

The Importance of Integrative Components in the Field of e-Business and Information Systems

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Summary

The paper considers some of the possible of integrational joining in the domain of information system (IS) development and e-business application. Up to date reengineering processes imply focusing on complementariness of strategic approach in IS development and e-business in order to provide optimal business of an organization. By forming and defining the structure of resources in manages, an organization provides its competitiveness on the market. It is obvious that e-business strategy rests upon, and makes connections with other strategies. This predominantly implies corporative and IS strategy with support of SCM (Syplay Chain Management) and CRM (Customer Relations Management).

Key words

IS, e-business, performances, CRM, SCM

1. Introduction

The process of transformation, as a necessary factor of the new economy, means new business rules in the broadest sense, starting from the completely different requirements at the internal and external level in a business organization till the more efficient forms of communications and services supplied for users, i.e. buyers. The concept of business networking has directed companies to get down working on redesigning business processes in information system development as the only way to attain market competitiveness. To realize efficient business, organizations are necessarily oriented towards the application of information technologies and software products, building the appropriate IT structure in accordance with their business oriented objectives. The concept of business processes reengineering (BPR), as a generally accepted solutions in information systems development, is focusing on control and process management, cutting functions at the horizontal level.

Information flows are significantly accelerating, applying, to a great extent, automated activities in process management. From this point of view, it is indisputable that contemporary technological accomplishments in an obvious way have exerted influence on the efficiency of all forms of the organizational business. Intensity of these evident changes which is specially reflected in the field of business communications and the application of

these tools, increasing business processes quality, significantly changes standards in understanding social and economic categories, on the whole. Information and technological accomplishments are the prerequisite of evident electronic domination in the economy. The Internet has enabled creating the universal technological platform, directing organizations to the key innovative business approaches in the field of selling, buying and the internal creating of business processes which mean new quality through integrative concepts at different levels. Digital infrastructure provides the suppositions of an efficient and functional information system and an increasing orientation to the electronic platform in business. Electronic platform in business will provide more intensive use and development of sophisticated quantitative methods in business. The most significant, but perhaps least surprising, finding was the extent to which, over the last ten years, the PC revolution had served to fuel an increase in both the volume and complexity of those quantitative methods applied to the solution of management problems.

2. Information Systems – Functionality and Integrations

Within the framework of organizational business systems, different kinds of software solutions are applied to provide the possibility of monitoring and measuring performances (Business

Performance Management), i.e. permanent accomplishments in carrying out business processes. Intensive technological development in the field of electronic communications, besides all advantages, is not still a simple process and it points to the fact that information and communication resources management is positioned highly on the scale of evaluating, according to its importance and complexity. IS efficiency can be measured in accordance with the technological dimension which, from the standpoint of comprehensiveness, includes computer and network architectures, software tools and products, databases, in a word, the whole information and technological infrastructure.

Evaluation, measuring and prediction of information technology influences in the organizational business are founded on some of the key factors exerting influences on changed concepts of the contemporary business. It is primarily thought on the global approach in the organizational business ties and business provided by the Internet, with the tendency of continual expansion, under conditions that information and knowledge are rated as the most valuable and most expensive resource of the organization. The cited factors also include an increasing intensity in the field of electronic business which, in the broadest sense of the word, can be determined as any process that the organization realizes by means of the computer network (meaning also internal and external communication flows). IS integrity understands the connectivity of information flows between business functions of the organization and its processes at the internal level, but also the capability of connection with the environment, i.e. deliverers and buyers in order to realize efficiently the suppositions of e-business (Laudon & Laudon, 2005). Independently developed applications, as the set of automated tools have quickly appeared as inadequate solutions. Looking for optimal solutions, organizations accept new concepts based on integrated modular software solutions, providing controls and supports for functions and processes in the organizations with different functionalities.

The decision of the organization for the integral approach to develop and implement information systems, points to its readiness to define and design the organizational model gravitating towards the integrated analytical solutions. It means the strategic structure redesigning and mutual structural subsystems connectivity with the application of software and technological

innovative resources (united integrated data storing of business processes and in the standard format). Integrity of functions, processes and operations of the organization represents the necessary prerequisite for appropriate functioning. Therefore, the systems of enterprise resource planning (ERP) are implemented in order to integrate different functions, organizational levels and business processes which automate business processes and integrate information used by different functional parts of the organization. This system can be considered as a transfunctional system of the organization and it consists of the set of interdependent software modules supporting basic internal business processes for human resources, production, logistics and distribution, finance and accounting, marketing and sale. Such a software provides data used in many functions and business processes. These data are necessary for better organizational coordination, harmonization and control.

Software applicative solutions in the organization form new business processes connections and data flows, both inside the organization and in the environment in order to provide better decision-making and business process management in the organization (Trninić, Tumbas, & Đurković, 2005). Although ERP systems are the basis of integration process, the realization of integrity is followed by some problems in the field of standardization, with software solutions of business partner compatibility, as well as some other problems.

3. Network Business Concepts

The orientation of organizations on mutual connectivity represents only a necessary implication of the digital economy. Providing competitiveness at the global market forces new paradigms, which, except providing mechanisms for mutual pooling and integration, require attracting and keeping buyers by the application of dynamic and efficient solutions. The key applicative initiators in applying adaptable integrative solutions in IS development are also the systems for supply chain management (SCM), knowledge management systems (KMS), the EDI concept, Business Intelligence systems. Focusing on this aspect in creating successful virtual organization, one of high-grade solutions is the integration of ERP, SCM, CRM (Customer Relationship Management), and the application of electronic business for attaining operative

efficiency. From the set of e-business components of e-business, we point to some of them, which are problem-associated to the subject being considered.

