

# ERP Systems and Its Impacts on the Business Operations

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**Abstract** This study seeks to explain the benefits and challenges of ERP systems and primarily uses the secondary sources. It is based on the analysis of published information, articles, books, and journals drawn from both online and physical libraries. The ERP (enterprise resource planning) system is a software application, leveraged by different organizations in the resource management and planning. These are entirely integrated management components that cover broad functional areas such as human resources, accounting, production, finance, and logistics. ERP systems have evolved over an extended period from seemingly crude information technology processes to more refined and sophisticated procedures with immense ability to offer answers to various management problems faced by organizations. ERP tools are great assets when implemented or adopted by a firm. The benefits that come with the application of ERP supersede the challenges they face. For example, executing ERP software into the organization's information management system reduces the cost of management, streamlines processes, and introduces the aspect of scalability, collaboration, and efficiency.

**Keywords:** *Enterprise Resource Planning (ERP), Manufacturing Requirement Planning System (MRPS), master production schedules, bill of materials, enterprise resource management*

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## 1. Introduction

ERP stands for enterprise resource management, and it is a software application, leveraged by different organizations in the resource management and planning. ERP software is a fully integrated management system that covers extensive functional areas such as human resources, accounting, production, finance, and logistics. These applications play an essential role in resource management, where they organize human efforts, manage information, and integrate operation processes. ERP systems optimize the use of significant production resources by the organizations. They maximize the human labor, finances, machines, money, and other materials. Enterprise resource planning leverages a single database, one user interface, and one application for the entire enterprise. ERP systems take over from where disparate software controlled most of the company processes such as production, financial resource planning and management, distribution, and sales.

They have evolved over an extended period from seemingly crude information technology resolutions to more refined and sophisticated procedures with immense ability to offer answers to various management problems faced by organizations. The evolution of ERP software was aimed at addressing market demands such as aggressive cost management, cost analysis, flexibility, and rapid market changes [2]. With many hurdles, computer engineers and system designers have worked their nerves out to introduce a hoard of enterprise resource management systems into the organizational management

processes. Programs such as SAP and Oracle to name a few are management information systems (MIS), integrated information systems, money resource planning, enterprise-wide resources, material resource planning, executive information systems, and corporate information systems, among others. These structures tried to offer solutions to the problems faced by managers when seeking to manage enterprise resources effectively.

ERP systems have undergone intensive evolution over a long time from a resource known as Manufacturing Requirement Planning System (MRPS) that leveraged integrated information between manufacturers, vendors, and customers relying on LAN, WAN, and Internet connections. Years later, MRPS underwent a significant transformation and evolved into material requirement planning (MRP), which used master production schedules (MPS) for products drawn from Bill of Materials (BoM) [11]. The Manufacturing Requirement Planning System had to undergo the various changes it went through since it failed to address the organizational needs and problems of that time. It was unable to incorporate fully into different areas of great significance within the enterprises and was built based on a system with a lot of boundaries that limited its usage. Therefore, ERP comes in as the ultimate solution to the many problems that its predecessors faced, as it is easy to integrate across broad areas within an enterprise and lacks the boundaries experienced by MRPS [8]. Today, companies such as Oracle and Microsoft are recognized to be the ones of the leading ERP software system producers in the world. The companies produce a range of ERP solutions and sell them to various enterprises at a given cost.

## 2. Literature Review

Many authors have written about the inputs, advantages, and challenges of ERP systems in broad areas touching different parts of the business community. Reference [1] writes extensively about the various merits of ERP tools to the modern businesses, indicating that one of the key areas that acquire profit from ERP applications is the banking industry. Banks use different implementation strategies based on their needs and preferences [1]. Reference [2] explains the various positive impacts of ERP systems to the modern companies. ERP procedures reduce cycle times, replace legacy systems with more refined and efficient management tools [2]. Nevertheless, ERP has numerous measurable assistances to enterprises such as cost reduction, continuous improvements, enhancing the quality of data, and improving the quality of customer services. Other source affirms the incredible input of ERP systems in the organizations around the business world, as the world today is experiencing an immense transformation in resource planning and management procedures [3]. Apparently, ERP software reduces the bulk of duplicating the resource by using a single database, integrating into wide management processes such as finance, sales, production, distribution, and marketing among others thus reducing management costs.

Even though ERP systems are beneficial to modern businesses, they also face several challenges that limit the ability of companies to leverage the information technology resources. Integration of ERP applications encounter problems ranging from system rigidity to intensive training requirements. The majority of organizations around the world lack the necessary internal expertise and experience to influence and harness the various merits of using ERP systems [12]. The source claims that the absence of technical knowledge to use ERP software derails the ability of organizations to enjoy the profits of information technology resources [12]. ERP implementation in developing countries is difficult because of low levels of technology and inadequacy of infrastructural resources [10]. Other writers in different references have also echoed these sentiments. Enterprises in developing countries in Africa, Asia, and parts of the Middle East could gain immense influence in the market if they were able to beat the encountered issues in the quest to implement ERP software into their day-to-day operations [4,8,11]. These authors affirm that the lack of technological infrastructure and resources continue to pose more significant problems in modern times.

