THE ROLE OF ELECTRONIC BUSINESS IN THE REENGENEERING AND INTEGRATION OF BUSINESS PROCESSES

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Abstract: Electronic business leads to the reengineering of business processes in a company, which encompasses integrating processes through customer relationship management, supply chain management, and an enterprise resource planning system. The aim of the paper is to analyse the impact of electronic business on enterprise transformation through reengineering and integration of business processes. The significance of the research is to emphasise management problems and challenges encountered by companies due to electronic business and application of information technologies. The research applies an analytical method to examine the effects of electronic business on business processes. The main contribution of the research is to look at electronic business as an initiator and the cause of radical changes in business processes characterised as reengineering. By transforming their business practices into electronic business, companies make significant efforts in their restructuring in order to deal with the changes in the competitive environment. The basis of these efforts is a redesign and change of business processes. The conclusion is that introducing the Internet and Web-technologies in business does not require only a radical reengineering of existing basic business processes but also generation of new ones, which would support the new business environment.

1. Introduction

With the creation of a global economy, electronic business (e-business) and electronic trade (e-trade) become necessary components of a business strategy and a strong catalyst of economic development (Kumar & Kumar, 2014, p. 349). Integrating information and communication technologies into business has caused a reversal of relations within the organisation, between organisations, and between organisations and individuals.

E-business means doing business on the Internet and implies not only buying and selling, but also the organisation of the business's operations in a network environment, organisation of business communication with clients, and client care. Therefore, e-business implies doing business operations by applying electronic technologies, whereby these technologies encompass combining the use of information technologies (IT) and telecommunication. E-business is also defined as using electronic networks and connected technologies, which needs to enable, improve, forward, transform, and reveal the business process or system for creating superior value for current and potential buyers (Sawhney & Zabin, 2001).

The difference between e-business and e-trade is reflected in the extent and scope of the processes performed within them. E-trade implies business communication and the transfer of goods and services (buying and selling) over computers and networks, as well as the transfer of capital by using digital communication. E-trade also includes other business functions which are necessary within the process of trade, such as production, sales, marketing, finance, and the administrative function. E-trade is a smaller subset, i.e. a component of e-business. E-business does not only encompass e-trade, but also internal processes, like production, inventory management, product development, risk management, finance, knowledge management, and human resources. E-trade and e-business can fundamentally change the way business is conducted (Jovanović & Milovanović, 2008). According to Janaćković, Milovanović, & Milovanović (2016) "The key aspects of change in the company caused by the implementation of e-business and the application of IT are related to the change in the business model and using the potentials of the e-market; re-engineering the business processes; changes in the organizational structure and culture; and changes in the technological infrastructure" (p. 63).

The subject matter of this research is Business Process Reengineering (BPR) in a company due to e-business, which encompasses integration of processes through Customer Relationship Management (CRM), Supply Chain Management (SCM), and Enterprise Resource Planning (ERP). A large number of businesses today use Internet technologies for creating innovative e-business applications and supporting reengineering and business process integration (Figure 1)..

Figure 1. Innovative e-business applications and business process integration
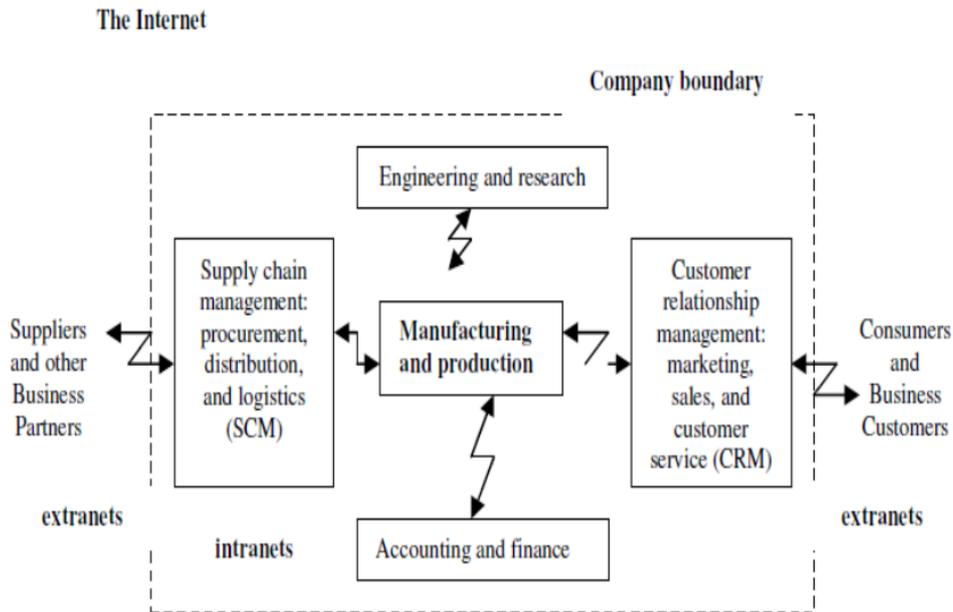
Source: Militaru & Şerbănică, 2008, p. 29.

