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ENTERPRISE RESOURCE PLANNING SYSTEMS SELECTION, APPLICATION, AND IMPLEMENTATION ON THE EXAMPLE OF SIMPLE.ERP SOFTWARE PACKAGE

Abstract: This paper presents an overview of the most important tasks of ERP and MRP systems. Notes of ERP package selection methodology of a software customized for specific use of companies are presented. Functionality comparison and analysis of a few exemplary software systems for management and resource planning of enterprise was conducted. Among the analyzed systems, Simple ERP package was selected as an application well suited to the needs of domestic consumers. Afterwards, the general concepts of ERP software and the most important modules and related areas of a company's activities were explained based on solutions provided by Simple inc. The author advocates increased use of innovative technologies and modern information systems in the data processing activities in order to provide comprehensive support of a company's management.

Keywords: ERP, MRP, Simple.ERP, information systems, ERP implementation.

1. Introduction

This paper presents the characteristics of ERP/MRP system and ERP package selection methodology including functionality comparison. The selection shall be based on a few software packages dedicated for enterprise resource planning. The goal is to select a system best suited to the needs of domestic small and medium-sized enterprises. Afterwards the modules of the chosen system users shall be analyzed and described in more detail. Last section shall cover advantages and disadvantages of examined system and provides short conclusions.

2. ERP and MRP system applications

By the early 60s of the last century computer-aided production management techniques began to develop. Standard MRP (Material Requirement Planning) was developed by the late 50s by APICS (The Association for Operational Management). The introduction of the MRP started as the system to control the stock (Inventory Control), thus the growth of the organization and efficiency was possible [Adamcze-wski 2003]. In the initial phase the MRP systems were used mainly for industrial mass production. Inventory control system worked on the assumption that a customer will order the same goods in the future.

MRP systems were widely used in production management; however, with time it was found that there is a need to broaden this type of solutions for the whole enterprise management capabilities. At that time the standard enterprise resource planning systems, ERP (Enterprise Resource Planning) was created. ERP is a system which is significantly expanded compared to the MRP – it is able to manage more than a thousand business processes [Gunasekaran 2008]. ERP is able to combine all the institutions and organizations to exchange information between them. This provides consistency and stability of the process of data collection and its processing in the companies.

Enterprise Resource Planning (ERP) is one of the information systems for supporting business management. ERP packages allow the interaction of several branches of the company, first by information gathering and then by the processing of that information and performing calculations on the collected data.

ERP system includes a set of cooperating modules. These modules are also called integrated operation of enterprise applications in all areas of management. The modules of ERP systems mainly include: logistics, accounting, employment, production and resources planning, production schedule, technical preparation of production pressures and production capacity, distribution, sale, quality check, operative management, planning, material requirements and settlement costs [Sumnar 2004]. In addition, all areas of business should be in the software package forming part of the ERP. Here we can distinguish the following areas: accounting, management accounting, business intelligence, management of the sphere of production, logistics, electronic workflow and human resources management [www.systemyerp.com.pl].

ERP systems are widely used in various companies including manufacturing companies and in service companies. For example, ERP systems for continuous production, support the separation processes and the merger or carrying out the chemical reactions, e.g. in the manufacture of chemicals [www.systemyerp.pl]. ERP systems dedicated to the custom-manufacturing production support individual products orders, such as parts of household appliances. ERP systems for constructing companies and for those implementing custom motions (ECA) support budgeting and costing, design and technology processes, project management, etc., which is for example characteristic in contractors companies. The most important ERP functional areas are [Monk, Wagner 2006]:

- MES (Manufacturing Executions Systems),
- PDM (Product Data Management),
- CRM (Customer Relationship Management),
- DW (Data Warehousing).

3. ERP system selection

Usually the decision to change or implement a new information system is a very difficult task. If the company wants to implement an ERP system, the company needs to consider the offer and to make a difficult decision of choosing the right software to the specific needs of the company. The operations of each company, both financial and organizational, will change under the influence of such a strategic investment [www.e-marketing.pl]. The selection of the system can be done by the company itself or this task can be delegated to an external consulting company.

