



Received: 29-12-2023
Accepted: 09-02-2024

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

Enterprise Resource Planning System at Businesses in Hanoi

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Abstract

The trend of the economy becoming more and more open means businesses have many opportunities but also many challenges. To enhance competitiveness in the market, business administrators require an enterprise resource planning system. Successful enterprise resource planning system implementation improves planning, decision making, work performance and leads to organizational growth. Enterprise resource planning systems act as an effective tool to enhance business performance and maintain a continuous competitive advantage. The article surveys 120 businesses

in Hanoi, to evaluate the goals of implementing an enterprise resource planning system, and at the same time evaluate the level of use of the enterprise resource planning system. Survey results show that business administrators are aware of the importance of enterprise resource planning systems, and have implemented many effective software in many operational subsystems to help businesses improve their performance, competitiveness and high efficiency operations.

Keywords: ERPS, Resource Planning, Hanoi

1. Introduction

The 4.0 industrial revolution has created mutations in businesses' production and business. Information technology is strongly emphasized, considered a key means for businesses to shorten product development time, improve competitiveness and improve business efficiency. At that time, the enterprise resource planning system (ERPS) in corporate governance is inevitable. ERPS, designed to integrate the operational processes and functions of the enterprise value chain, are commercial software packages that "enable common database connectivity for all financial, human resources, supply chain information, customer information" (Ranganathan and Brown, 2006) ^[7]. ERPS were developed to control complex operations, increase efficiency and productivity in businesses, reduce production and transaction costs (Holland and Light, 2001) ^[5] and establish integrated and flexible information systems for all processes in the business. Successful ERPS implementation improves planning, decision making, work performance and leads to organizational growth. ERPS acts as an effective tool to enhance business performance and maintain continuous competitive advantage (Li *et al.*, 2006) ^[6]. Resource planning systems bring many benefits, mainly from sharing and standardizing information. Because ERPS modules can share data easily, they make it easier to manage business processes across departments. Business owners can also better understand real-time and business data, especially with new innovative technologies such as artificial intelligence, industrial IoT, and advanced analytics. From the above reasons, the article aims to learn about the current status of establishing enterprise resource planning systems in businesses in Hanoi, and evaluate the influence of enterprise resource planning systems on efficiency. Business operations and thereby provide recommendations to help improve the efficiency of using enterprise resource planning systems in businesses in Hanoi.

2. Literature Review

According to the American Production and Inventory Control Association, "ERPS is the effective planning and control of resources from production, delivery and customer order processing in manufacturing and trading companies." trade or service" (Kumar and Hillegersberg, 2000) ^[4]. ERPS is a methodology that deals with the product manufacturing cycle, from inventory control to distribution or more broadly from manufacturing to service. ERPS as packaged software for business solutions, aims to integrate and automate entire functions with data to provide more comprehensive information within the enterprise (Gable, 1998) ^[3]. According to Bidgoli, (2004) ^[1] defines "ERPS is a software that integrates and manages resources inside and outside the organization, these resources include human resources, finance and materials". Thus, ERPS is a business software package

that allows organizations to integrate business functions such as customer care management, finance, production, logistics, management reporting, project management, and human resources. Purchasing management; Share data and provide communication information throughout the enterprise; automate business processes; and create and enable access to real-time information in a database. ERPS allows all business departments to access the same database and eliminates data redundancy and communication errors. In 1990, ERPS developed new features to integrate functions and business processes within enterprises. ERPS allows information synchronization to meet the needs of external and internal customers and provides quick decision-making information, improving business efficiency. In 2000, ERPS was added with new subsystems and new modules called "Extended ERPS", allowing integration of ERPS with external business modules such as CRM (Customer Relationship Management), SCM (Customer Relationship Management). Supply chain management), APS (advanced production management system), BI (Business intelligence reporting) and e-commerce business. In 2010, Cloud ERP was born, this is a software as a service (SaaS), allowing companies to share information and data stored on the WEB from ERPS services.