## 3. Methodology and Data Collection

The study is based on the analysis of published resources, articles, books, and journals drawn from both online and physical libraries. The secondary sources involve an intensive literature review of the publications about ERP systems across many industries. Using different publications give this research a formidable pool of literature to form the basis of finding out the benefits and challenges associated with the ERP. Arguably, this study analyzes the works of other writers to find out the input of ERP in managing and planning enterprise resources.

Secondary data will be used for this research. That is, it will use both qualitative and quantitative data to prove the thesis. Qualitative data will include statements collected from different pieces of literature with helpful information to the study. Quantitative data will consist of numerical data collected and analyzed by other writers. The study is based on the fact that the extensive resources available over the Internet could offer enough information to defend the thesis. For this reason, all facts, data, and information presented in this paper do not come from the primary resources, but from the materials which were already published and are available in physical and virtual print.

**Table 1. Summary of resources were used to illustrate the findings of this study**

#	Source	Year	Issues
1	Higano	2015	Benefits of ERP in the banking Industry
2	Hammer	2015	Challenges of ERP
3	Hammer	2016	Advantages of ERP
4	Mwalemba et al.	2016	Challenges of ERP
5	Panorama Consulting Solutions	2016	Benefits of ERP systems
6	Tanaka	2015	Benefits of ERP systems
7	Holland	2015	Benefits of ERP systems

The above-listed resources comprise of articles and books with excessive information and data regarding the influence, advantages, and the challenges that come with the ERP systems.

## 4. Findings, Results, and Discussions

ERP solutions come in large forms from different sellers. Over ten software merchants create and sell ERP software to enterprises across the world. Among the leading ERP software vendors in the world are Oracle and Microsoft companies who command sizeable portions of the global market [3]. Throughout the research and from the analysis of various books, articles, and journals used in this work, several notations were made on the impact, challenges, and future trends in ERP systems.

Foremost, the study was able to determine that ERP applications have changed approaches to resource planning and enterprise management. Today, many organizations can make fast decisions since ERP software allows them access to big data and critical analysis tools. The primary resource planning tools such as MRPS faced countless challenges compared to those that are currently facing ERP systems. For example, ancient resource planning tools could not share a single database, which forced organizations to have numerous databases to handle data from different departments, increasing the operational and management costs [11]. It was also not easy to integrate the ancient forms of enterprise resource management tools; firms had to use and host every device on its own, which led to the duplication of resources within an organization. It also increased the cost of handling and storing information [1]. The evolution and advent of ERP systems has transformed resource planning within the firms. It cured the traditional problems that

had immensely made work difficult for companies seeking to streamline their processes by implementing information technology techniques. Since the inception of ERP in the market, many companies have been able to experience significant developments concerning the improved decision-making, reduced costs and time between production, distribution, sales, and marketing. The interaction between customers and producers was also enhanced, thanks to different ERP solutions in use today.

#### 4.1. Advantages of ERP Solutions

Firms become competitive when they integrate ERP solutions into their operations. The modern business community is based on the access to information and data, as well as the ability to use them during decision making on matters that affect operations and processes. A firm that has access to information and shows substantial skills to analyze the data before making decisions enjoys a competitive advantage over those that cannot access and examine data before making crucial decisions [9]. ERP software allows firms to obtain data related to specific departments, sales, marketing, production, and distribution among others, which makes it easier for them to make independent choices that affect specific areas of production. Those businesses that use ERP tools also enjoy reduced information and data handling costs. Panorama's independent ERP research argues that organizations have been able to cut costs over the years by implementing ERP systems.

**Table 2. Data found in Panorama Consulting Solutions report on ERP systems**

Data Summary by Year					
Year	Cost	% Cost over run	Duration by month	% Duration over run	% Receiving 50% or less benefits
2015	\$3.8M	57%	21.1	57%	46%
2014	\$4.5M	55%	14.3	75%	41%
2013	\$2.8M	54%	16.3	72%	66%
2012	\$7.1M	53%	17.8	61%	60%

Table 2, as adopted by Panorama's independent ERP research, indicates that between 2012 and 2015, the company has been able to reduce costs by significant percentages. In 3 years, the table shows that expenses have reduced by about 50%, which indicates that information management and data handling is now becoming easier because of the different ERP solutions used by organizations.

ERP applications allow for efficient resource management and planning. Efficiency is the desire shared by all enterprises in the world today; every company wants to speed up processes and get everything right. Even though they might not be realizing a 100% accuracy in the decisions that they make all the time, one cannot fail to recognize the fact that ERP resources have brought effectiveness and efficiency in the production processes [12]. ERP software gives an opportunity for efficient resource planning, information handling, and decision-making. Organizations could easily obtain information about the specific department at any time when the need arises. Response to emergencies is fast and efficient with ERP

systems compared to other resource management tools used in the past [10].