Customer relationship management is an important process for e-business due to the fact that business power is shifted from the manufacturer to the consumer. Therefore, businesses should recognise this change in power and create a strategy focused on consumers. The goal of supply chain management as an integrating function is the development of a competitive business model by connecting key business processes and functions within and between businesses, while ERP is of vital importance for connecting all basic activities of businesses, including production, inventory management, and procurement.

A new relationship between organisations and the information system (IS) is characterised by an increasing interdependence between a business strategy, regulations and procedures on the one hand, and IS elements, i.e. software, hardware, data bases and telecommunications on the other (Milovanović, 2003).

The main aim of this research is to show how e-business influences the reengineering and integration of business processes (BPR) within and between businesses through customer relationship management, supply chain management, and enterprise resource planning.

2. Information systems and business process reengineering

A business process can be defined as a set of logically connected tasks which are performed in order to accomplish a defined business result. The set of processes is a business system—the way in which a business unit or a set of units conduct business. Business Process Reengineering (BPR) implies a radical change and a transformation of the way a company performs its business processes.

The processes have two important characteristics: 1) processes have clients, i.e. defined business outcomes that these clients receive, and 2) processes overcome organisational barriers (borders), i.e., are performed between organisational units (they are independent from formal organisational structure). Typical examples of processes that meet these characteristics are the development of a new product, ordering goods from a supplier, creating a marketing plan, etc. (Davenport & Short, 1990).

In the 1990s, many businesses in developed countries began to observe and understand IT and business activities, and their relationship, from a wider standpoint. It was observed that IT and reengineering of business processes are interdependent, i.e., in a so-called recursive relationship, as can be seen in Figure 1.

Regarding IT, it is considered how this technology can support new or reprojected business processes instead of business functions. On the other hand, business processes and their improvement should be considered along with the possibilities provided by IT. The possibility of using IT in the reengineering (reprojecting) of business processes is shown in Table 1.

Table 1. The possibility of using IT in the reprojecting of business processes

IT possibilities	*Influence on/benefits for the business*
Transactional	IT can transform non-structured processes into routine transactions.
Geographical	IT can transfer information between two distant points with great speed and ease, making the process independent of the geographical location.
Automation possibilities	IT can reduce or completely substitute human labour in processes.
Analytical	IT can provide complex analytical methods for analysing processes.
Informational	IT can provide a great amount of detailed information about the process.
Sequential	IT enables a change in the order of tasks in the process, thus enabling the simultaneous performance of several tasks.
Knowledge management	IT allows the preservation and dissemination of knowledge and expertise for improving processes.
Tracking	IT allows detailed tracking of the status of tasks, inputs, and outputs.
Eliminating intermediaries	IT can be used to connect two sides within a process which would otherwise communicate via intermediaries (internal or external).

Source: Davenport & Short, 1990.

All of these possibilities of IT reach their full potential through the implementation of e-business in a company, which completely changes the way business processes are performed and secures their multifunctionality and integration. Multifunctionality and integration are best manifested through customer relationship management, supply chain management, and enterprise resource planning..

3. Customer Relationships Management and BPR

Under modern business conditions, quality customer relationships are one of the key parameters of achieving success. Customer satisfaction, good business cooperation, and the knowledge about the customers' needs, habits, and desires are the inevitable factors that influence the increase of customer loyalty in the conditions of dynamic competition. Realistic information about buyers available at the right time and the right place have always been key to successful business. CRM is a complex set of business processes and technologies aiming at managing relationships with existing and potential customers and business partners in the areas of marketing, sales, and support, using all available communication channels. It is a continued business process focused on finding new and keeping existing customers.

CRM is a business strategy that aims at advancing profitability and decreasing costs based on the increase of customer loyalty and satisfaction and the careful development of a relationship with them. During the consumer lifecycle, CRM includes an interactive and personalised approach (Fletcher, 2001) and encompasses all aspects of business interaction with clients not only in the area of sales, but also in the area of services. The basis for a CRM business strategy is the personalisation of doing business with every individual user, which implies that every user has special treatment and is given an offer which is most convenient for them at a given time and which applies only to them. The CRM concept is based on the claim that if the company possesses customer information (e.g. what their desires and needs are, what kind of product they want), sales will be considerably better, and the customer more satisfied. Therefore, the essence of the concept is having appropriate information, which is also the most important element of CRM. CRM is a key business strategy for managing and optimising all customer interactions through traditional and electronic organisational interfaces.

CRM is also a business philosophy that developed from marketing relations and that puts the individual consumer in the centre of attention. In order to better fulfil customer needs, their behaviour and needs are tracked with the goal of establishing and developing partner relationships with customers. CRM involves applying contemporary marketing strategies, while the implementation requires

using software solutions in order to systematically gather data on the behaviour and needs of consumers and enable cooperation with them.