The selection of the system by a company should proceed according to strictly defined methodology. The methodology of choice should be based on expert knowledge and a set of best business practices [Shields 2001], including ready-made role models, supporting the choice of systems. The methodology includes: comparison of systems and their suppliers, identification of the systems and their suppliers, defining the requirements, choosing the system and its suppliers. The criteria that allow you to find and choose a solution that meets the expectations of the company include: the use of technology for the good of the company, eliminating the implementation by the method of trial and error, prospectivity, orientation in the industry, reliability and commitment, specialized knowledge of the exchange system, scalability, ensuring ROI, the high level of technical assistance and support.

There are many interesting products in the field of integrated business software for companies. One can distinguish following vendors of ERP systems and solutions: SAP, Microsoft, Epicor, Sage Group, Oracle, IFS, Infor Global Solutions, CDC software, Lawson software, Visma, NetSuite, Ranco Systems, Baan, JBA, Intentia, IBS, QAD, Simple and many others. On the Polish market, a distinctive product, due to the functionality and adaptation to local procedures and legal solutions is the Simple. ERP system by Simple. Among clients and partners of Simple one can find Polish enterprises as well as local branches of international companies such as: PTE PZU, BOŚ, Orlen, BP, HP, BIC, TNT, Milka, Nivea, Coca-Cola, Danone, Ernst & Young, Ford, Ebud, FANAR SA, INBUD-FARO, Harmet, SGGW, Leon Koźmiński Academy, University of Technology and Life Sciences in Bydgoszcz, Air Force Institute of Technology, E. Leclerc Warsaw, Vision Express, Warsaw Bielański hospital, "Wiedza i Praktyka" publishing house, etc. [www.simple.com.pl]. In Table 1 the features of a few exemplary ERP system packages including Simple, Epicor, Sage, SAP and Microsoft products are compared.

Each customer may have different approach to the selection of integrated management system due to range of the functionality he needs. The examples of ERP systems presented in Table 1 show that the most reliable and complete in terms of functionality, the number of successful implementations and the development prospects is the solution provided by SAP. However, Epicor product also has high capacity and many successful implementations. Both these systems are based on SOA –

	Epicor				
Vendor name	Software	Microsoft	Sage	SAP AG	Simple SA
	Corporation			-	
1	2	3	4	5	6
Website	www.epicor.	www.microsoft.ca/	www.sageac-	www.sap.com	www.simple.com.pl
	com	dynamics	cpac.com		a: 1 555 a: 1
Related	Epicor 9, Epi-	Microsoft Dynamics	Sage ERP MAS	SAP ERP Financials,	Simple ERP, Simple
product	cor for Service	ERP, Microsoft Dynam-	500, Sage ERP	SAP ERP Human	BI, Simple CRM,
names	Enterprises,	ics Manufacturing	MAS 90 and	Capital, Manage-	eHRMS, Simple
	Epicor Retail,	Solutions, Microsoft	200, Sage ERP	ment, SAP Manufac-	SCM
	Epicor Express	Dynamics Supply Chain	AccPac, Sage	turing, SAP ERP Op-	
		Management Solutions,	ERP X3	erations, SAP Supply	
		Microsoft Dynamics GP		Chain Management	
		for HR Management,		Solutions, SAP Sup-	
		Microsoft Dynamics		plier Relationship	
		Financial Management		Management (SAP	
		Solutions	1 . 10	SRM)	D I' I U
Customer focus	midmarket	small and medium-size	designed for	organizations of all	Polish small, me-
	organizations	organizations	small to me-	SIZES	dium and large sized
	and divisions	1.0 1 1 11 4	dium businesses	1	businesses
Company	provides solu-	solutions backed by the	The Sage Group	comprehensive ERP	Simple.ERP solution
and product	tions available	strength of Microsoft,	has over 13,000	solutions support	has presently about
short notes	in over 150	the largest software	employees in	more than 43,400	700 successful
	countries	company in the world.	operations.	customers in 120	implementation and
	and over 55	its business management	Software and	Countries.	about 26 thousand
	that	software products are	support avail-	SAP is the leading	users
	that comply	delivered through the	able through	business software	
	with legal	Worldwide Microsoft	certified Sage	company and the	
	and industry	Certified Partners net-	business		
	standards	Microsoft applications	partners	supplier overall	
Duisius	\$4,000		\$15,000	\$25 \$250 0001	\$2,000 L
Pricing	500.000	\$8,000-230,000+	250,000+	\$23-\$230,000+	\$8 000+
Tashnalagu	jonovativa	Migrosoft dovelops and	230,000+	hasad on antarprisa	variaty of tachnolo
Technology	sorvice orient	distributes predemi	tachnologias	Sarviao Oriented	gios such as ASP
	ed architecture	nately licensed software	across product	Architecture (Enter	NET VBS tomest
	(SOA) and	business solutions	lines Offers	price SOA)	etc
	Web services	business solutions	hoth hosted	prise SOA)	cic.
	technology		and on-premise		
	teennology		solutions		
Analyzed	Epicor	Microsoft Dynamics	Sage ERP	SAP Business All-	Simple ERP and
Product			Accpac	in-One	integrated products
Support in	full support	not supported	partial support	full support	full support
Poland			1 11		
Databases sup-	MS SQL Serv-	MS SQL Server, MySQL	MS SQL	MS SQL Server,	MS SQL Server,
ported	er, Progress		Server, Oracle	Oracle	(PostgreSQL)
Operation sys-	Windows (sec.	Windows (sec. Mac OS)	Windows,	Windows, Linux,	Windows (sec.
tems and network	Linux and		Linux	Unix	Linux)
	Unix)				

