

## ERP AND EDI SYSTEM AS TOOLS FOR INTEGRATED LOGISTICAL MANAGEMENT SUPPORT

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*This paper deals with problem of the Enterprise Resource Planning (ERP) systems and the Electronic Data Interchange with emphasis on requirements of Logistic Information Systems (LIS). Current ERP systems can be utilised not only for the integration of in-house activities, but also in connection with the Internet it can serve as managerial superstructure for Management Information Systems (MIS), Supply Chain Management (SCM) and Customer Relationship Management (CRM) in the form of extended ERP modules. The most frequently implemented system, SAP R/3, is introduced here, and its structure, advantages and conditions for successful implementation are discussed. The Electronic Data Interchange (EDI) system helps to manage the logistics, as it allows interconnection and integration of the business applications (EAI Enterprise Application Integration). Contributions and possible threats and their elimination in the Czech environment are emphasized, as well as ways to exploit the benefits of the EDI systems. Main requirements for ensuring success of the IS/IT project are summarised.*

**Key words:** enterprise resource planning system, electronic data interchange, logistic information systems, supply chain management, customer relationship management.

### Introduction

The position of business logistics has changed radically since 1950s of the 20<sup>th</sup> century, when it started to struggle in economic field. Its task in contemporary ideas on logistics is to optimise integrated logistics systems in their complex. Company, which wants to be successful in present environment of information society and electronic business, needs to have integrated not only all internal processes but also external processes such as, for example, relations with suppliers, with customers, with state administration bodies, etc. This would not be possible to ensure without support and development of information technologies (IT) and information systems (IS), which are considered to be key factors, which allow the growth and development of logistics [1].

Issues from our own investigation of conditions for implementation of logistics into companies in the chemical industry in the Czech Republic, however, repeatedly showed that in many of them high quality information systems were missing. Their disunity, low data cohesion and non-uniform form cause many problems. The company IS supports logistics management only in one third of surveyed companies. One quarter of respondents stated that their IS either does not provide such kind of support or they are not able to judge it [2-4]. IS in these companies sub-serve a mainly only informative and controlling function. The respondents alone considered implementation of new IS as just the second most important possibilities how to enforce fiercely logistics management in contemporary ideas on logistics, immediately next to communication between individual subdivisions. The creation of understanding of contemporary ideas on logistics was named as the third most important factor [1]. The investigations were carried out in the method of written questioning, completed with personal questioning in 35 companies. Informants answered in total 18 questions concerning implementation of logistics in their companies.

The aim of this paper is, therefore, to highlight the problems of IS with stress on their support of logistical management. Information system SAP R/3 of company SAP AG is most frequently implemented and employed within companies in the chemical industry in the Czech Republic. Therefore, we will focus hereafter mainly on this system.

### Basic requirements on Logistic Information System – LIS

Contemporary company is always a component part of social distribution of labour with relations to other social economic systems on the base of partner collaboration. It deals with linkages to suppliers of material items and services, providers of finance capital and know-how, subscribers of products or services, linkages to social surroundings, and nature. The significance of outside surroundings of the company, thus, significantly increased in comparison with the past for important linkages to banking institutions, stock markets, state administration bodies, local government, auditing bodies, assurance companies, and public juridical authorities such as health and social insurance companies. Importance of relations with abroad has grown inprecedentedly too. The changes in the surroundings have become unpredictable. Company must, therefore, more intensively react to these changes. The reaction can be only short-period, uniphase, and temporary. An alternative possibility is the long-term operation through implementation of IS into the companies. It does not deal, however, with the changes in technology only but it means functional adjusting,

changes in the structure of the company and its processes, interference into company culture, etc. In this context new concepts come up for such as kinetic corporation, fractal enterprise or virtual company [5].

Processes, which take place in separate links in logistic chains, represent the transformation of the customer's orders into supplies to customer, which are subsequently realised through logistic functions. The typical cycle of the purchase order consist of the following stages [1]:

- ∄ preparation and handover of the purchase order,
- ∄ acceptance of the purchase order and its entering into the system,
- ∄ order fulfilment,
- ∄ preparation/assembling of the order and packaging,
- ∄ transmission of the ordered goods and
- ∄ receipt of goods at customer side.

Simultaneously, source information is transformed into outgoing information according to the scheme in Fig. 1. This transformation must be ensured by a suitable information system [6].

