ERP, AN INTEGRATED MANAGEMENT SYSTEM IN THE BUSINESS UNITS

Rastislav MELICHER*
Business Process Expert, Avenue Jean Monnet 4, BE1348 Louvain-la-Neuve
Kristína BUDAJOVÁ
Technical university of Košice, Faculty of Aeronautics, Rampová 7, Košice
Corresponding author. E-mail: rastislav.melicher@centrum.cz

Summary. This article describes formation of ERP systems from its very first versions developed by each related companies into the universal global products which are able to be customized according to particular specific needs of any business units. Highlights also briefly main milestones, possible difficulties and risks which has to be taken into the account to assure successful company transformation into the integrated management system.

Keywords: ERP system; SAP; management; industry

1. INTRODUCTION

In today´s globally linked and often fast changing business world is critical for any commercial activity not to be only competitive, but be mainly extremely flexible and be able to respond to customer requirements, which are dependent on continuous turbulence market. Each, whether traditional, or company trading with the information or software must arrange and manage its internal processes to assure smooth and successful cooperation with each other. Their interaction, flexibility and mutual cooperation are the key for success in business.

In the days before the massive succession of information technology organizations functioned on the principles of bureaucratic approval of each step that brought a large measure of their relative controls, but on the other hand, system became unwieldy and inflexible. Therefore, the companies gradually started to manage their individual processes by using of information technologies, where each process was managed by specialized software of its output and affects the other at each follow-up process steps or processes. But since they have been developed, each on a different platform, often by very specialized companies, which logically guarded their technology was their interconnection quite limited.

This difficulty as first started realize large global companies such as Toyota or IBM and began developing the idea of a unified integrated information system, which would be able to automatically manage, control and especially be able to link all the individual processes, Fig. 1.. These systems have always been invented directly to the needs for specific enterprise and most widely used in programming languages such as COBOL, FORTRAN or ALGOL and mainly covered stock management.

At the turn of the eighties and nineties they are beginning to appear the first really comprehensive so called ERP (Enterprise Resource Planning) systems. The procedure involves the majority of business processes and many of them, which have been operated by manual data entering becomes fully automated. Companies are not any more develop only for themselves, but they are starting to offer as a commercial product easily adaptable to the particular enterprise. Analysis of business processes and the introduction of the ERP system is brought businesses more efficient running of the organization a competitive advantage and thus the market for ERP systems, along with the ever-falling prices of IT technology has grown by tens of percent each year.
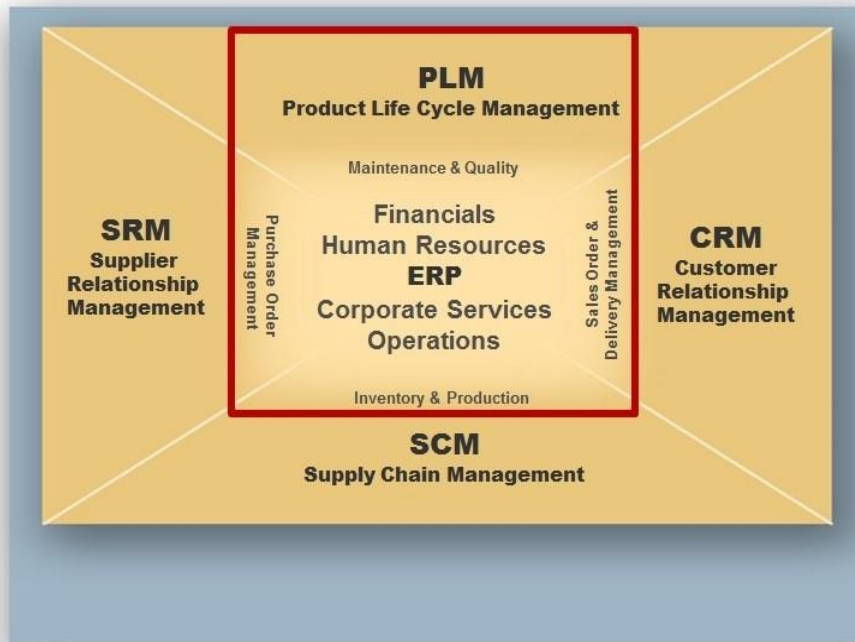
Figure 1 Interaction between processes via ERP system [5].

2. ERP SYSTEM AND ITS SELECTION

Internet invention helped processes via ERP system to leave a single company and communicate well with the systems of other organizations, regardless of their geographical location. This could occur, for example, and very easy interfacing to all branches of one commercial company through a single enterprise-wide system.