Table 1. Characteristics of selected ERP packages

Table 1. (cont.)

1	2	3	4	5	6
General ledger,	ICR	ICR	ICR	ICR	ICR
accounts receiv-					
able and payable,					
fixed assets,					
multicurrency					
Financial report-	not available	ICR	ICR	ICR	ICR
ing					
Distribution and	ICR	not available	third party	ICR	partly
manufacturing					
Order processing	ICR	ICR	ICR	ICR	ICR
Inventory and	ICR	ICR	ICR	ICR	ICR
purchase order					
Warehouse man-	ICR	ICR	third party	ICR	ICR
agement					
Process	workaround	ICR	third party	ICR	ICR
Service manage-	ICR	Partly	third party	ICR	not available
ment					
Professional	In next year	ICR	third party	ICR	not available
services automa-					
tion					
Project costing	ICR	ICR	ICR	ICR	ICR
and time billing					
Contact and cus-	ICR	ICR	third party	ICR	ICR
tomer relation-					
ship management					
Retail	in next release	third party	third party	ICR	third party
Flexible invoic-	ICR	not available	ICR	ICR	ICR
ing					
Timesheets	ICR	not available	third party	ICR	ICR
Expense report-	ICR	not available	third party	ICR	ICR
ing					
Revenue recogni-	ICR	not available	ICR	ICR	ICR
tion					
Workflow	ICR	not available	third party	ICR	ICR
Change orders	workaround	not available	third party	ICR	ICR
Estimating and	partly	not available	not available	ICR	ICR
budgeting					
Scheduling and	third party	not available	not available	ICR	ICR
billing					
Human resources	third party	not available	not available	ICR	ICR

ICR - In Current Release.

Source: own study based on data from [www.camagazine.com; www.compareerp.com; www.simple. com.pl].

a modern adaptable, flexible and scalable architecture for developing business solutions. However, both these systems are characterized by large purchase cost and later considerable costs of system maintenance and expansion. Sage application achieves full functionality after the addition of a package of compatible third party products. MS Dynamics application is limited in terms of functions, but in a package with other Microsoft applications could become an interesting offer. In the case of tool by MS, company marketing approach determines which capabilities of the product are available. Simple ERP only with supporting applications such as Simple BI, Simple CRM, eHRMS and Simple SCM reaches functionality similar to that obtained by comprehensive SAP and Epicor packages.