CRM is a solution that provides all the necessary information for successful customer management, putting the customer in the spotlight of the business world. In order for a CRM solution to provide good products and services to the customers, satisfy customers concerning the business offer, lead to an increase in sales and a reduction in costs, and make employees satisfied, the CRM solution needs to (Obradović et al., p. 458): 1) be open in order to flexibly support all tasks related to buyers; 2) be operational and analytical; 3) include all points of contact—the Internet, contact centre, and personal contact; 4) be completely integrated with the main information system (ERP system); 5) provide opportunities for connections with e-trade, SCM, financial management, human resources, and business intelligence; 6) have a personal user portal, a Web-based solution adjusted specifically to customers, employees, and business partners, enabling a fast, easy, and completely adjustable access to internal and external applications, information, and services.

The main goal of CRM is integrating the sectors of sales and relations. That kind of integrated systems provide the management with a complete image of buyers, their habits, desires, and needs and secure the providing of services of the highest quality. A CRM strategy includes three basic steps aiming at creating a long-term and successful relationship with partners: 1) a practical approach, involving opening up to buyers and creating a starting point for cooperation and customer focus; 2) a synchronised interaction, encompassing consistent customer overviews and using knowledge to design business in order to accomplish better business processes within customer relationships; and 3) intelligent cooperation, having in mind that cooperation today is on a higher level than before. The main activities for expanding existing cooperation include creating customer value through intelligent cooperation based on knowledge (Obradović et al., 2011).

3.1. Elements of a CRM software solution

CRM is a technological solution that consists of three basic parts. Basic elements of a CRM software solution are the operative, analytical, and collaborative CRM (Gefen & Ridings, 2002), where each of them has a special function. The functions primarily encompass gathering and processing data and analysing information acquired by data processing (Dukić et al., 2013, p. 145).

An operative CRM, the so-called front-office CRM, supports processes that directly refer to consumers in the following functional areas of a business: marketing, sales, post-sale services, and management. Marketing applications simplify marketing activity planning processes and the realisation of marketing campaigns, and are the basis for identifying future consumers. Sales applications

refer to planning sales activities and the management of prices, orders, and sales contracts. Post-sale service applications support processing service requests after an agreement was signed based on a sales agreement or a customer complaint. Managing applications use the data of all operative areas in order to continuously plan finances, sales, and resource management in accordance with customer needs. Therefore, an operative CRM encompasses: the automation and optimisation of the whole sales process (arranging meetings, preparing offers); the automation of marketing by implementing information systems meant for designing, executing, and measuring the performance of marketing campaigns, the tracking of client contacts, and the automation of client support through call centres.

Analytical CRM, also known as back-office or strategic CRM, provides assistance in preparing, supporting, and optimising decision-making processes related to consumers not only within businesses, but also in relation to the environment. Analytical CRM includes understanding customer activities which are performed in the front office and enables organisations to analyse customer relations through data mining (Gefen & Ridings, 2002; Shaw et al., 2001). The main goals of analytical CRM are: 1) achieving solid understanding of consumer satisfaction and their possible future behaviour; 2) creating a solid basis for decision making in sales and marketing; 3) providing support with customer-related planning; and 4) optimising operative processes. The basis of CRM are solutions which use technologies like data warehousing and data mining to create a profile of every customer while applying business intelligence concepts and other models which can be used to promote sales and relationships with other buyers. The application of business intelligence is necessary to efficiently realise analytical CRM.

Collaborative CRM enables businesses, business partners, and customers to work together in the areas of marketing, sales, and post-sale services. It can encompass a portal, an application for managing partner relationships, or a customer-interaction centre (Gefen & Ridings, 2002). It also involves communication channels like e-mail or the Web, voice applications and snail mail, and channel strategies (Fayerman, 2002; Johansson & Sparredal, 2005, p. 2). Collaborative CRM is every CRM function which provides a point of interaction between the consumer and the channel. Examples of technical platforms for this kind of cooperation include the Internet and e-markets, while examples of cooperation scenarios involve the processes of e-marketing, e-services, and e-sales, as well as managing sales channels and distributed ordering. Therefore, collaborative CRM has a function of establishing contact and interaction with the user through traditional (physical contact, mail, phone, fax) and modern media (e-mail, the Web, speech recognition). Based on interactive media use, the system sends the user notifications, offers, etc. and the user's answers are returned into the system through operative CRM.

3.2. The CRM concept and e-business

An efficient e-business strategy implies that an organisation secures superior value to the customer as compared to the competition. In order to deliver superior value for customers, it is necessary for marketing to directly influence the three key business processes related to supply chain management, product development management, and customer relationship management.

