

How implementation of Enterprise Resources Planning Systems can improve a company's competitiveness?

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1. Introduction

Within globalization framework and markets liberalization scenarios, companies could not achieve competitive edge with investments in processing or manufacturing technologies or/and with investments in operational marketing instruments. A company has to, in order to improve competitiveness, implement best practice on operational level. ERP implementation is enabling business process transformation and optimization introducing the best practice into company's business processes and operational model.

Croatian companies are challenging by multinational and strong regional companies both on domestic as well export markets. Therefore there is a need to research if investments in ERP implementation increased competitiveness of Croatian companies. Authors are presenting ERP theory and the literature in the first part of this paper. In the second part of the paper authors are presenting results of own research conducted within top 400 Croatian companies, testing the hypothesis if implementation of ERP is increasing competitiveness of the companies within liberalized business environment. At the end of the paper authors are suggesting further research and case studies in each Croatian company which implemented ERP in order to achieve statistical relevance.

2. Theory and background

Enterprise resources planning (ERP) approach, from business perspective, is following the need for integration of company's information in the real time environment as one of key success factors in strategic and operational decision making process. In past several decades companies implemented ERP approach as one of major drivers in enterprise performance and competitiveness improvement. IT systems which have been developed in early eighties of the 20th century as ERP approach support commonly are named ERP packages or ERP systems. There are number of ERP system definitions. Klaus and associates (2000) are defining the ERP system as "comprehensive, packaged software solutions which seek to integrate the complete range of business processes and functions in order to present holistic view of the business from a single information and IT architecture". Basically other definitions are similar: the authors are insisting on business process automation, information integration, holistic approach and recording of business data in real time.

In early stages of ERP systems development the focus was on business transaction recording and reporting on operational layer. Further development of business requirement to ERP system headed from back office to front office business processes such supply chain management (SCM) and customer relationship management (CRM). Researches in the last couple of years have explored connections between ERP systems and decision support (Holsapple and Sena, 2003) and relationship between ERP systems and innovation from knowledge-based perspective (Srivardhana and Pawlowski, 2007).

Furthermore, enterprises have been put under pressure by globalization to increase competitiveness. Implementation of ERP approach and ERP systems for information integration was not sufficient. The challenge was to improve business processes (business process reengineering) in order to successfully compete international competitors. ERP packages, bringing the best practice into enterprises, have been used as business reengineering and optimization tool (Package Enabled Reengineering).

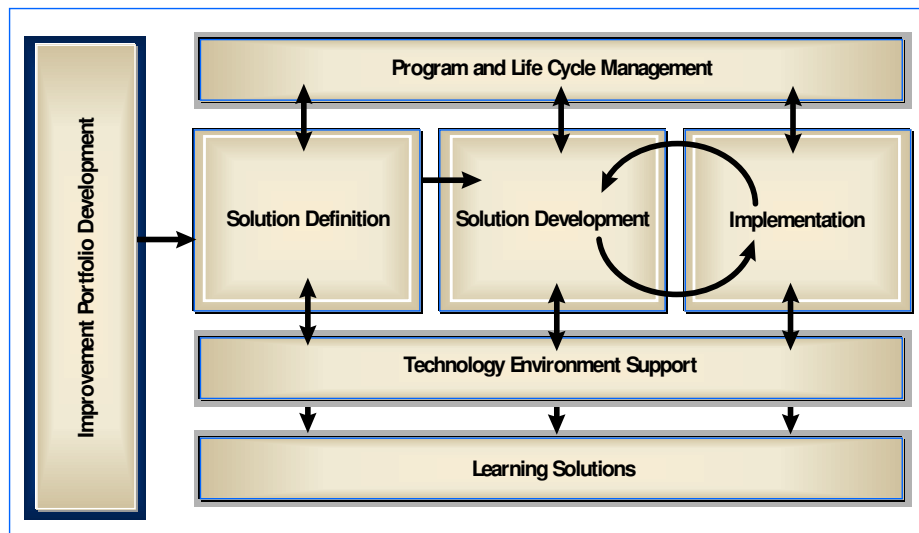


Figure 1: Package Enabled Engineering methodological approach (source: Ernst & Young Consulting)

In the recent years strategic enterprise management is coming back at top management's agenda. It is not any more sufficient to improve business processes but rather to manage the enterprise in long run. Companies are developing strategic alliances and value networks in order to ensure lasting positioning in value chain. In that respect ERP systems are challenged not only to atomize business transactions or supply middle management with information needed in day-to-day operations but rather to support strategic management business processes. ERP systems are today moving from operational tasks to much more comprehensive inter-enterprise collaboration to total collaborative business.