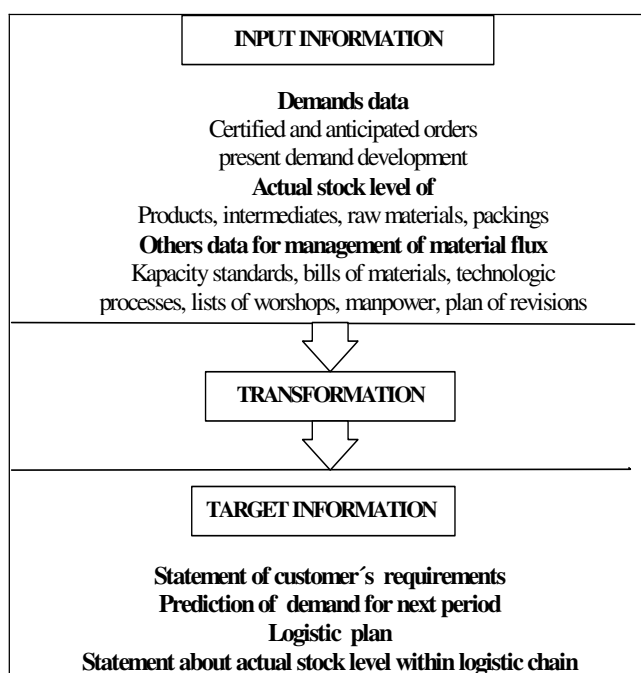


Fig. 1. **Input and output information** [6]

Many of these activities are already fully automated in modern systems. It is already fully common at present days to give purchase order in electronic way, for example, from terminals located at purchasers, from which the information are transferred through telephone line or directly by interconnection between computers of supplier and customer, such as EDI are, for example. Exactly purchase orders entries and their fillings are regions where computer technology and information technology brought the biggest contributions from all components of logistics. These contributions come through Table 1 [1].

In general, the function of information system is to supply information in a suitable form, in corresponding scope, in the required time, at a needed place, i.e. to get, to process and to store information for the needs of management system [6]. For the needs of logistic management it means to keep at a disposal such IS, which will supply the data and algorithms needed for effective administration of all mass fluxes and with them conjugated information fluxes and logistic costs. Simply the point is that the fluxes of information must be faster than mass fluxes within supply chains, thus, allowing accessibility of the actual information that is essential for application of modern methods of purchase, production and distribution of goods. Technical and intermediate instruments, equipments and people, all serving the stated purpose, form elements of LIS. Information flows mediated by data carriers serve as linking.

LIS should supply information about requirements and expectations of the customer as well as inform the customer about the point where the expected supply occurs just now, as well as about essential surroundings of the logistic system. Here belongs important information about availability and costs of inputs, safety rules, legislative limitations, etc. Both spheres of information must be structured in this way so that they

cover the needs of operational, tactical and strategic level of a logistic system. Logisticians must be able to determine what kind of logistic services will be required, where the bottlenecks are, how to dispatch them and how large the associate costs will be. Only then they can influence productive contents and production scheduling, to harmonize supplies, production and distribution processes with ordering processes. A particularly important principle is also information sharing between partner chain links. They must, therefore, keep at their disposal both enterprise and interfirm information systems. Decision about selection, implementation and continuing innovation of a suitable information system, must be, therefore, an integral part of business strategy of the company. Information system must come out from customer's needs and must support logistical management not only within the company but also within the whole supply chain.

Integration of internal processes is provided by Enterprise Resource Planning System (ERP), which is gradually substituted by E-business Management (EBM) system for control of electronic business. ERP slowly becomes an integral part of EBM. Contemporary IS/IT is characterised by distributed setting (central, branch, partners). Software applications at different platforms and different operating systems are implemented in this setting. Majority of contemporary organisations can be characterised at side of personal computers by Windows platform, by various server systems (IBM, Compaq, Sun, HP, etc.) and by various protocols (most frequently by TCP/IP). The ability to transfer mutually needful information is fundamental prerequisite for integration of applications, which works at various platforms and which are using various data models, formats and communications protocols and which are applied in various companies. Electronic Data Interchange (EDI) is used already many years for integration of ERP applications.

