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Empirical Study of Open Source ERP Systems

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Abstract

In 21st century, ERP i.e. Enterprise Resource Planning became heart of the enterprise. It is very useful for business process. For large enterprises ERP systems are affordable, but there is a problem in case of small and middleware enterprises as it may not fit into their budget. So especially for SME's we were doing survey. And here we found open source ERP system which may useful for SME's as well as it may give relief for them in critical business processes.

Keywords: MRP, ERP, SCM, HRM, Open Source ERP

Introduction

In recent years, business processes were very critical. For making them easier MRP was introduced in market. MRP is acronym for manufacturing resource planning. As the name suggest it mainly used for maintaining the workload for manufacturing department. But as the business expands new departments were introduced in the process, like customer relationship management, human resource management, supply chain management, finance, accounts, project management, etc. And hence, to fulfill their requirement new system was formed. i.e. ERP system(Enterprise resources planning).

Enterprise resources planning (ERP) systems assist enterprises in automating and integrating corporate cross- functions such as inventory control, procurement, distribution, finance, and project management. ERP is a centralized system.

Open source ERP is one more improvement in ERP system. Open Source refers to any software or program whose source code is made available to other developers for use, modification and enhancement. So the Open Source ERP system is satisfying all the properties of ERP by providing Open Source system functionality too. Open Source system doesn't mean only access to the source code, the distribution terms of Open Source Software must comply with several criteria related to distribution, derived works, integrity of the author's source code, distribution of license, and license terms among others.

Motivation

For small and medium businesses it is very costly to use ERP system. So that they use already exist systems which was having some limitations. So that, to reduce their workload ERP is one of the best systems. But it is required to reduce the cost of that ERP system and hence, open source ERP is one of the best options for them. In open source system small and medium businesses have the flexibility to use only the required modules from ERP system. As well as, open source ERP is license free system. So it is very useful for them.

Scope

We are implementing this project by targeting mainly small and medium enterprises. The first objective of this project is, this is license free. One more objective is that, the user interface for this system is simple so that anyone can easily use it. Then system is open source so that according to company requirement user can choose modules.

Related Work

Răduţ Carmen, Codreanu Diana Elena et all describes the main requirement of ERP, SCM and

CRM in SMEs [10]. Also give the basic introduction about all these fields according to E-business, E-learning and other techniques to working in internet platform. Ashish Kr. Dixit, Om Prakasht et all reported issues affecting Enterprise Resource Planning (ERP) implementation in SMEs and challenges in front of SMEs. And also explain the four issues are proved to be crucial for proper ERP

implementation i.e. proper system implementation, clearly defined scope of implementation procedure, proper project planning and minimal customization of the system selected for implementation [11].

Shouhong Wang Charlton College of Business, University of Massachusetts Dartmouth Dartmouth, also did survey for open source ERP system. They were survey for different components of different Open source ERP systems, and at the end found that webERP is better in between [12].

Limitations of ERP System

In current ERP system, enterprises face different issues which are related to compatibility, flexibility and cost.

Cost

ERP is very costly. And hence small and medium enterprises cannot use this system.

Flexibility

Also according to small and medium enterprise, there is no need for all the modules in ERP. They had to pay for complete system but in reality they need selected modules. And hence they demand for such flexible system.

Compatibility

Also ERP system work at different levels of organization at the same time system has to face problems related to compatibility between these levels. Maintaining such co- ordination is such a big deal.

Top management support

Top management needs to stand behind the project by getting involved and allocating the necessary resources and publicly make the project a top priority [8].

Effective communication

Communication involves telling employees in advance the scope, objectives, activities and updates. It also includes getting and managing users' requirements, comments, reactions and approval. For all these issues one best solution is Open source ERP system. As it is web based, it is free for all. At the same time it is flexible so that small and medium enterprises can use it according to their requirement.

Modules of ERP System

ERP system is web based system. It consists of different modules like,

- Sales management
- Customer relationship management
- Purchase management
- Manufacturing management
- Warehouse management
- Association
- Project management
- Accounting & Finance management
- Management
- Human resource management
- Knowledge management
- Point of sales

Open Source ERP

Open source software makes it possible to greatly reduce development costs by aggressive reuse of open source software libraries; to eliminate intermediaries (the distributors), with all of their expensive sales overhead; to cut out selling costs by free publication of the software; and to considerably reduce the marketing overhead. Since there is open interaction among thousands of contributors and partners working on the same project, the quality of the resulting software greatly benefits from the scrutiny. The development team of Tiny ERP, today called OpenERP, is responsible for most of the organization, synchronization and coherence of the software. And OpenERP offers great performance in all these areas.

