Tendencies in the development of EPR systems

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**Abstract:** Software development companies offer information systems for resource planning which help the optimal track of material flows. Companies using such systems find better operational effectiveness. The author of this article tried to give the answer of the following question. Nevertheless the need of these systems Bulgarian companies don't use them widely.

**Key words:** Computer Systems and Technologies, enterprise resource planning.

**INTRODUCTION**

The purpose of this research is to identify the advantages and disadvantages of the existing Enterprise resource planning systems (ERP), to summarize their common characteristics, to analyze their real application in Bulgaria, to mark the trends in the field of their application. The object of this research are the systems SAP/R3, Baan, Oracle Applications, PeopleSoft. The following systems are built abroad and are used in many companies in Europe. In Bulgaria such systems are installed in “Vidima Ideal” – Sevlievo, Sodi – Devnya. The existence of a wide range of possibilities advising the operational management makes them attractive for companies, but on the other hand we are eyewitnesses of their small application in Bulgaria. The ERPs can be defined as systems which appeared as a result of the development of the accounting systems. The last are aimed at processing accounting information. Registering invoices and other accounting documents information is being processed, summarized and the result of a working accounting system are reports, such as Balance Sheet, Income Outcome Report, Money Flow Report. Most of them are approved by the National regulation rules.

**The use of EPRs**

Managers of each company summarize and analyze data in order to improve the decision support processes. Accounting data can help managers’ decisions. In most cases accounting reports cannot be useful in each case. Each company has relations with customers and suppliers.

In the mentioned two companies above there is a complex process of production. Managers have to take many decisions concerning which goods to be supplied, at what quantity, from which supplier, what is the best distributions of goods by stores, where is the best location of stores, how to organize the transport activities. Answers to these questions are given by the science Logistics. Having historical data, using statistical methods, building models of production, using the principles of simulation, ERP systems give answers to these questions.

Some software developers of these systems[1] issue the advantages of the application of ERPs. They do not offer price lists, nor the time of installation, nor the time for education, nor the price of the support. During the denomination in Bulgaria, in the year 1999, the time for change of the databases of several ERPs was too much to interrupt the operational work of the enterprise. Another disadvantage is the need for the enterprise to consider the turnover of documents in the ERP and to make its own turnover according to the requirements of the ERP.

Companies installed an ERP usually use it also for processing accounting information. The mentioned ERP systems are not built according to the Bulgarian rules and cannot be used for processing accounting data. For the solving of specific problems at the enterprise, these systems consist of built-in algorithms for simulation and modelling of production processes. These algorithms are not given to the end user.

To make a motivated decision managers need information, summarized and analyzed appropriately. A research of the Author concludes that there is a need of ERPs
for Bulgarian companies. One of the reasons for their narrow application is their complexity and high price. Bulgarian companies use mainly accounting software. Over 100 [2] information accounting systems are developed in Bulgaria. The lack of organisation such as GAO (General Accounting Office) [3] to license these systems is one of the reasons for their huge number for a small country as Bulgaria.

At the cite www.internetworld.com [4] is written that the BAAN system is aimed at managing the life-cycle of products. It enables manufacturers to support a system which helps them managing all aspects of life-cycle of their products in a virtual environment, according to the view of the company. The BAAN systems consists of Customer relationship management (CRM), it supports analytical functions, which summarize key information from different points of view helping the company to find critical marks for its success. As a result the effectiveness of the enterprise is bettered and the profit is enlarged.

Most of the articles concerning ERPs quote positive features and benefits of these systems. They point at increasing profit, getting a better market share, improving enterprise’s performance, full observation of material and information flows, without proving that the reason is in the ERP. Algorithms of work are not described. The end user is not familiarized with the basis of criteria, which is used to choose suppliers or customers, how is the optimal quantity of an order found.

We found in Internet many sites of ERP suppliers. Some of them are shown in Table 1 [5]

Table 1 Some of the companies suppliers of ERPs:

<table>
<thead>
<tr>
<th>Supplier</th>
<th>GEAC - JBA International</th>
<th>SSA Global Technologies</th>
<th>Intentia (Movex)</th>
<th>BEST (Sage Software, Inc.)</th>
<th>Keywill ERP, Inc.</th>
<th>Scala North America</th>
</tr>
</thead>
<tbody>
<tr>
<td>IFS North America, Inc.</td>
<td></td>
<td>Infinium Software, Inc.</td>
<td>Marcam Corp.</td>
<td>SouthWare Excellen ce Series</td>
<td>Flexilnternational Software</td>
<td>Glovia Internati onal</td>
</tr>
<tr>
<td>Mincom (MIMS Open Enterprise)</td>
<td></td>
<td>Symix Software</td>
<td>Great Plains Software</td>
<td>Cinc om (Manage Enterpri se)</td>
<td>Comput er Associat es (Multiple )</td>
<td>Geac Comput ers, Inc.</td>
</tr>
<tr>
<td>Ross Systems</td>
<td></td>
<td>Walker</td>
<td>SCT (Adage)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

At other sites [6] we found a comparison between them.