## 2. ERP systems with emphasis on SCM

Enterprise Resource Planning System (ERP) is already more than 10-year phenomenon of business applications and of IS/IT at all. Its dynamical development gives among others the evidence the fact that presently we can speak already about five "generations" of business applications, which take a portrait about functional trends, in which broadening of offer in direction to customers is dominant, as well as about technological trends heading to independent and portable solution [5]. Contemporary ERP systems present very extensive program product, which integrates all important business activities. Their main functional fields are production, logistics, further finance, and support of human resources. ERP system is, therefore, characterised as complex software package, which allows controlling suitably and efficiently business resources.

There are three most important management methods in contemporary ERP solutions: Just in Time (JIT), Material Resource Planning (MRP II) and Theory of Constraints (TOC). These methods differentiate themselves by their principles and fields of possible employment. For example, JIT is profitable solution mainly for production in series, or line organized production. MRP II is applicable in both, mass and job-order manufacture. From them TOC is the youngest and simultaneously most dynamically booming method. The fact that this method extends such applications as Supply Chain Management (SCM) and Advanced Planning System (APS) is the reason of TOC's self-assertion. These methods help better exploitation of machines and equipments as well as to optimisation of supply chains [5]. Substantial difference between these methods is in their approach to logistic flow of sequential filling of customer's requirements during their realization:

- ∉ JIT method is typical representative of pull system,
- ∉ MRPII method is denoted to be push system and
- ∉ TOC method presents combination of both, where the divider line between pull and push forms so-called bottleneck, i.e. capacity limitation.

Ability to automate and integrate basic business processes, share corporate data and processed them intra-plant and create and make accessible information in real time are main features of ERP. Very common mistake is that business information system is usually reduced to ERP concept. ERP creates the core of information system within the company. ERP endeavours to consolidate various spheres of actions and functions across the whole company (organization, institution) as far as to particular program tasks, which serve to various needs of organization divisions of the company. All divisions have their own system of work, they use optimized program for their specific activity and ERP connects their work together. Integrated software works with databases in such way, that different divisions or departments can more easily share information and mutually communicate.

IS is gradually propagated recently due to possibility to exploitation of Internet, which has become the tool for extension of ERP systems. Main directions of extension of ERP are mainly in following fields: SCM (Supply Chain Management), CRM (Customer Relationship Management) and MIS (Management Information System). Their interrelationship is illustrated in Fig. 2 as extended ERP system [5]. Components for realisation

of e-commerce such as B2B (Business to Business), B2C (Business to Customer) and e-procurement are becoming the part of integrated solution within the company of ERP type.

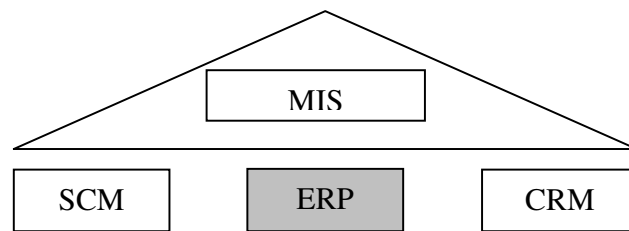


Fig. 2. **Extended ERP model of business information system** [5]

The offer of ERP solutions is quite extensive on the Czech market. Basl [5] reports that there is altogether 21 Czech and 19 foreign systems available on the market. The most important foreign systems are Bean ERP, One World, Oracle E-business suite and SAP R/3. As we already stated in the introduction part, the product SAP R/3 is from this broad offer the most frequently applied product for ERP solution in studied companies in the Czech Republic however usually without module for logistics [2].

### 2.1. Introduction of company SAP AG and its product SAP R/3

The abbreviation SAP means Systeme, Anwendungen, and Produkte in Der Datenverarbeitung, which when translated into English means Systems, Applications, Products in Data Processing. Company SAP AG was established in Germany in 1972. This company became the biggest company round the world in the IS category during its thirty years existence. There are branch offices in more than 50 countries in four continents. SAP AG has more than 27,000 employees around the world and last year its pay-off exceeded 7,514 milliard € and net income 1,311 milliard €. This company provides its business software to more than 26,150 customers. There are currently all together worldwide 88,700 installations in 120 countries with more than 12 million users [7].