There is currently in the global marketplace with integrated systems hundreds of companies that specialize on ERP systems implementation, or are able to adapt the requirements of any given company. Therefore, when choosing a particular solution and the product must be taken into account in particular the following aspects:

 Company size - the number of employees in individual compartments, which affect a number of input and output data.

 Variety of processes - may not understand only the processes themselves, which are necessary for the production of a product, but also mean by separating them at all levels.

 The number of products - a portfolio of products or services delivered to the customer.

 Number of linked individual branches - if the undertaking belongs to a group of multinational companies, which are to be connected in real time, which is 90% of all companies, which supply the aerospace or automotive industries.

 possibility interaction with customers or suppliers systems. The timeliness of orders can be confirmed until substantially at the time of manufacture, flexible and therefore more current review has become nowadays a necessity. In the production of ERP solutions it is very important to take into account the fact what the system already used by our customers, optionally our strategic partners.

 cost and burden of society in the implementation - if not considered of ownership changes, or produced portfolio of services / products is the introduction of an integrated system management undertaking one of the major changes, that would be insufficient in the preparation for the organization may have fatal consequences. Whereas the choice of supplier ERP system strategic and critical decision in the direction of the company in the coming years, it is necessary to consider all the pros and cons of each solution.

Currently also exists in the global marketplace hundreds of local or global companies dealing with the installation and subsequent support of integrated systems. It depends on the size and financial options give the company advantage or localized, or to a global ERP vendor.

☐ support during the implementation and subsequent maintenance of the system - there are three options for implementation of the system:

- The company purchase a system that configures itself (Extremely inadvisable)

- The company purchase a system that configures its supplier. (Smaller businesses which are not interconnected)

- The company purchase a system from a global supplier and hires integration consulting firm that can assist with restructuring processes as the actual configuration of the integrated system. (Large companies and international corporations).

For better understanding, we can take as an example company (an international one, which supplies to the aerospace and automotive industries). Based on a market survey, and according to systems used by our strategic partners we narrows it down to the three largest global suppliers of integrated systems. It shows in Fig. 2.

Figure 2 Three largest global suppliers of integrated systems [5].

3. ERP SYSTEM BY SAP AG

After a detailed analysis and evaluation, the company finally decided for the German company SAP AG and its integrated system ERP system. In large measure it has played the fact that they both strategically customers (Airbus and Boeing) utilize ERP modules precisely from this company. After a successful implementation, therefore, we expect that we can link them with management of orders and inquiries in real time.

SAP ERP software is sold by SAP, which serves to managing the business. It works on the basis of "client/ server" applications in three layered model. The presentation layer, or the client communicates directly with the user. The application layer is stored business logic layer and database records and stores all system data, including transaction and configurational give.

The functionality of the system is programmed in own language called ABAP (Advanced Business Application Programming). ABAP, precisely ABAP / 4, is the language of fourth generation (4GL), allowing to create a simple but powerful programs.It also includes a complete development environment that allows developers to modify the already existing program code, or create custom

functionality ranging from reporting, to the transactional systems using so-called. "SAP FrameWork". ABAP communicates with the database using SQL queries, which allow select, modify and delete data. Also lets you create graphical user interfaces for an integration with other systems.

SAP R / 3 (Fig. 3.) consists of the following modules:
• FI (Financial Accounting) Financial Accounting
- Possibility of several accountancy circles and consolidation of the accountancy statements.

• CO (Controlling) Monitoring and Analysis
- Calculations and tracking interim cost comparison with those followed by actual.
- Monitoring and production and overhead costs, the possibility of making custom reporting.

• AM (Asset Management) Property register
- Recording and property management company.

• PS (Project System) Planning long term projects
- Designed for the development phase of products or projects.
- Monitoring of costs pursuant to individual projects.
- A close link to the FI-CO modules.

• WF (Workflow) Management distribution of documents
- Tool linked to the approval of documents and emails, or any other form of notification for the users of the information system.

• HR (Human Resources) Human Resources Management
- People Management, wages, career procedures, trainings etc.

• PM (Plant Maintenance) Maintenance
- Scheduling of preventive maintenance and operational interference with the machines.
- Detailed tracking and accounting for the cost of repairs.
- Management of stocks of spare parts.

• MM (Materials Management), warehouse management and logistics
-Products and goods management, possibly parameters for purchase.
Complete overlay of material purchase and his income to the movement after the manufacturing process.

• QM (Quality Management) Quality Management
- The possibility of setting control materials. Regular or dynamic repetition of tests, their monitoring and evaluation of both individual pieces, supplies, or contractors.