Table 2 – Comparison between 4 ERPs

<table>
<thead>
<tr>
<th>Product</th>
<th>SAP</th>
<th>PeopleSoft</th>
<th>Baan</th>
<th>Oracle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
<td>Germany</td>
<td>USA</td>
<td>Netherlands</td>
<td>USA</td>
</tr>
<tr>
<td>producer</td>
<td>Address</td>
<td>Price</td>
<td>Income</td>
<td>Market share (number of clients)</td>
</tr>
<tr>
<td>----------</td>
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<td>-------</td>
<td>--------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.sap.com/">http://www.sap.com/</a></td>
<td>50 000 $ to 10 mln $</td>
<td>4.7 billion $</td>
<td>31.80%</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.peoplesoft.com/">http://www.peoplesoft.com/</a></td>
<td>100 000 $ to 10 mln $</td>
<td>1.4 billion $</td>
<td>9.50%</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.baan.com/">http://www.baan.com/</a></td>
<td>40 000 $ to 10 mln $</td>
<td>1 billion $</td>
<td>6.70%</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.oracle.com/">http://www.oracle.com/</a></td>
<td>300 000 $ to 10 mln $</td>
<td>1.9 billion $</td>
<td>12.90%</td>
</tr>
</tbody>
</table>

Problems with ERPs

Installing an ERP a company meets many problems [7]. Some of them can be defined as follows:
- Enterprises installed an ERP plan annual costs for support of the systems which are 15% of its initial price;
- Main problems occur during the installation of the program in a network environment, defining the rights of users and the education of the staff;
- Suppliers of ERP promise many advantages but in the beginning end users are not satisfied from the interface.
- The install team in many cases cannot define the needs of hardware.
- To enter an order for supply the user has to input information in many screens.
- The initial setup of the system is done by specialists having Knowledge in hardware, DataBases and the ERP itself.

TENDENCIES

After making the analysis we mark out the following tendencies:
- ERP producers add new programs and modules to their systems to help decision making process;
- Many ERP producers aim their efforts not only in the sphere of production but in retailing, services, healthcare;
- Many ERP producers try to make their systems easy to use. They try to make them more flexible, more complete in the point of functionality;

In addition to the upper mentioned tendencies we can add the result of the software crisis. Three years ago there was a need of highly qualified workers in the sphere of information technologies. More companies find out that they need software that works correctly and they have to manage material and information flows. To satisfy the ambition to be competitive enterprises seek new technologies, methods and instruments for optimal distribution of resources. They base not only on the production technologies but they are in search of information technologies.

Reasons of hidden costs

Companies installed an ERP system share the opinion that they have many hidden costs, which go beyond the initial price of the system.

On the first place we put the education. The personnel have to be educated not only to adapt to work with the interface of a new program but to understand the system itself as a concept inside it.

On the second place, we put costs concerning the integration of the ERP system with other automated information systems. Instead of transferring data from one system to another companies prefer all information systems to work together synchronized as a whole system, in the process beginning with supply of materials ending with the distribution of ready products.
On the third place – extraordinary costs appear on **converting existing data** in format appropriate for transfer to the ERP system. An example – data for clients, suppliers, nomenclature of materials, technological rates, customer relationship management for former periods, sale prices for ready production. On the other side, scientific research of the Author of the article resumes that distribution of indirect costs is done on a different basis for each enterprise. That is why ERP systems need to be further modified.

On the fourth place – we mention **data analysis**. Each company makes reports on the basis of several systems. Users who maintain big volume of data include in their costs the support of a datawarehouse. Some enterprises cannot make the production plan.

This fact imposes the use of consulting services. To get loose of additional costs in this sphere, management has to define accurately the project management. Its results have to be tested. Companies find positive results of a working ERP system after several years of work.

**CONCLUSIONS AND FUTURE WORK**

From a theoretical point of view, there are many mathematical models described, there are algorithms in the science called Logistics, which solve economical problems. It is possible to apply the theory of graphs, the theory of tails. From one side, there is a big theoretical instrumentarium, from the other side there are specialists in the filed of information technologies, on the third side – there is a demand for ERP systems. We can conclude that software of the class ERP can be built in Bulgaria. The possibility of its realization has to be approved from a fund financing the innovative process of the enterprise.

**REFERENCES**


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