Sowalskie (2001) points out that CRM is driven by three factors: 1) consumers empowered by information, technology, globalisation, deregulation, and choice; 2) increased competition; and 3) e-business and the Internet, which improve marketing and sales, facilitate introducing new distribution channels, and improve the efficiency and effectiveness of the service. Strategically efficient CRM requires intelligent application of technology and is more than a software solution. Efficient CRM refers to the way customer information is used in order to create a constant connection to the customer. Having in mind the different kinds of relationships with buyers in business-to-business (B2B), business-to-customer (B2C) or business-to-business-to-consumer (B2B2C) markets, different approaches to these relationships and different CRM software are required. Different customer expectations and relationships can encompass different information and contact strategies. In every trade environment, it is important to apply CRM software and analytics, i.e., the capability to apply multiple data sources in order to predict customer needs, preferences, and behaviour. This is especially important for B2C markets, which exhibit the closest contact with buyers through call centres, website transactions, and suggestion lines. The information from these personalised contact points can additionally be connected to software tools for statistics and reporting, which record these data.

E-business in CRM provides numerous benefits (Kumar & Kumar, 2014). Firstly, by engaging in e-business, a company establishes its presence not only on a national, but also on a global level. Secondly, the application of the Web in product advertising ensures economical marketing and promotions, guaranteeing a global range at a nominal price. Businesses gain advantages based on management in the application of economical online advertising strategies. Thirdly, the development of competitive strategies is ensured, since it is impossible to maintain a competitive advantage and make a profit without an efficient strategy. Fourthly, e-business contributes to advancing customer services. The service is easily available to the buyer, payments can be performed online, and products can be delivered to the customer's home address. Fifthly, the reduction of transaction costs is ensured. Sixthly, general costs are reduced, having in mind that e-business is essentially independent of costs ensuing from the physical entity doing business.

In order for every business to establish a link with the most profitable buyers, it is necessary to maintain ceaseless dialog between the market participants and their

customers. The techniques that enable this dialog include CRM software that integrates data from call centres and suggestion lines and develops customer profiles, personalised messages, loyalty programmes, special offers, personalised Web-pages, periodical newsletters, and the forming of advisory committees for customers (Ragins & Greco, 2003). Apart from CRM software, other techniques can include Internet-based conferences, online buyer panels, customer research via email or the Web, and online focus groups based on chats.

During the development of CRM strategies and e-business, Butler (2000) points to the fact that businesses should be careful when using online channels. Firstly, online channels are expensive, which requires considerable dedication of the organisation's resources. During the adoption of CRM as a business strategy, it is important to establish a pilot CRM test in order to ascertain financial benefits due to improved relations. Secondly, an online channel can only be one of two or more SCM channels used to manage customer relationships. CRM can hinder the development of other channels; therefore, sometimes the best way is to use traditional marketing channels in order for the businesses to offer products in accordance with customer requirements and desires. Finally, it is important that businesses realise that an online channel is considerably more than a communication tool. Marketing-oriented CRM can contribute to the realisation of greater value for customers and businesses by providing the SCM and product development management (PDM) processes with useful information.

4. Business resource planning and BPR

Having in mind that the main characteristic of a globalised products and services market is a growing level of interaction of all supply chain participants with the goal of improving business performance within the supply chain, it is necessary to implement appropriate systems for efficient planning and control. During the 1990s, IT innovations led to the development of a large number of software applications for integrating the information flow in the business. These commercial software packages were named Enterprise Systems. During this period, the attention of the greatest companies of the world was attracted by a business system called ERP.

Initial ERP system functions referred to planning production and distribution, while contemporary ERP systems today contain not only CRM and SCM components, but also others used to plan and manage other business processes. Today, ERP systems group all traditional management functions in a business (production, sales, finance, and human resources) and include many solutions like warehouse management, product data management (PDM), and manufacturing execution system (MES).

ERP systems enable businesses to replace existing information systems and standardise the management information flow. They represent the next step in the evolution of the Manufacturing Resource Planning method (MRPII). The MRPII model is the essential core of ERP and uses similar modules; however, certain ERP systems also contain modules not used within MRPII, like product data management, computer aided design (CAD), distribution resource planning (DRP), and tool management systems (TMS) (Yusuf, 1998; Prasad et al., 1999).

Business resource planning involves a set of processes and tools for managing the balance between demand and needs and their prediction, enabling a unified view of the overall business operations with decision-making support. The ERP system is a strategic tool of a business intended for integrating all business processes taking place in its environment and for a more optimal use of available resources. ERP systems enable the business to instantly react to market changes due to the systematisation of data, processes, and business facilities, which are being managed in real time. The implementation and application of ERP systems involves synchronising, i.e., integrating all business functions and corresponding data. This way, it enables consistent operation of all sectors in a business (production, sales, procurement, delivery, accounting), always based on up-to-date parameters.

4.1. The characteristics and goals of ERP systems

ERP refers to systems that connect different functions within an organisation, as well as partners in the organisation's supply chain (distributers, suppliers), enabling different business partners and organisational entities to share information about the status of the delivery, product schedules, sales records, as well as plan production, logistics, and marketing promotions (Gunasekaran & Ngai, 2004, p. 280).

