methodology is effective in ERP implementation, which guides businesses to integrate all operations within the firm. Despite the need for the Enterprise Resource Planning software to help in meeting the corporate needs and objectives (Wijaya, 2018).

11.3Customization of Functionality

One of the critical steps embodied by the agile methodology in ERP implementation focuses on ensuring that the metrics and reports derived from the software need to be designed to meet the user's needs (Cosmos Xulu & Suknunan, 2020). Through agile methodology, there is increased collaboration among the employees, which also enhances organizational participation. There are low costs incurred; hence profit margins of the businesses increase, and also there is a high level of satisfaction among the users of the software.

11.4Confidence Building

Implementation of the enterprise resource planning software is a scary and challenging approach for the employees due to the intensiveness and precision required to integrate the business processes in the operations of the firm. Through the agile methodology, the staff develops robust receptive strategies to software integration, and they become comfortable in their new working environment. (Wijaya, 2018) Confidence is built in their capability to function under the new standards, which imply a strong adaptive and resilient workforce.

X11. ASSUMPTIONS

Most users of the software have two assumptions that inhibit the optimal efficiency of the software in their businesses. This includes that the SAP software shall simplify and provide improvements in their companies (Cosmos Xulu & Suknunan, 2020). Management and companies need to understand that the implementation of the software requires a deep integration of all processes and close monitoring of all operations within the companies. Another critical assumption is that most employees don't transit to adopt the milestones set by the SAP software and believe that they will cope with time. However, the software requires high-level precision and understanding to ensure that the software is well integrated and confidence is built when handling the software.

X11I. DEPENDENCIES

The SAP software is inclined through three critical dependencies and is crucial in the efficiency of the software. They include an adaptive job server, which helps in the determination of the task at hand (Cosmos Xulu & Suknunan, 2020). Secondly, the processing server which enhances the interpretation of the user needs and formats it to output that is required by the user. Finally, the file repository server helps in the storage of all information that is necessary for interpretation and processing.

X1V. MILESTONES

The first milestone of the SAP software is to enhance resource planning in large and small scale businesses. One of the critical challenges in firms is streamlining all the resources within the firm to ensure optimal productivity, and the SAP software focuses on ensuring that all the resources within the firms such as human resources, finances, and inventory are well managed to ensure productivity. Another critical milestone is smooth communication through all the functional processes of the organizations. Through seamless information flow, there shall be effective decision making for managers.

XV. ERP BENEFITS

15.1 Finance

ERP software integrates all the financial and accounting information of the company and makes it easily accessible. Therefore, the integrated ERP system helps the managers to improve their cost accounting and accurately make their budgets through proper budget allocations with the aim of cost minimization. An integrated ERP system provides an in-depth financial overview and monitors all costs involved in the production, ensuring proper financial reporting and real-time availability of financial information. The financial information is error free due to the high levels of accuracy by the ERP software; hence the information gives a true definition of the firm's financial position. Comprehensive tracking of financial transactions is made possible through the automotive nature of the ERP software, thus leading to little incidence of fraud activities.

15.2 Customer Relationship

The integration of ERP software in customer relationship management shall help in the generation of large profit margins. This is due to easy monitoring of all operations; hence there is increased productivity due to

effective decision-making because of readily available information. The software also provides integrated communication solutions for the customers as it allows for the timely sharing of information and dealing with the customer's queries. It also minimizes costs for the company such as training costs and other costs record-keeping as the software provides an in-house solution package in terms of data storage and information concerning the customers and also helps in generation of income through direct interactions with the client, which leads to a high level of satisfaction.

15.3 Supply Chain Management

ERP software helps provide accurate demand forecasting and lean inventory management. The software helps the company to forecast futuristic demand levels in the market accurately hence ensures initial planning. The inventory costs are minimized, especially during large batch production. It also ensures real-time transparency of all operations within the industry, leading to effective decision-making form the managerial side.

15.4 Logistics

ERP software has key benefits in the logistics industry. Firstly, there is real-time tracking through the use of ERP software. All goods in transit and vehicles can be easily monitored on real-time basis and feedback given to the clients. Secondly, there is enhanced communication through the vendor-customer portal; Customers can effectively communicate with their vendors and provide relevant information in regards to their order specifications. The software provides an integrated communication portal that allows secure communication between the two parties. Optimization of inventory is another essential benefit of the ERP software. Through the ERP software, the orders, deliveries, and requests can easily be viewed and hence be able to determine the out-bound orders and ensure the dispatch done in a timely manner.

15.5 Human Resource

ERP software plays a crucial role in human resource management. In terms of defining goals and outcomes, ERP software helps in establishing the roles and responsibilities of each employee and aligning their intentions to the strategic objectives of the businesses. This leads to high morale and productivity. Through the software, the talented workforce is maintained through proper working environment and incentives to help in the retention of best employees. Information concerning all the employees is stored in the ERP software, which helps in monitoring and performing appraisals to measure the productivity of the staff members.

XVI. CONCLUSION

Due to the dynamic nature of the business world, the need for adoption of the ERP software is crucial for both the large and medium enterprises. Effective coordination is administered through the automotive nature of the ERP software. Automation helps in closely monitoring and sharing of information throughout the business; therefore, the management has a clear picture of the operations within the firms. Its integration of key functional processes shall help in the minimization of cost and effective decision-making. Management needs a comprehensive outlay of the entire organization's performance, and through an integrated ERP system, there is seamless information sharing, and this leads to informed decision-making. Implementation of ERP systems in both large and small scale companies shall be a one-stop-shop for an effective operation ability and management of the businesses. In this technological era, the ERP systems shall help the large and medium business to optimize their inventory and boost their production. Effective resource management of the inventory, workforce, and financial funds shall help in cost minimization and enhanced performance of the businesses. The ERP software finally develops a business resilient culture that quickly dots to changes within the markets and technologies, and this shall help businesses maintain stale working conditions despite the harsh working environment.

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