Deployment. Successful ERPS depends on many aspects. DeLone and McLean, (1992) developed a theoretical framework for measuring information system success based on three aspects: Technical aspects (measured through "system quality", whether the system characteristics produce good information or not), the translation aspect (measured through information quality) and the effectiveness aspect (measured through usage, user satisfaction, personal impact). In addition, many authors have said that: Information quality, system quality, organizational impact, individual impact and success items in the enterprise system are the main factors affecting success of ERPS.

3. Research Method

Quantitative research to evaluate the level of use and implementation of enterprise resource planning systems in businesses in Hanoi. Done through the following 3 steps:

Step 1: We build a questionnaire on Google Forms, send it to accountants and business managers via email using a convenient sampling method, and send it to friends, relatives, and partners.

Step 2: The number of survey questionnaires distributed was 130, sent to 130 enterprises, and the number of votes collected was 120 from 120 enterprises, reaching 92.3%. All receipts met the required information requirements.

Step 3: We analyzed the data on SPSS 22 software with the following tools: Frequency statistics, average statistics.

4. Results

Enterprise scale

The author sent 130 votes to 130 businesses, and received information from 120 businesses with 120 votes.

Table 1: Characteristics of surveyed enterprises

Characteristics		N = 120	Percentage (%)
Type	Joint Stock Company	45	38%
	Limited liability company	75	63%
Number of	< 10 persons	5	4%

employees	10- 200 persons	70	58%
	200-300 persons	25	21%
	> 300 persons	20	17%
Capital	< 20 billion VND	71	59%
	20 – 100 billion VND	30	25%
	> 100 billion VND	19	16%

According to survey results, of the 120 responding businesses, 63% were joint stock companies and 38% were limited liability companies. This result also shows that the number of limited liability companies accounts for a proportion of businesses in Hanoi City.

Regarding the results of business capital, the number of enterprises with capital under 20 billion accounts for a large proportion (59% of enterprises), enterprises with capital scale from 20 billion to 100 billion have 30 enterprises with capital scale of 20 billion to 100 billion 25%, businesses with capital over 100 billion account for 16%.

Regarding the number of employees, 4% of companies have less than 10 employees, 58% of companies have 10-200 employees, 21% of companies have 200-300 employees, and only 17% has a workforce of over 300 people.

In terms of business size, the author found that there are similarities in survey results between the two groups of businesses. The group of businesses with a capital scale of less than 20 billion (59%) is similar to the group of businesses with less than 200 employees (62%). Similarly, the group of businesses with large capital of over 20 billion (41%) is similar to the group of businesses with more than 200 employees (39%).

Statistics on enterprises implementing EFPS

The results of analyzing businesses implementing ERPS in Hanoi are presented in Table 2. Overall, among about 120 businesses surveyed, 100% implemented ERPS in Hanoi. Enterprises participating in the survey with ERPS implementation time of less than 1 year accounted for 2%, from 1 to 3 years accounted for 31%, from 3 to 5 years accounted for 18% and over 5 years accounted for 48%. He ERPS applications surveyed mainly focus on packages: SAP 56%, Oracle 32%, Microsoft 9% and Bravo 4%. Thus, the businesses in Hanoi selected for the survey have all implemented the enterprise resource planning system and many businesses have put it into practice for a long time, very few businesses have just put it into practice.

Table 2: Results of statistical analysis of businesses implementing ERPS

	Frequency	Ratio
Deploy EPRS		
Yes	120	100%
No	0	0%
ERPS implementation time		
Less than 1 year	3	2%
From 1 – 3 years	38	31%
From 3 - 5 years	20	18%
> 5 years	59	48%
Total	120	100 %
ERPS application		
SAP	67	56%
Oracle	38	32%
Microsoft	10	9%
Bravo	5	4%
<u>Total</u>	120	100%

The results of statistical analysis in the field of operation, type of business, and reasons for implementing ERPS at businesses are shown in Table 3. The businesses surveyed included many business fields such as: Retail and distribution (16%); Information and communication (29%); Construction, real estate (7%); Service business (27%); Finance (8%); Petroleum (6%); Agriculture and mining (14%); and other (16%). Among them, businesses in the information, communication and service business groups were surveyed the most by the authors.