In the German market SAP AG introduced the product SAP R/2, which was meant for mainframes only, in 1979. It was the first all-integrating business system and was immediately successful. SAP R/2 spread abroad into the rest of Europe within 1980's. Its architecture of the type client/server became so popular at the end of 1980's years that SAP AG started to develop product SAP R/3, which was introduced on market in 1992. Nowadays SAP R/3 is accessible in 28 language mutations and in 25 professionally specific versions. The heart of SAP R/3 is formed by approximately 10 000 database tables, which control the conditions of starting the processes. Configuration is the process of adjusting of these tables to get SAP to run the way the company wants like. There is no general solving for a specific sector. Solutions are realized on the comprehensive knowledge of the processes in order for there to be the possibility to give better strategic decision, which is based on reliable information. These solutions allow closer interaction with customers and raise the productivity of the company. Presently SAP AG offers following solutions for different branches of industry as well as services [7]:

Automotive industry, Banking sector, **Pharmaceutical industry**, High Tech (Business processes for producers of electro technical facilities), Metallurgy, **Chemical industry**, Aeronautics & Defence, Media, Defence & Home security, Vocational services, **Petrochemical industry**, Insurance, Providers of logistics services, Providers of services, Postal services, Consumer goods industry, Industrial machinery & Components, Natural sciences, Retail, Engineering & building industry, Telecommunication, University & research, Utility, Wholesale distribution, Public sector, Health service, Processing industry and Railway.

### 2.2. Structure of SAP R/3

SAP R/3 is a client/server application using a three-level model (presentation, application and database level). Client/server is standard model for network applications. The program is activated at one computer – server, which is waiting until some requirement arrives. One user starts up at some other computer the client (for example client application SAP R/3, browser of www, etc.). Client then contacts the server, requires from it some service and after that it sets up working environment for user. Presentation level or client communicates with the user. Business logic is stored in the application level and database level records and saves all data of the system including transaction and configuration data. There is altogether following twelve application modules, which are from the manager's viewpoint the heart of SAP R/3 system:

- € FI - Financial Accounting,
- € CO - Controlling,
- € AM - Asset Management,
- € PS - Project system,
- € WF- Workflow,
- € IS - Industry Solutions,
- € HR - Human Resources,
- € PM - Plant Maintenance,
- € MM - Materials Management,
- € QM - Quality Management,
- € PP - Production Planning and
- € SD - Sales and Distribution.

Their interrelationship is illustrated in Fig. 3.

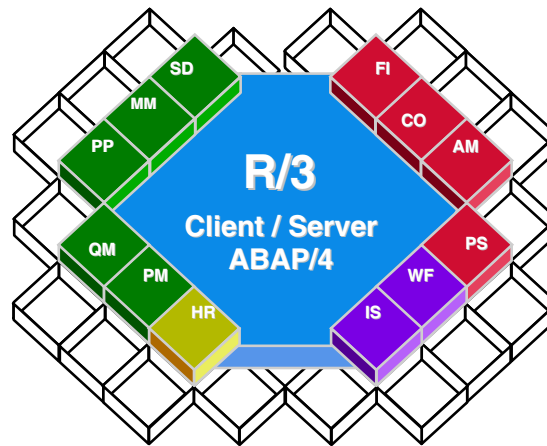


Fig.3. SAP R3 Architecture [7]

At present SAP AG shies away from a description of their systems as a collection of modules. They use in connection with the new product the term solutions, which are structured with regard to changes in management in direction to customer response management as follows:

- € Financials
- € Human Resources
- € Customer Relationship Management
- € Supplier Relationship Management
- € Product Lifecycle Management
- € Supply Chain Management
- € Business Intelligence (extensive field methodologies, methods and tools, which support planning, decision making and operating in the top management of the company).

### 2.3. Advantages of ERP system SAP R/3, product of SAP AG

ERP system SAP R/3 of SAP AG represents an all-company integrated solution of information system, which has the following advantages [8]:

- € ERP offers exploitation of technology for high volume information processing, which has been verified by practise in all sorts of industry worldwide.
- € It is a global standard in the field of integrated application software of a client/server type.
- € It includes application components for logistics, finance, human resources, business workflow and connection to Internet.
- € System is fully configurable to meet the particular requirements of each company.
- € It provides optimal support to all business processes.