IT is an infrastructural basis for the efficient performance of the majority of business processes. A business information system of a company is a basic link, providing informational support for business processes. ERP uses Internet technologies to integrate information flows from internal business functions, as well as information from suppliers and buyers. The system records valuable management data by applying a relational database management system within the client/server network architecture. ERP solutions unify modules of finance, logistics, and production. It is a software package that follows all business operation aspects in a company. A software solution qualifies as ERP if it meets the following requirements: 1) effective process management in the business; 2) the existence of a common (unified) database; and 3) the possibility of quick response to operative demands.

ERP systems are focused on integrating all departments, functions, and processes in the organisation into one information system able to support all these areas in accordance with their individual and specific requirements (Tambovcevs & Tambovceva, 2013). Every department in an organisation has its own information subsystem adapted to the specific characteristics of development activities. An ERP system within an integrated software programme combines all characteristics. This integrated programme is based on a unique database, which enables organisations to better share information and communicate. ERP aims at integrating business processes with the support of an integrated computer information system (O'Brien, 1999; Yusuf et al., 2004, p. 252).

The main characteristic of an ERP system is integrated planning and control of all relevant resources in a business system. In order for a business information system to qualify as an ERP solution, it is necessary for it to possess the following characteristics (Rejman Petrović, 2009):

1. Flexibility and adaptability. Modern ERP systems have the possibility to adapt to real-life needs of a certain business system implementing them, as well as to standard industrial practices.

2. Modularity and open architecture. Modern ERP systems consist of modules, and each of them is intended for a certain domain of business function. Every module can be interconnected through available interfaces.

3. Availability. ERP systems have to be available to distant organisational units of the business system, as well as provide appropriate interfaces to business partners and clients.

4. Simulating real-life business circumstances. ERP systems have the possibility to predict the system's behaviour in certain real-life business circumstances owing to certain simulation scenarios in the domain of real business data.

By implementing ERP systems, businesses try to achieve competitive advantage and business efficiency, but efficiency due to the new implementation is not completely clear and is hard to identify (Tambovcevs & Tambovceva, 2013). A large number of organisations do not achieve the desired success by implementing ERP just by using software without necessary organisational changes. The implementation of this system sometimes requires radical changes in the organization. Before implementing an informational ERP system, it is necessary for organisations to perform the reengineering of business processes in accordance with present and future perspectives with the goal of efficient exploitation and benefiting from IT. The key factor in the implementation of ERP systems is a need for integrating processes and systems within the global supply chain, reducing costs, and improving performance (Davenport, 2000; Soh et al., 2000).

The main goals of ERP systems are: 1) integrating financial information; 2) integrating information on customer orders; 3) standardising and accelerating production processes; 4) reducing inventories; and 5) standardising information on human resources (Koch, 2007).

1) Integrating financial information. Despite having different responsibilities, an ERP system secures integrated management of financial information; therefore, given complete and up-to-date information, it provides an accurate, up-to-date image of the total income of the business and its structure.

2) Integrating information on customer orders. The process of transforming client orders into profit permeates the whole business organisation and involves activities of all sectors in a business. This is a very significant process within a business system, so it is necessary for it to be integrated and coordinated with the support of an ERP system.

3) Standardising and accelerating production processes. The application of ERP systems secures the unification of standards and automates their implementation, leading to the shortening of production processes.

4) Reducing inventories. Production processes become more stable and predictable by applying ERP systems. Since ERP systems also encompass Material Requirements Planning (MRP) methods used for inventory planning, an optimal inventory level and minimal storage expenses are ensured.

5) Standardising information on human resources. ERP systems enable integrated and standardised information about all human resources of the business system.

Three main benefits that businesses achieve through the application of ERP systems are: 1) automation of the business process; 2) timely access to management information; and 3) the improvement of the supply chain by using e-trade and e-communication (Yusuf et al., 2004).

Tambovcevs & Tambovceva (2013) state that by applying ERP systems businesses achieve the following results: 1) advanced operation of businesses through the simplification, improvement, and control of significant business processes; 2) considerable time savings and cost reductions in previous business processes; 3) due to the use of resource management modules, it is possible to manage personnel service costs; 4) upgraded use of the company quality management system already in use; 5) flexible and efficient production planning is achieved by implementing production management modules; 6) communication and data transfer in the whole business are simplified; 7) businesses exploit the capabilities for controlling sales and promotional activities through the system, receive quantitative data on the result of every promotional technique and increase the efficiency of the sales department.

4.2. Business processes and an ERP system

An ERP system supports the performing of basic business processes in a business system and encompasses means for the efficient management of all of its resources: materials, labour force, equipment, tools, documents, space, time, and money. The main role of the system is quantifying these resources in every business circumstance in terms of specification, time, and the scope of their engagement.

Having in mind the processes it supports, the architecture of an ERP system is viewed from several aspects—relating to the time dimension of process planning and execution, relating to the position within the chain of value, etc. (e.g., all activities in a business system can be divided into input logistics, operations, and output logistics).