Reasons for implementing an enterprise resource planning system are evaluated according to the following factors: Improve business efficiency, Competition, Improve supply chain management performance, Enhance decision making, System integration information system, Reduce costs, and Increase revenue. Survey results show that the most important purpose of implementing ERPS is to improve supply chain management performance (100%), the least concerned purpose is to enhance managers' decision making (12%).

The enterprise resource planning system is deployed according to the following modules: Accounting, Finance, Human Resources, Production, Sales, Customers, and Quality Management. According to survey results, sales, accounting, and human resources are the three modules that businesses in Hanoi use the enterprise resource planning system the most. The subsystem that pays the least attention to ERPS is the quality management subsystem.

Table 3: Results of statistical analysis of surveyed enterprise characteristics

Criteria	Type	Frequency	Ratio
Business areas	Retail and distribution	19	16%
	Information and communication	35	29%
	Construction, real estate	8	7%
	Business services	32	27%
	Finance	10	8%
	Oil and Gas	7	6%
	Agriculture and mining	17	14%
	Other	19	16%
Reasons for implementing ERPS	Improve business efficiency	120	100%
	Compete	35	29%
	Improve supply chain management performance	120	100%
	Enhance decision making	14	12%
	Information system integration	75	63%
	Cut the cost	42	35%
	Increase revenue	120	100%
	Other	32	27%
ERPS implementation subsystems	Accountant	120	100%
	Finance	78	65%
	Personnel	112	93%
	Manufacture	78	65%
	Sell	120	100%
	Client	79	66%
	Quality management	23	19%
	Other	28	23%

Up to now, survey results have shown that all surveyed businesses have used ERPS for the accounting module (120 businesses), sales module (120 businesses), and receipt module. (112 enterprises). Through the enterprise resource planning system, administrators have achieved results: Increased revenue, improved business efficiency and improved supply chain management performance.

5. Conclusion

Through research results, the author found that businesses in Hanoi city have realized the importance of the enterprise resource planning system and implemented it in many different subsystems. Administrators are aware of the goals of enterprise resource planning systems: Improve business efficiency, compete, improve supply chain management performance, enhance decision making, Integrate information systems information, reduce costs, and increase revenue. The benefit of ERPS is to connect all departments and functions of the organization into a single system, thereby easily managing and meeting needs from different departments. For example, employees receive accurate information quickly; Coordination between departments is easier; more effective strategic planning and control within the organization. Other efficiencies such as increased data collection flexibility, integration of accounting applications and financial reporting quality; make quick decisions and standardize business processes and increase transaction efficiency and information quality, facilitating quick access to information and reporting. The Vietnam E-commerce Association surveyed software use in Vietnam in the period from 2017 to 2021, and out of 100 businesses participating in the survey, 88 businesses used financial accounting software. With a rate of 89%. This rate has changed compared to the period 2013-2017 and this is the software most used by businesses. Next is human resource management software, with 56% of businesses using this software. Very few businesses deploy complex management systems such as customer management systems, supply chain management systems and enterprise resource management systems. The trend of using management systems shows no signs of changing much in the period 2017-2021. Therefore, in the future, the use of resource planning systems in businesses will become more important and be strongly deployed by many businesses.

Thus, it can be said that the resource planning system in an enterprise is an important and easy-to-implement tool to provide information for administrators to perform administrative functions. However, there are still many difficulties for businesses when applying ERPS, specifically: First is resources, second is technology, and third is cost. The process of implementing ERPS requires testing, testing, and then putting it into practice. Therefore, by default, the work of employees will increase, and the requirements for employee qualifications must also increase. Technology will include the following elements: Network system, computers, and equipment for deployment. Today's advanced ERPS software all use web technology. Therefore, deployment for member companies will be more difficult if the computer network system is not synchronized. Investing in an ERPS system is very different from software that operates alone. Estimated investment costs for the ERPS system include: Investment costs in hardware, infrastructure, communications (such as computers, network systems, transmission lines, servers...); License costs (including the purchase of computers, servers, and software required by the ERPS provider, usually a data management system); Fees paid to ERPS software vendors.

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