Selection of proper operating system and database often plays an important role in the ERP/MRP system implementation. In this area SAP solutions stand out covering all major OS. Epicor and Sage are also largely able to adapt in this respect to customers' needs. Simple inc. in contrast ceases to develop the product on Linux with PostgreSQL database and limited itself to platform of Windows with MS SQL Server database. This is in fact a practical adaptation and restriction to the local market. Large enterprise organizational effort required for the ERP/MRP system implementation weighs in favour of software vendors offering full support and assistance in installation, integration and subsequent expansion of the system. Among the surveyed products Epicor, SAP, and Simple offer regionally sufficient support. Future lesser involvement of the integrator can be expected from the vendors that offer less support and have limited representation in Poland. Further development of such a system and adding specialized modules can prove to be expensive and problematic. In this regard, the cheapest yet effective solution is a package of Simple inc. products. It can be concluded from the market information that among the considered systems Simple.ERP has the smallest number of customers and users. This is mainly due to the fact that it is designed for and prevalent on Polish market. It should be noted that such ERP systems with less installations and applications usually suffer more technological problems and are more prone to errors and instability. From this perspective Simple.ERP system users are somewhat more dependent on the integrator and its support.

However, for the vast majority of domestic small and medium-sized customers of ERP/MRP the most important factor during package selection is the price. And the price leader in this case is a Simple ERP. Simple inc. can provide the system at the lowest cost by far especially in terms of the value per single post. Therefore, considering given examples, a practical choice for the domestic users are solutions by Simple. In addition, this system is well adapted to the Polish solutions in the field of law and accounting. Although it should be noted that Epicor and SAP also offer products sufficiently adapted to the national legislative regulations.

4. Simple.ERP system usage and functional areas

In this chapter the general concepts of ERP software and the most important modules and related areas of a company's activities were explained based on solutions provided by Simple inc., which turn to be practical solution for regional market. Simple.ERP is a modern complex information system which supports management of: fixed assets, trade of goods, finance and accounting, manufacturing, human resources and budgeting (see Figure 1). The system has a wide range of solutions dedicated to business support in many industries, among which construction, manufacturing, education and medicine can be distinguished.



Figure 1. Products integrated with system Simple.ERP; functional areas of the system Source: [http://www.simple.com].

The following products are available from Simple inc., which are integrated with Simple.ERP. For example, using one of these Simple.BI products through a controlling portal we can track business performance and respond quickly to the changing situation from any place. The products (Figure 1) integrated into Simple.ERP include:

- Simple.CRM customer relationship management,
- Simple.APS optimization of production planning,
- eSimple.KARO HRMS human resource management,
- Simple.BI business process management.

It should be noted that the consultants and distributors of Simple system have extensive experience and use proven implementation methodology. Simple.ERP system is compliant with the regulations and accounting standards (including IAS).

Fixed Assets Simple.ERP functional area allows complete control of the total entity assets, providing a set of tools to manage, organize and keep records of the assets. Entity fixed assets managing is done by the complete control over the registration of any change in the property components. The system allows for the implementation of the most important functions, such as carrying out operations on the property components, storing information about the elements of fixed assets, recording repairs and insurance of fixed assets, generating plans of depreciation and automatic modification.

Functional area Finance & Accounting of Simple.ERP allows for the instant access to the current financial data of the company, provides complete control of the costs and other parameters of its activities. It is a useful tool for financial management of the entity, which integrates all the financial data and the information on the effectiveness of the business processes. It enables the presentation of strategic financial data in the form of analytical summaries. It supports the accounts recording and keeping the company accountancy as required by recent legislation. Accounting mechanisms allow for the allocation of costs in many sections with divider of the cost or with various indicators and also for the collection of parameters from the external systems or files.

The system includes various issues related to the financial support of entities, including the following components: General Ledger, support payments, Accounts, Reporting, and VAT Support.

One of the basic resources of each company is the employees. Simple.ERP functional area is responsible for personnel management. Positive feature of this package is that it has only minor restrictions on the amount of stored information about employees and the amount and content of the payrolls. Personnel handling and wages of the workers are assured In Simple.ERP Personnel Management. You can analyze employees' data. Managers have the ability to download information in this regard. This data can be static or retrieved using definable algorithms. The functionality of the system of employment information meets all the Polish legal requirements. You can export data in electronic form to employees, such as a strip of payment. It is also possible to export data to electronic banking programs, to ZUS, PFRON, and tax offices.

Simple.ERP Personnel Management gives you the ability to store employee information in one place while complying with internal business requirements and complying with the rules prescribed by law.