- ∄ It offers support for more than 800 business processes in the form of special lines of business.
- ∄ It allows the access of all components and functions to the centrally shared data.
- ∄ It offers to its users a broad range of supplemental services, including tuitions, training, technical support etc.
- ∄ It supports an international background of companies, whereas it takes into account different languages, currencies and legislative requirements.
- ∄ It can be installed at different hardware platforms with usage of up-to-date operating systems.
- ∄ It offers built-in procedure for projects management – ASAP, which allows implementation in very short period

#### **2.4. Basic requirements for SAP R/3 implementation**

ERP systems represent a large investment for the company and not only into technology, but into employees who make use of the system. Only skilled consultant can effectively exploit the potential offered in solutions of ERP type. The same it is in the case of SAP R/3 implementation. SAP AG is selling their products at a price based on true number of end users. Closing price is however an issue of negotiation between customer and company ASP. It depends on many factors, which include for example the amount of users and modules. Altogether 10 % from this sum is annually paid for updates and support from the SAP. Added together, the overall cost of an SAP project can start running anywhere from 400 thousand € to hundreds of millions of €.

Implementation of SAP R/3 is usually several-years long process. The fastest implementation took 45 days. It was the case of small company with a few employees and without interference into SAP processes. Implementation in large, transnational companies can take even several years and this fact must be taken into consideration.

Implementation of SAP R/3 requires minimally three servers – one for the production system, the second for test systems and the third for development. Big solutions however usually exceed hundreds of servers.

Implementation is very demanding of human resources. There is the need of hundreds of employees from systems engineers to project managers and the need of many consultants in the case of big projects.

In spite of all these demands on implementation there exist many reasons for companies to implement just the SAP R/3. These main reasons are [2, 8]:

- ∄ *Replacement of out-dated and inefficient IT architectures resulting in cost reduction*

Computer systems were earlier developed by individual departments to satisfy the requirements of that particular department. When companies realised the benefits of integrated solutions, expenses for the support and the maintenance of these systems went down significantly.

- ∄ *Change of in-house processes*

SAP R/3 was built on a foundation of best business practises with processes. Although counterintuitive, it is probably much easier and less expensive to adapt companies' processes to SAP than the other way around.

I consider this a key finding in the decision making process in the implementation of IS in general. New technologies, built on the basis of modern management methods, cannot be successfully implemented on old processes, a fact some companies did not want to accept. Communication and mutual understanding with consultants at this point is crucial. It is essentially necessary to exactly define what we can expect from new IS, what we must do and which requirements must be fulfilled from on the part of company.

- ∄ *Gaining of competitive advantage*

In this case success depends of course on the company, but with the aid of SAP the company is able to meet the deadlines as promised for its own products and is able from the tradesman to enter the data directly into planning process by customer, according to his selection of properties of the specific product etc. and so gain competitive advantage in the form of supplied complex services to customer

### **3. System Electronic Data Interchange, its advantages and risks**

Electronic Data Interchange has been employed for ERP integration already many years. Implementing of EDI systems significantly helps to manage logistics and control of document's flow. We can even declare that EDI is changing logistics [9]. This is because EDI allows interconnection and integration of business applications (EAI - Enterprise Application Integration). However these applications begin to be treated as heavy-handed and going out, they are applied even in modern applications of e-commerce. There are other

techniques of integration available too, but always majority applications apply simple data exchange, i.e. EDI [10]. Principal goal of Electronic Data Interchanges systems is gradual replacement of the paper documents by the electronic ones in conformity with the requirements of legislation. EDI systems appended by digital the signature are applied for electronic data interchange and for electronic system of payments. System based on EDI is not only safer but also mainly much faster, more operative and more economic than when classical commerce is applied.

Electronic data interchange presents an electronic interchange of structured standard messages between two applications of two independent subjects. It means in practice, that for example the customer makes a purchase order in his own system and he sends it using EDI directly into the system of the supplier. Information systems of business partners thus communicate together directly. It allows continuous transfer of such documents as purchase orders including their acknowledgments, invoices, delivery notices, inventory surveys, good catalogues, prices etc. EDI systems can be thus successfully employed everywhere, where regular transfer of standard documents takes place. Operations, which should have to be done manually, are, thus, automated. Exchanged messages have clearly given standard and they are structured. It means that messages are defined in terms of the explicit syntactical rules, which form common language for all interconnected applications.