Implementation of advanced ERP packages is not easy task. High investments in hardware, software and customization services are following ERP systems implementation. In spite of heavy investments large enterprises but small and medium businesses are more and more implementing ERP packages. Clear benefit of ERP implementation, proven by number of empirical researches, was standardization of business processes and reduction of operational cost achieved by integration and automation of business activities. Renewing of enterprise information systems with replacement of fragmentized legacy systems by integrated ERP packaged is also one of common reason for ERP implementation. Today is major reason for implementation of ERP systems is that competition has it. If the company

would like to stay in business, implementation of ERP packages can be regarded as one of primary competitiveness components.

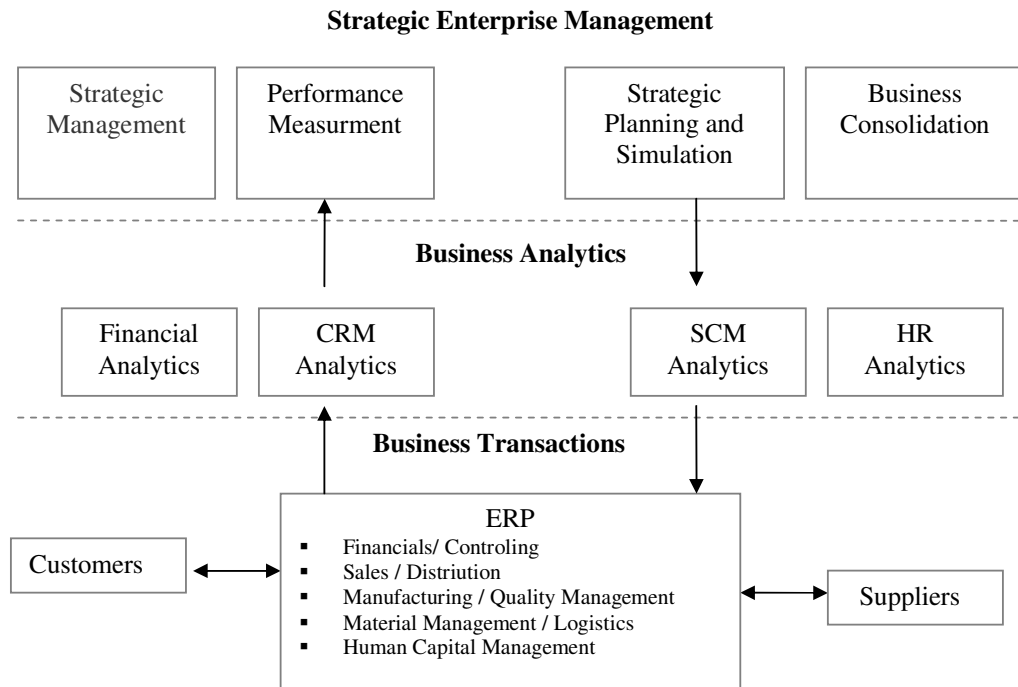


Figure 2: Integrated Enterprise Information System – Full Architecture

On the other hand the Total Cost of Ownership (total investments in ERP system in five years horizon) could be the reason why top management is not deciding to go for ERP packages. Common question coming from top managers is what are the benefits and what is the return of investment ratio in ERP packages implementation projects and if the ERP implementation is increasing enterprise competitiveness in global market environment.

3. ERP implementation and enterprise competitiveness

There are empirical research (Eskilsson, Nystrom, Windler, 2003) in which were presented empirical results of ERP implementation effects on enterprise performance and competitiveness. Most of the research are having in common that implementation of ERP packages is effecting supporting (back office) processes, manufacturing and logistics, customer and supplier relationship, organization and culture and strategic management.

Implementation of ERP system in back office is improving enterprise's ability to reduce operational costs by process standardization and optimization, integration of financial information, effective controlling system introduction and increase in financial reporting plausibility.

ERP system can substantially improve manufacturing and logistic planning and management process since the ERP is enabling entire supply chain optimization due to the real-time data and information access. ERP system can improve material planning and material management and connected expenditures. ERP system is enabling companies to improve manufacturing planning, to optimize manufacturing operation and to increase product quality as well.

Modern ERP (Enterprise Extended Application) packages are including CRM and SCM functionalities which are dramatically improving front end operations. CRM as holistic marketing approach is very important in long term customer retention and customer satisfaction improvement, which are one of key factor for enterprise competitiveness improvement. Integrating full ERP /EEA packages in Internet enabled collaborative environment companies are creating strategic networks which is ensuring long term competitiveness. Majority of retail chains and other retailers such petrol retailers, system gastronomy chains, implemented full ERP packages are claiming suppliers to implement ERP systems as well in order to optimize material management and supply chain cost.

Implementation of ERP packages in a enterprise is bringing huge changes in operational systems and corporate culture. Decentralized and diversified corporations have had before implementation of ERP systems suboptimal business process flow. Standardization of business processes and centralization has impact on cost optimization but also paradoxical impact on increased flexibility on the middle management layer. Middle management is getting by implementation of ERP packages very efficient analytical tool as decisions support which is enabling more creativity and process innovation. Cultural change is one of the effects of ERP implementation by shift from functional to a process-oriented organizational architecture.