Figure 2 shows the scheme of business process architecture within a modern ERP system.

Figure 2. Architecture of business processes of ERP system
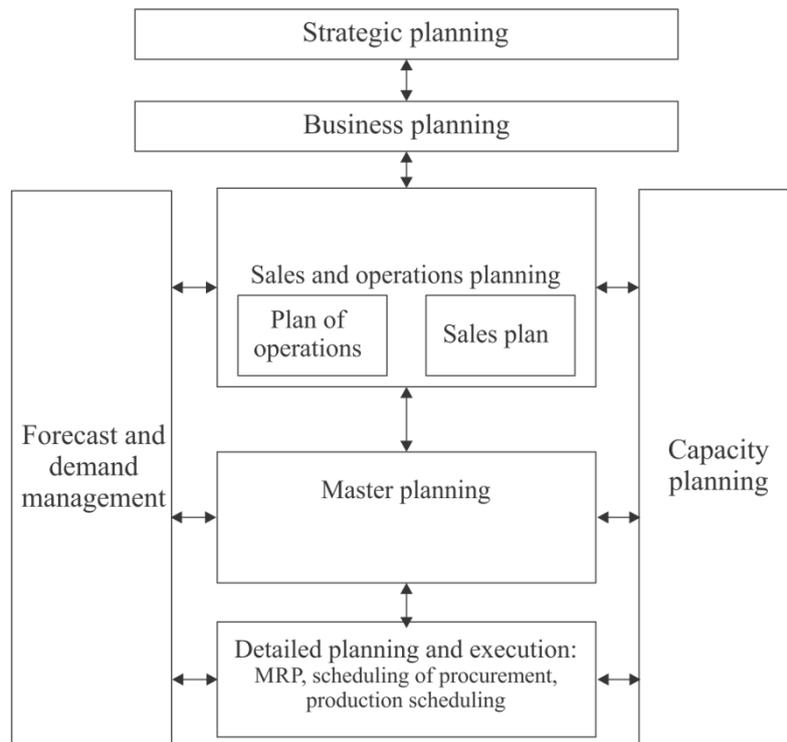
Source: Turban et al., 2011

The architecture of ERP system business processes encompasses: 1) strategic planning and making a business plan; 2) planning sales and operations; 3) managing demand; 4) master planning; 5) capacity planning; and 6) detailed planning and execution.

1) Strategic planning and making a business plan. Strategic planning involves a process of defining general guidelines for the development of a business system. It encompasses functions of long-term production planning, i.e., planning the product range and sales, planning the basic characteristics of production, and financial planning.

2) Planning sales and operations involves activities in creating an operative plan. It is the most significant part of an ERP system and encompasses long-term planning activities on the level of funds and resource amount parameters.

3) Managing demand. Planning and managing demand includes activities which are carried out on the level of products, clients, orders, etc.

4) Master planning. It involves establishing an operational balance between the level of availability of individual business products and the received client orders.

5) Planning capacities. Planning capacities encompasses activities related to defining resources needed to realise the production plan.

6) Detailed planning and execution. It involves material requirements planning (MRP), direct capacity planning, plant scheduling, supplier scheduling, and plan execution and feedback.

5. Supply chain management and BPR

Supply chain management is one of the most important managing concepts and paradigms of the 21st century for advancing and increasing the competitive advantage of a business. The growing expectations of buyers, increased competition, and globalisation caused and supported by the development of information and communication technologies demand increased integration and coordination of scarce resources and activities within processes in businesses and processes between businesses, with the goal of advancing services to the buyer on the one hand, and efficient supply chain management on the other.

Necessary prerequisites for successful supply chain management are process orientation in the business and process integration between businesses. Due to the shortening of the product lifecycle, rapid changes of customer needs, and a growing need for innovation, processes become equally important as products and require continuous improvement. Processes become strategic assets of complex knowledge and skills, whose management leads to better business results and adaptation to global competitors, increasingly demanding customers, and shorter

customer demand response time. Process integration takes place by applying an appropriate intraorganisational and interorganisational information system which continuously monitors, analyses, and seeks improvements of the results achieved.

5.1. The evolution of integrated supply chains

The supply chain represents an organisation's network which is involved, by upstream and downstream connections, in different processes and activities that produce value in the form of products or services directed towards the end-user or consumer. The upstream connection refers to the connection between a business and its suppliers, while the downstream connections refer to the relation between a business and the consumers. Nurmilaakso (2008) defines a supply chain as a two-way flow of information, products, and money between initial suppliers and end customers through different organisations (Wagner & Sweeney, 2010).

Managing the supply chain can be defined as managing upstream and downstream relations with suppliers and users, with the goal of delivering superior value at a lower cost for the supply chain as a whole. Managing the supply chain encompasses integrating key business processes from end users to source suppliers with the aim of supplying products, services, and information which increase value for buyers and other participants. Managing the supply chain is also defined as the systematic, strategic coordination of traditional business functions and tactics of all business functions within a certain subject and between subjects in the supply chain, with the goal of advancing long-term business performance and the whole value chain.