The system allows quick entry of personal data and import data from external files. The default option is an option that allows employees to find data and create reports based on the personal data. Formulas of the Simple.ERP program which is developing for 20 years also provide flexible mechanisms for defining functionality.

Another functional area of Simple.ERP is Commodities Trading, this module is dedicated to trade of goods and supply chain management. It is designed to manage the processes of goods movement in efficient way in order to manage the logistics and distribution in the organisation. Commodities Trading functional area is also a tool which improves the competitiveness and viability of the company.

By implementing the commodities trading module, business processes at many levels of business management including sales performance, marketing, purchasing, and warehouse operation can improve. The Commodities Trading Simple.ERP functional area facilitates warehouse management, supports national, EU and international sales and purchasing processes. The module is so flexible that it allows to play most business processes, service companies, retail, manufacturing, as well as specific solutions for state-owned firms. From the user's point of view, Commodities Trading area can be used by both managers and regular employees.

Functionality designed to manage processes associated with planning, technical preparation and implementation of production issues and manufacturing is included in the module Simple.ERP Production Process.

The module allows one to define processes, production orders, production plans and records of the production process. Production process Simple.ERP Functional Area is a tool for production planning, standardization of manufacturing operations, control and record of the actual production, it also provides the ability to influence the control of production cost and planning of raw material purchases.

Simple.ERP Project Management functional area is a solution designed for managers and project leaders. Software of Simple can help to provide current information on the status of projects in many sections. Project Management module supports tasks related to the settlement of the projects and their financing. Additionally, the module is fully integrated with popular application for managing Microsoft Project EPM/MS Project.

5. Conclusions

Software packages of Simple can assist the realization of the company strategic business goals by reducing costs and inventory, and by improving customer service. The access to analytical data enables better control of the running costs of the company. Simple.ERP system can be used to improve the efficiency of production costs through the monitoring of production processes and planning. In addition, fast access to current cost data and the ability to obtain their analytical and synthetic presentation allows the rationalization of the current production costs [www.simple.com.pl]. The processing and analysis of current information about customer orders, inventory and future demand allows reducing inventory levels and overall costs of maintaining inventory.

The Simple system among other provides functionality of human resources management, presentation of strategic data and top-down as well as bottom-up budgets, workflow, registration of economic events, permissions system access to the data, parametrization.

The comparison, study and analysis provided above justify the fact that the Simple ERP system is interesting and competitive one on the application market of ERP products. This is a Polish product, well-adjusted to national law, regulatory accounting and business practices. The advantages of the program are: the relatively small price compared to other products in this area, a large and stable market share, successful implementation in many companies, friendly implementation methodology and experienced consultants in customer service and support on the Polish market. On the other hand, disadvantages of the application are: the system often suffers more technical problems than its competition, it is also more prone to errors and instability. Additionally, it requires a relatively large support from the integrator at implementation, development and expansion stage of the system lifecycle.

Further important direction of research regarding ERP systems on regional market would be to check customer satisfaction with ERP software packages, their modules and functionality. It turns out that some systems are not refined and have inconvenient interface while declared functionality does not correspond to real utility.

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WYBÓR, ZASTOSOWANIE I WDRAŻANIE SYSTEMÓW ERP NA PRZYKŁADZIE PAKIETU OPROGRAMOWANIA SIMPLE.ERP

Streszczenie: Artykuł przedstawia analizę ofert i metodykę podejmowania decyzji o doborze, wdrożeniu i zastosowaniu oprogramowania ERP (MRP) dostosowanego do specyfiki przedsiębiorstw. Porównano funkcjonalność kilku przykładowych pakietów oprogramowania do zarządzania i planowania zasobami przedsiębiorstwa. Wśród analizowanych pakietów Simple ERP wyróżnił się jako aplikacja dobrze dostosowana do potrzeb krajowych odbiorców. Następnie wyjaśniono koncepcję działania oprogramowania typu ERP oraz opisane zostały główne moduły i powiązane z nimi dziedziny działalności przedsiębiorstwa na przykładzie opisu pakietu firmy Simple. Autor w podsumowaniu postuluje zwiększone wykorzystanie innowacyjnych technologii i nowoczesnych systemów informatycznych w procesach przetwarzania danych kompleksowo wspierających zarządzanie przedsiębiorstwem.