There is a lack of surveys of open source ERP systems in the literature, because such a survey is commonly not considered to be a part of academic research. There have been many surveys of open source ERP systems on the Internet.

Advantages of Open source ERP

Flexible

Open source ERP allows you to customize to user interface and manage your business processes very easily.

Modular

Open source ERP's unique modular approach allows customer to start with one application and add other modules later.

Comparison of Different Open Source ERP systems

Table 1: Comparison of different Open Source ERP Systems [17]

Name	Platform technology	Software license	Price	Countries of origin
Adempiere	Java	GPL	$ 0	Spain
Compiere	Java	GPL/Commercial	$ 995	US
ERP5	Python, Zope, MySQL	GPL	NA	Brazil, France, Germany, Japan, Kenya, Sénégal
ERPNEXT	Python, JavaScript, MySQL	GPL	$99(solo), $299(SME), $599(enterprise)	India
Fedena	Ruby, MySQL	Apache License	$ 900(Open), $1900(professional)	India
Openbravo	Java, PostgreSQL,Oracle	OBPL	$ 975[19]	Spain
OpenERP	Python, Javascript,PostgreSQL	AGPLv3	$ 39 [18]	Belgium, India, USA, Luxembourg, Hong Kong

From the above comparison we can say, Open source ERP systems are less costly than ERP systems. But for functionality sometimes SME have to compromise. As we can see adempiere is free of cost but it has some limitation. it is the first open source ERP system in the market. So comparing with other systems it provides less functionality.

Benefits of Open Source Systems

Better Adaptability

Due to the availability of the software source code and its free manipulation, the customization tends to be easier.

Minimum supplier dependency

Once a private solution is achieved, the company will be a "hostage" of the company which

owns the project. Therefore, in case the owner leaves the project or the market, the continuity of the updating and maintenance of the ERP on the client company may be seriously jeopardized, since it will not have access to the source code of the software.

Cost Reduction

The Open Source ERP has no costs on license acquisition and usually does not need expensive equipment to be nicely performed. Comparing the total costs of ownership is the fairest way to confront costs, and not only caring about the software acquisition.
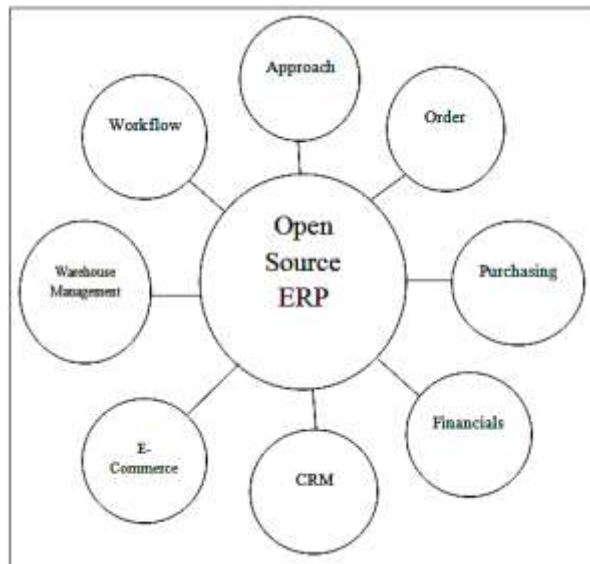

Fig 1: Open source ERP System

Conclusion

There are different ERP systems available in market. If we consider ERP systems, ERP systems are very costly. As we were doing survey for small and middleware enterprises, these types of enterprises may not afford such costly systems for their business. And hence we consider open source ERP systems to avoid cost factor. By this survey, we found some open source ERP systems, which were compatible for SME's. According to enterprise requirement, they can choose any of the above system. Hence we can say, Open source ERP systems are comfortable for SME's. Some of the open source systems are low cost but, the functionality provided by these systems were limited. so SME's must think wisely at the time of choosing ERP system for their enterprise.

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