Implementation of full range ERP packages enables implementation of strategic enterprise management systems. Global corporations are achieving competitive advantage not only by optimization of business operations but rather by development of strategic visions and strategic plans. Without ERP /EEA systems efficient strategic management would not be possible.

4. ERP implementation in Croatian companies

Croatian companies stood over a decade behind the competitors in Central and Eastern Europe in respect of ERP implementation. Croatian market could be compared by size and major economic indicators to Slovakian market. As of the end of 2007 there was approximately 90 ERP implementations within Croatian companies which can be compared with more than 250 ERP implementations within Slovakian companies.

Reasons why Croatian companies are not implementing ERP systems in such number as peer-companies in other CEE countries are doing could be found in orientation of the enterprises on closed domestic market which offered protection from global competitors. In course of EU accession process which getting the momentum in last couple of years, Croatian market is liberalizing and much more open to international corporations. Loosing market share in domestic market, Croatian companies are developing strategy of business internationalization and expansion to regional and international markets. Major challenge to domestic enterprises how to increase performance and to achieve competitive advantage in international environment.

4.1. Research thesis and question

Authors performed empirical research in order to test common acknowledged thesis that ERP implementation is increasing competitiveness within top Croatian companies.

Research question was: if implementation of ERP system increased company's competitiveness.

Objective of the study was to explore by several businesses indicators how ERP implementation is helping companies to achieve competitive advantage, which it theoretical framework.

4.2. Methodology

Data collecting through interviews with IT managers in top 400 Croatian companies measured annual turnover in 2007 had the purpose to explore a) if the companies are having ERP systems implemented, and b) how they are using ERP to increase the performance.

Financial information of the companies which implemented ERP systems published by FINA, state agency which is collecting financial reports for statistical and public use purposes, have been analyzed through following key performance indicators:

- Increase in annual turnover 2006/2007 ;
- Increase in export sales 2006/2007
- Increase in EBIT 2006/2007

The sample was 59 companies within to 400 which implemented ERP systems.

4.3. Empirical Results

Within to 400 Croatian enterprises there are only 59 companies which implemented ERP packages to support business processes. Certain number of international corporations having subsidiaries or branches in Croatia rolled-out ERP systems to the local entities.

Ranking by turnover	Rank 1-100	Rank 101-200	Rank 201-300	Rank 301-400
No of ERP implementations	26	12	9	12

Table 1: Number of ERP implementation within top 400 Croatian companies

Among top 100 Croatian companies there are 26 with full ERP implementation. The number of ERP implementation is decreasing with company's ranking .

Empirical research sample was 59 companies which have implemented ERP packages.

N=59	Decrease	Increase up to 5%	Increase 5-10%	Increase over 10%
Key Performance Indicator	2007/2006	2007/2006	2007/2006	2007/2006
Turnover	13	11	8	27
Exports	32	8	5	14
EBIT	13	15	13	18

Table 2: Results of empirical research

Results are indicating following interpretations:

- i. even 13 companies are decreasing in turnover, 32 companies are decreasing in exports and 13 companies are decreasing in EBIT (earnings before tax);
- ii. on the other hand 27 companies increased in turnover, 14 companies recorded increase in exports and 18 in EBIT more than 10% in 2007 compared to 2006;
- iii. approximately one third of Croatian companies are recording increase in turnover between 0% - 10% (32,2%) ,
- iv. slight to moderate increase in exports recorded 22,0% companies in the sample, and even 47,5% companies in the sample increased EBIT in 2007 compared to 2006.

Above research results are leading to the conclusion that there no clear connection between ERP implementation and corporate performance improvement measured by improvements in key business indicators in 2007 compared with 2006.

Results are supporting the thesis that the largest Croatian companies used to operate in either non-competitive or oligopoly domestic market environment. Majority of domestic companies implemented ERP system late in 90-ties, motivated by optimistic business expectations. International companies which increased market share in the last 3-5 years are not intending to use Croatian subsidiary for

regional market expansion. Domestic corporations are focusing on domestic market and have not really improved competitiveness. They are not prepared for market liberalization and EU accession. Companies which increased export over than 10% in 2007 compared with 2006 increased turnover and EBIT as well. Creating foreign demand for products and services, these companies have substantially improved competitiveness. The companies not only implemented ERP systems as driver of performance improvement but they are successfully using ERP packages as tool for the integration in international markets.

5. Conclusion and Further Research

Number of research and studies, conducted in the last decade, are supporting the thesis that ERP system implementation is helping enterprises to improve performance and competitive edge. There is no doubt any more: competitiveness is result of successful enterprise strategic management which is not possible without ERP/ EEA packages implemented.

Although some of Croatian companies implemented ERP in late 90-ties, non-competitive domestic market and not encouraging economic policies resulted with the fact that the enterprises didn't use advantages of ERP approach and ERP systems in performance and competitiveness management.

Some further research and case studied within domestic companies which implemented or are going to implement ERP packages would be recommended to explore what went wrong.

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