Managing the supply chain encompasses all activities connected to procuring resources, as well as to the conversion of those resources while coordinating all partners in the supply chain with the aim of integrating main business functions between businesses into a single high-performance business model. The goal of supply chain management as an integrating function is the development of a competitive business model through connecting key business processes and functions within and between businesses.

According to Ballou (2007, p. 339), the concept of supply chain management is determined by the following elements: 1) the supply chain network—determined by the number of key participants in the creation of value and connections between their key processes; 2) subprocesses of supply chain management—which need to be coordinated through cooperation with key participants: customer relationship management, customer service management, demand management, supplier relationship management, management during production, execution of orders, development of products, and the commercialisation and management of returns; 3) managing components of supply chain management—planning and control,

work structure, organisational structure, product and information flow structure, and management methods.

An integrated SCM has been a subject of interest since the 1960s, having in mind that the actions taken by a participant in the supply chain affect the profitability of all other members. Since the 1970s, interorganisational systems (IOS) like electronic data interchange (EDI) have been used in order to connect one or more organisations with their suppliers and buyers through private networks which add value. IOS are automated information systems shared by two or more businesses. Unlike internal information systems, they enable information to be sent across the organisation's border. Compared to traditional IT projects, implementing IOS bears a greater risk. Businesses have less control over the processes due to the uncertainty of the external trade partner actions. EDI in its traditional form provides limited success in the context of supply chain integration (SCI). The integration of ICT, especially the Internet, has created the potential for automating data flows through the supply chain, and has contributed to multilateral information exchange and the promotion of exchange on the market in all transaction phases. The development of XML programming enabled the transformation of the supply chain into a network simplified by Internet technologies (Richmond et al., 1998).

Having in mind the course of process integration development supporting and enabling an appropriate development of IT, supply chain management development can be viewed as a continuation in the process of the evolution of logistics in the following way (Ballou, 2007):

1) Fragmentation (1940s–1960s)—logistics had not been recognised as a strategic function yet, so the emphasis was placed on functional management, whereby every function individually managed all activities in the area that later developed into the area of logistics. The late 1960s witnessed the implementation of information support for production planning and procurement of necessary raw materials (Material Requirements Planning, MRP), which influenced the reduction of supplies.

2) Logistics (1970s)—owing to a further development of IT, MRP was improved to MRPII to encompass sales and operation planning, scheduling, capacity planning, and a control system.

3) Integral logistics (1980s)—the coordination of logistic activities between functions in order to coordinate the processes of all functions. Information support to integral logistics is ERP—enterprise resource planning.

4) Complete channel integration (supply chain management) (1990s)—complete control over products and services through all processes and participants in the distribution channel with the goal of achieving an integrated value chain using information technologies and systems. These conditions cause organisational

changes and the appearance of a virtual business network, which are the most important part of an agile supply chain.

5.2. SCM and e-business

E-business transforms supply chains (Milovanović et al., 2016). A special role in this process is accorded to certain forms of e-business applications. Lee & Whang (2002) and Johnson & Wang (2002) presented a framework which divides different e-business applications into three categories: e-trade, e-procurement and e-cooperation (Figure 3). Owing to e-trade, the partner network in the supply chain has the possibility to quickly identify and respond to changing customer demand, recorded over the Internet. E-procurement enables businesses to use the Internet in order to procure different types of material and supply additional services like storage, transport, payment, quality assurance, and documentation. E-cooperation simplifies the coordination of different activities and decisions between partners in the supply chain, meaning buyers and suppliers over the Internet (Johnson & Wang, 2002).

Figure 3. E-business forms
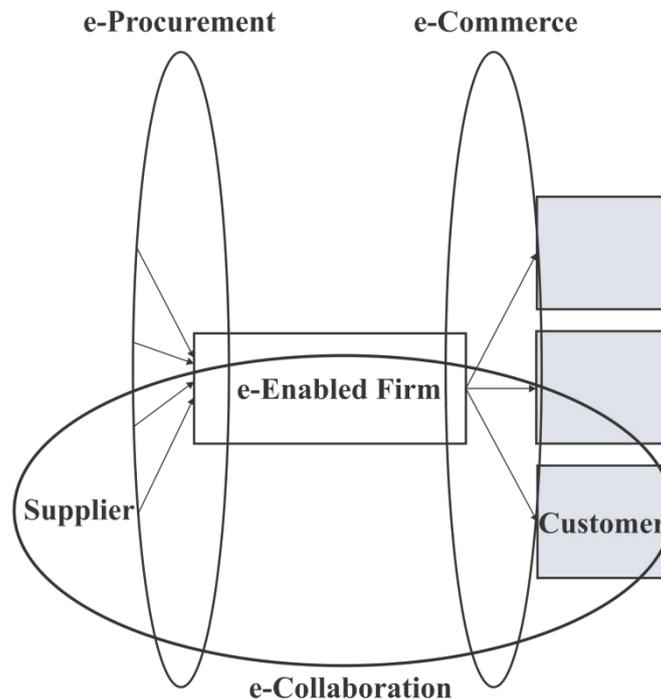
Source: Johnson & Wang, 2002, p. 414.