### **3.1. Advantages arising from EDI application**

EDI technology is presently utilized by tens of thousands of big companies all over the world for everyday electronic interchange of documents with their business partners, banking houses, state administration, customs authorities and other subjects involved in business. Main reasons, which led them and are leading them, are as follows [9], [11]:

- € In the time of its origin, EDI was only one effective way of electronic communication.
- € EDI saves time by breaking down manual forms filling, their completion and repeated searching them in archives.
- € EDI assures highly operative delivery of the documents to the addressee in the shortest possible time. Addressee than can work up the reply essentially sooner than using common instruments and to send his reply again using EDI. Circulation of documents can be thus cut down from week to hours, maximum to one day.
- € EDI decreases the risk of mistakes as it eliminates re-writing of the documents and eliminates thus formation of common mistakes as typing errors, oversight, missing data etc...
- € EDI saves money in that it streamlines documents transfer processes and eliminates error rate during manual data input.
- € EDI economizes long-term costs in that it allows reducing the amount of employees who deals with the company administration and significantly reduces expenses on postage, paper, print and documents evidence.
- € EDI generates money in that it tightens the relations between business partners and aids to increase the volume of business transactions.
- € EDI supports the competitive advantage in that it allows more reasonable utilization of human potential, it economizes the operating costs, and it increases flexibility of work and promptness.

### **3.2. Possible Electronic Data Interchange system threats and their elimination**

Electronic data interchange system security is the critical aspect for the evaluation of argumentativeness and of legal force of EDI files and therefore the provision of the security is the most important part of the whole EDI solution. EDI file must always and at any condition has at least the same security as the paper document has, otherwise it cannot replace the paper document.

Modification of the message, change in their sequence, masquerading, and rejection of the message origin and misuse of the confidential information are the essential EDI systems threats. Modification of the message means change in its content after despatch by rightful author either knowingly or as the consequence of technical mistake. The function called message integrity provides security against file modification, as it guarantees that any modification of the file during its transfer will be disclosed.

Risk of the change in the sequence of messages (which can result in loss of the message or on the contrary in its multiple deliveries) is eliminated by the determination of integrity in the sequence of the messages.

Masquerading when the attacker personates himself as somebody else represents a lot of danger. Method designed against the misuse of masquerading is the authentication of the message. Other possible threat of EDI security is the rejection of the message origin, when the author disclaims the despatch of the message or on the contrary the addressee rejects the receiving of the message. This is why the goal of majority of security methods is provision of non-repudiation of delivery or of receipt of message.

Employing message encryption solves the problem of the misuse of the confidential information. Digital signature is the most progressive encryption method in the field of the electronic data interchange.

Probably the most suitable solution of the security of the electronic data interchange is combination of the electronic signature and WAN (Wide Area Network) services of the operator, for example of Internet, which can execute simultaneously function of the certification authority [8], [12].

### **3.3. Exploitation of EDI systems in the Czech Republic**

Overwhelming majority of the EDI systems' users in the Czech environment is in the position of passive users only, in spite of their indisputable advantages. These systems are implemented usually being urged by strong partner. Finance heftiness of implementation itself and of subsequent running of this system is the persisting argument, which excludes the implementation of EDI systems in many companies. But this is not valid anymore [9]. It is the nonrecurring expense for software licence (the base is the converter and communication program, they can be completed by mapping program, by program for EDI management, eventually by security and communication server), setup of the box or testing of EDI system and finally periodic monthly or quarterly payments for data transfers and running of EDI box. This periodic payment starts from 250 Czech crowns/months only (25 Czech crowns correspond approximately to 1 USD).

Farther barrier for the implementation of EDI systems is the fact that it is relatively time consuming process exacting to be organised. This can be solved utilizing the services of EDI provider. Specialized firms exist on Czech market, which make the implementation of systems much easier. Even analysis made abroad show that the outsourcing could be a suitable way in this field. But it does not mean that this solution must be the best for each company and at any situation.

Primarily it is necessary to become acquainted with given EDI and to compare our expectation with offered possibilities and only after that to choose concrete solution. Factors such as in the company employed information system, character of in-house processes, which are the suppliers and the customers, must be taken into the consideration. In this sense sometimes business chains or powerful companies act as an active element of the whole system because they require their suppliers to implement these systems. Sometimes they even help to their partners with the implementation either financially or expertly [8].