Scalability, integrated information handling, forecasting, and collaboration are also some compelling advantages of using ERP systems. ERP works based on a unified system architecture which brings together different information resources and data from various production units such as sales, production, marketing, and distribution among others [6]. Organizations do not have to keep separate databases to handle information and data related to many sectors, as a single database is enough to process all data from different units.

#### 4.2. Challenges of ERP Implementation

Even though the benefits of using ERP solutions are rather exciting, the process also faces some challenges that disrupt and limit the ability of the organizations to enjoy all the profit that comes with the systems. Some agencies are yet to embrace the use of ERP resources because of the numerous problems. These setbacks range from internal to external factors which limit firms from fully deploying and using ERP components to streamline their resource planning and management process.

The lack of expert knowledge within organizations makes it difficult to enjoy the benefits associated with ERP systems. ERP procedures need experts to undertake some duties like the integration and migration responsibilities [12]. Enterprises also need skills, experience, and knowledge to manage the integrated system to ensure that each department is able to access specific information and data affecting its operations and activities. The lack of such resources within organizations disallows the comfort of deploying and using ERP tools. Some organizations have chosen not to adopt ERP solutions as they lack the needed expertise information and personnel to manage the integrated system.

Again, ERP systems need intensive training as they come into enterprises as new ones, which many employees are not familiar with. It takes time for companies to train their workers on how to use the software once it has been successfully integrated into the system. The training process consumes the production time, leading to wastage of resources and increased overhead costs.

During the migration and integration processes, data security is always at risk. Organizations risk losing valuable information in the process of migration and implementation of ERP systems; hence, endangering the continuity of operations [4]. During the migration and integration processes, enterprises also risk facing incompatibility of data. Often, the existing data might not be compatible with the new system.

### 5. Conclusion

ERP systems are great assets when implemented or adopted by a company. The profits that come with ERP solutions supersede the challenges they face. For example, applying ERP software into the organization's information management system reduces the cost of management, streamlines processes, introduces the aspect of scalability, collaboration, and efficiency. Even though, an enterprise

may be at a risk of losing data and other relevant information and resources during the migration and integration process, it could be minimized by having a trusted backup plan. The backup cushions are also against other security threats such as information theft and data security breached by workers.

Therefore, it is vital for organizations to move their systems into the cloud by adopting ERP solutions. They ensure proper information and data handling and can also enhance effective decision-making and minimize risks. However, when planning to acquire ERP tools, enterprises should contact trusted software vendors in the market such as Oracle and Microsoft since they offer authentic products with better security features. Choosing the services of untrusted vendor might turn catastrophic when organizations begin to experience data security risks.

## References

- [1] Hammer, M., Stanton, S.A, "The Reengineering Revolution," *A Handbook*, Harper Collins, New York, NY, USA, 2015.
- [2] Hammer, M, "Beyond Reengineering," *Harper Business*, New York, NY, USA, 2016.
- [3] Holland, C.P., Light, B. "IEEE Software 16 May/June 1999," *Manchester Business School*, London, UK, 2016, 30-36.
- [4] O'Leary, D.E, "Enterprise Resource Planning Systems: Systems, Life Cycle, Electronic Commerce, and Risk," *Cambridge University Press*, Cambridge, UK, 2015.
- [5] "ERP Forum. ERP no Saishin Doukou (The Latest Trend of ERP, in Japanese, Annual Research Report)," *Impress Business Media*, Tokyo, Japan, 2015.
- [6] Iizuka, K., Okawada, T., Tsubone, M., Iizuka, Y., Suematsu, C, "Issues about Inter-Organizational Process Flow Adjustment," *In Enterprise and Organizational Modeling and Simulation*, Springer: Heidelberg, Germany, 2015, 24-41.
- [7] Huang, Z., Palvia, P, "ERP Implementation Issues in Advanced and Developing Countries," *Bus. Process Manag. J.* 2017, 7, 276-284.
- [8] Higano, T, "IT ni Yoru workstyle Henkaku—White color no Seisansei Koujou ni Muketa IT Katsuyo no Arikata (Transformation of the workstyle of IT—Nature of IT utilization towards improving the productivity of white-color)," *IT Solution Frontier*, Holland, MI, USA, 2015, 16-19.
- [9] Cusumano, M.A, "The Business of Software: What Every Manager, Programmer, and Entrepreneur Must Know to Thrive and Survive in Good Times and Bad," *Free Press: New York*, NY, USA, 2015.
- [10] Iizuka, K., Tsuda, K, "Strategy for software business—from the perspective of customers' value recognition," *Ann. J. Inf. Sci. Lab. Senshu Univ.* 2016, 28, 33-56.
- [11] Tanaka, T, "Software Selection and Productivity of Japanese Companies-Custom Software vs. Packaged Software," *In RIETI Discussion Paper Series 10-J-027*; The Research of Economy, Trade and Industry: Tokyo, Japan, 2015.
- [12] "Panorama Consulting Solutions," *2016 REPORT ON ERP SYSTEMS AND ENTERPRISE SOFTWARE*, 2016, 1-32.