• PP (Production Planning) production scheduling
- Setting up a so-called. MPS (Master Production Scheduling), and SIOP (Sales and Inventories Operation Plan).
- Creation of reports for management support.

• SD (Sales and Distribution) Sales Support
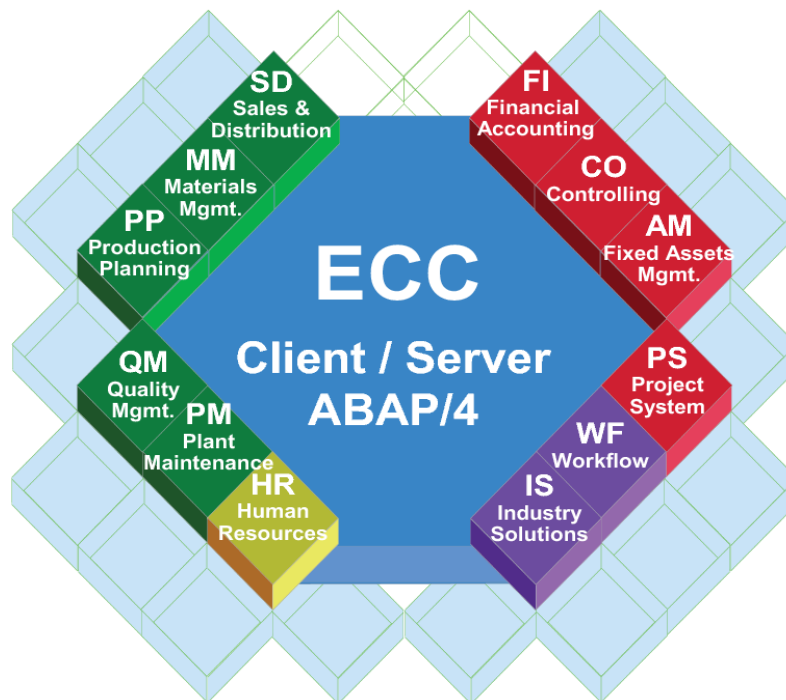- Possibilities of sales through individual orders (Spot Orders) or open contracts (Scheduling Agreements)

Figure 3 SAP R/3 modules [5].

4. IMPLEMENTATION PROCESS

Project implementation plan, so-called "Roadmap" defines all the business and technology plans necessary for successful implementation of the system in society. This is essentially a determination of the individual steps in the time to schedule a respected individual developmental steps and not compromise the entire execution of the project. For this plan 7 basic steps are defined:

1st Pre-Study – so-called "process decomposition". Sets actual processes for individual steps and determines roles and responsibilities in a time axis. This is requiring deep review of all related processes in logical sequence from the beginning to the end. This will be useful in the later stages to examine needs to follow it in the same way or not. Often happened that the company is following some processes only from historical reasons without no added values.

2nd Conceptual Design - Determination of the concept of future processes and their interdependence. According to Pre-Study, we should be able to determinate our new concept for the future processes which we will follow. In this step, study of various integrations between modules must be already taken into the account.

3rd Blueprint - Fixed the model plan and its acceptance of all process departments. After its approval is no longer way back, it is therefore in its implementation and approval of the necessary involvement of all the strategic leaders of individual departments.

4th Realization - creating a functional system in the test in offline environment. During this step, master data creation activity is launched which requires the largest work load for responsible people.

5th Acceptance Tests - Testing and extremely load-bearing, the system in a test environment prior to a final approval. Crisis scenarios are simulating to assure as strong as possible system resistance for unexpected events.

6th Preparation / Go Alive - Preparation of a sharp run the system in real environments. There are two ways of system transition:

- Big Bang: Company is able to switch to ERP in one shot, for all processes same time. This is recommended for smaller companies with straight forward processes.

- Go Alive is planned in several steps with transition period, when old system is used together with ERP to assure no process collapsing. This is recommended for companies with large portfolio of products and processes.

7th Transition - the transition to EDI (Electronic Data Interchange) via the ERP system. Last step what we have to perform is to activate smooth and automatic data interchange within organization and external platforms based on the same system (for instance on customer site).

5. CONCLUSION

It is already a fact, that the ERP systems are the future of internal system management. Not only because of the reason, that the companies are forced to fulfil certain, whether legislative, or a customer requirements, which indirectly oblige us customize a current system. We should also be able to respond flexibly to the commercial environment surrounding our business targets.

Technological developments have traditionally hampered by the risk and fear of considerable investment, which start exerting its profit until after a certain time, often after the departure of key managers who initiate the transformation. This has resulted in reluctance to change, but which are for the survival and competition ability critical.

6. LITERATURE LIST

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