Generally speaking, e-business solutions aim at advancing the efficacy and effectiveness of supply chains through the automation of business processes. Benefits of adopting e-business are reflected in greater transparency, reduced transaction, production and other costs, simplified collaboration and information sharing in the supply chain, automated buying account creation and the integration of the payment process, and support to the organisation in developing a plan for more efficient sourcing and logistics (Wagner & Sweeney, 2010, p. 29).

A typical role of e-business and connected IT in supply chain management is to reduce friction in transactions between partners in the supply chain through economical information flow (Cross, 2000; Auramo, 2005). On the other hand, it is considered that IT and tools and methods of e-business have an important role in supporting coordination and collaboration in supply chains through information sharing. According to Simchi-Levi, Kaminsky, & Simchi-Levi (2003), the goals of e-business in supply chain management encompass enabling a unified contact point for data, ensuring information availability and visibility, making decisions based on the overall information about the supply chain, and enabling cooperation between partners in the supply chain (Auramo, 2005). In SCM, tools of e-business are used to support the decision-making process. Management decisions connected to inventory management and cooperation with partners in the supply chain are supported by the analytical power of computers (Simchi-Levi et al., 2003; Swaminathan & Tayur, 2003). E-business solutions provide support to the supply chain integration, while some of the benefits provided by these solutions include the availability of information, transparency of relevant business information, and the efficacy of information transfer.

6. Conclusion

The reengineering of business processes in a company encompasses integrating these processes through customer relationship management, supply chain management, and enterprise resource planning.

Quality customer relationships are one of the key parameters of achieving success under modern conditions of doing business. CRM is a solution that provides all the necessary information for successful customer management, putting the customer in the spotlight of the business world. CRM must be integrated in the complete customer experience system, from the initial contact, to the final purchase, while marketing, sales, and the customer support department must be integrated via IT. Establishing a CRM system requires a database, i.e., hardware and software for gathering customer data.

The implementation and application of ERP systems encompasses synchronising, i.e., integrating all business functions and corresponding data. An implemented ERP system is capable of integrating the operations of different

sections of the business into a unified whole. This system enables the management of all human and material resources and the planning, development, and tracking of business processes and procedures. ERP systems can be a basis for the development of an e-business system. The unified databases of the ERP system reduce efforts in gathering and storing data and ensure getting data from all business processes in real time.

Supply chain management encompasses integrating key business processes from end users to source suppliers. The goal of supply chain management as an integrating function is the development of a competitive business model through connecting key business processes and functions within and between businesses. E-business solutions aim at advancing the efficacy and effectiveness of supply chains through the automation of business processes. By adopting e-business, businesses experience numerous benefits reflected in greater transparency, reduced costs, simplified collaboration and information sharing in the supply chain, automated buying account creation and the integration of the payment process, as well as providing support to the organisation in developing a plan for more efficient sourcing and logistics.

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ULOGA ELEKTRONSKOG POSLOVANJA U REINŽENJERINGU I INTEGRACIJI POSLOVNIH PROCESA

Apstrakt: Elektronsko poslovanje dovodi do reinženjeringa poslovnih procesa u preduzeću koji podrazumeva integraciju procesa kroz upravljanje odnosima sa kupcima, upravljanje lancima snabdevanja i sistem za planiranje resursa preduzeća. Cilj rada je analiza uticaja elektronskog poslovanja na transformaciju preduzeća kroz reinženjering i integraciju poslovnih procesa. Značaj istraživanja je u ukazivanju na upravljačke probleme i izazove sa kojima se susreću preduzeća usled elektronskog poslovanja i primene informacionih tehnologija. U istraživanju je primenjen analitički metod u sagledavanju uticaja elektronskog poslovanja na poslovne procese. Osnovni doprinos istraživanja je u sagledavanju elektronskog poslovanja kao inicijatora i uzroka radikalnih promena u poslovnim procesima koje se karakterišu kao reinženjering. Preduzeća se prevodeći svoje prakse poslovanja na elektronsko poslovanje, susreću sa naporima značajnih restrukturiranja, kako bi se izborila sa promenama u konkurentskom okruženju. Osnov ovih napora je redizajn i promena poslovnih procesa. Zaključak je da usvajanje interneta i veb

tehnologija u poslovanju ne zahteva samo radikalni reinženjering postojećih osnovnih poslovnih procesa već i generisanje novih, koji bi podržali novo poslovno okruženje.

Ključne reči: e-poslovanje, menadžment, reinženjering, CRM, SCM, ERP.

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