Thanks to application of the XML language, which opens up the possibilities for interconnection of applications, the EDI systems are presently booming. Simple implementation allows to apply these technologies nowadays even in the small and medium companies. These companies often considered earlier the implementation of EDI systems as useless and they waited it off due to above given problems. In this way the invested effort and the experience returns to big companies as they can achieve full automation.

### **4. Major conditions of success of IS/IT projects**

On the basis of experience from companies in the chemical industry it is considered as necessary to call attention to following [2]. Preliminary to making decision about implementation of new information system management must carry out analysis of the requirements on information system and not other way round, as it many times happened. Management will, thus, avoid a lot of unwelcome surprisings arising from misunderstandings, or from insufficient or incorrect communication with the vendor and mainly from excessive expectations that through the purchase of new IS all problems will be solved. This is essential mistake, which bears a lot of disillusion and many problems, as for example longer implementation, and with it related cost increase etc. Communication and mutual understanding with consultants is therefore very important. It is essentially necessary exactly define what we can expect from new IS, what we must do and which presumptions must be fulfilled from on the part of company.

Fruitfulness of IS/IT projects is, thus, determined not only by the quality of the actual SW product, but by abilities of consultants of supplying company and by conditions created in the company on the user side. It is the question of support at all levels of management; starting from the company tenants, top management, through project team after as much as to particular end users. Three basic presumptions must be fulfilled on the user side, which reduce the risk of failure in realization of the project. These presumptions are [5]:

€ Sufficiency of special knowledge (necessary clearly define expected goals, not overestimate signification of results, understand setting of IS/IT as a source of recommendations obtained under specific conditions and groundwork, to educate all users).

€ Ample time for fulfilment exacting tasks (not overestimate the speed with what results can be obtained from the system, not underestimate time needed for preparation of the system).

€ Willingness and ability to change thinking and methods of work, i.e. willingness for changes (sufficiently motivate workers, clarify the positions of all members of project team after its termination), etc.

**Table 1. Characterizations of various systems of the purchase orders filling**

Level	Type of system	Speed	Acquisition/maintenance costs	Uniformity of cycles	Accuracy
1	Manual	Low	Low	Wrong	Low
2	Telephonic	Medium	Medium	Sufficient	Medium
3	Direct electronic connection	High	High investments, Low operation costs	Excellent	High

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## Conclusions

Optimization of logistic systems in their entirety is the business of logistics in present-day conception. This problem is however very complex as it has systemic character and it is necessary to develop a lot of pre-requisites for its successful fulfilment. They must be realised mainly in the field of computers integration (Computer Integrated Logistics – CIL), including simulation software for the decision making support at different levels such as structural, procedural, Electronic Data Interchange (EDI), electronic mail (E-mail), Electronic Messaging, Electronic Business and others.

A suitable solution can be implementation of Enterprise Resource Planning Systems; more than 40 of them is presently available on Czech market [5]. Exploitation of Internet will allow farther distribution of ERP systems as extended ERP, among others rightly in the Supply Chain Management (SCM) area. ERP can be thus exploited not only for integration of in-house zones but as managerial superstructure of Management Information System (MIS), SCM and Customer Relationship Management (CRM) type. Electronic Data Interchange (EDI) is than exploited for integration of ERP applications.

Application of the XML language opens up the possibilities for interconnection of applications. Simple implementation allows to apply these technologies nowadays even in the small and medium companies and big companies can achieve full automation.

ERP is a complex software package, however with high demands on finance, people, time etc., which allows effective and purposeful management of business sources and which thus allows to realize presumptions for successful implementation of logistics into the company. RP system of company SAP AG is most frequently applied within companies in the chemical industry in the Czech neighbourhood. This system is however usually utilised without logistics module, so that its possibilities for the decision making support and for the management are not fully exploited. The fact that SAP R/3 system offers specific solution for branch of chemical industry and is successfully applied in the half of TOP 500 companies in the world indicates that this can be the right solution. Compliance of certain principles is however condition for its successful implementation as well as for successful implementation EDI systems. It is mainly sufficiency of special knowledge in IS/IT field, clearly defined expected goals, ample time, willingness and ability to change thinking and methods of work and not to leave out the risks of threats, which are connected with IS/IT.

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