3.1. Integration of IS Strategies and e-Business

The strategic importance of an information system in the organization is increasing by new technological possibilities and requirements for supporting e-business. However, technological and software solutions cannot provide high-grade quality without human and information resources as adequate information flows through the organization. Using information systems and their significance for e-business success largely depends on harmonizing their strategies; therefore it is one of the reasons why we should pay special attention, as a complex process. E-business can be considered as a generator of the new economy, and it is characterized by the appropriate integrated philosophy, strategies, processes and the organizational structure. The application of e-business can be followed through the temporally determined levels or the phase of evolution. Every of these levels are characterizes by the determined methodology and mechanism for the interaction with the business environment.

Although we often put the equal sign between the conceptual determination of syntagms of e-business and e-commerce (or e-trade), we can easily differentiate between these concepts. We accept the attitude that electronic business comprehensively defines it, because it includes both selling and buying of products and services, as well rendering services to buyers, cooperation with business partners, e-learning application and transactions within the framework of the organization. The major processes of the organization which are realized within the framework of e-business, includes production (services), buyers and internal or management-focused business processes. E-commerce is oriented to transactions with the support of information and communication technologies including the transfer of properties of products, therefore it represents the integral components of e-business. The primary processes relating to e-business are just production processes, the buyer-focused processes and the processes of internal management.

The dynamic functioning of e-business points to the constant changes relating not only to the components of technologies, but to the

applications, their performance and requirements of partner cooperation (back office, front office, partner collaboration in supply chains). The tools of e-business used in realizing digital concepts are known as: B2B (Business to Business), B2C or e-commerce (Business to Consumer), G2C (Government to Consumer) and G2B (Government to Business). Activities realized by means of e-business are numerous and include: electronic market (online) of goods and services via web sites, e-retail trade, the use of Internet, intranets or extranets for information retrieving and management of business activities, web marketing, e-learning (training for the employed), online communications (e-mail). The process of attaining the full dimension of digital business in an organization develops gradually. One of the first phases understands the functional coordination of integrative components and it relates to the strategy of developing the corporative IS which should provide the support of e-business strategy so the organization could successfully get down to work on the electronic market.

The end of the 1990s represents the significant step forward to creating the electronic market because, after the first period characterized by interactions, comes the period of transactions where e-trade, the EDI concept and some insufficiently integrative ERP systems dominate. However, since 2000 transformation has come and it is characterized by more optimal forms of integration, of course, in a pretty small number of organizations. The interface which enables the communications with the background systems and the Internet applications of the organization, associated with the website with the application of protection protocols represent the concepts to which many organization gravitate, and they are just the integrators supplying cost reduction and profit realization.

In approaching to the definition of an efficient model of e-business of the organization, some of the key components, which it must include, are understood.

1. The basic approach starts from the joint digital business infrastructure and it includes a digital product and distribution technologies (networks, management information systems) which enables to all the participants in business to create and use the network;
2. A sophisticated activity model – it includes the integrated supply chain (the flow of material, information and services from the

raw material of suppliers, through factories and warehouses to the end buyer) and supply chain management – SCM (planning, organization and coordination of all activities in supply chains);

3. E-business management model includes business teams, partners and their cooperation; and
4. System of regulations, supervision and social problems mean business rules in accordance with the laws of the digital market and its participants (Balaban, Ristić, Đurković, Trninić, & Tumbas, 2007).

E-business performance means investments at all levels, from the operative to the strategic ones. The operative level provides the daily efficiency in functioning transactional processing (OLT systems) and it exerts influence on cost reduction; the strategic level means investments for attaining better business results and incomes (ERP, CRM) and investments directed to the infrastructure including network, communication and hardware resources.

3.2. Integrative Components in the e-Business Model

One of the standard activities to which the organization accesses in the phase of including in the Internet environment represents the website development, but this level of interaction does not yet mean e-business. The integrated application of EP tools for increasing the efficiency of administrative and operative effectiveness for supplying competitiveness in the digital economy is necessary (Balaban, Ristić, Đurković, Trninić, & Tumbas, 2007):

- Approach to the sources of information via the Internet relating to the activities of the organization, suppliers, products and other relevant information;
- Redesign and reshape of existing standard transactions in the electronic ones (online banking, finance management, product control, report generating);
- Online buying and selling, i.e. buying and selling through the electronic market;
- Human resource management, by means of intranet communications;
- Buyer relationship management, with a view of integrating all functions (back and office) in the digital forms;
- Application of the appropriate software in project management.

The high-grade indicators of advantages after the implementation of e-business tools reflect not mainly on technological applications but through the coordination and integration of business processes and finding new markets. The advantages of the new business concept are seen through the faster and easier development of communications, strengthening marketing capabilities and the range of the organization, unlimited time for buyers to come, where information retrieval is made easier. Besides, significant cost reduction of business is of special importance for the organization and at the same time a number of efficient paying methods increases and the application of online banking increases. The practical realization of e-strategy is also based on the appropriate business model which should provide value creation in some logical activities within the framework of the process, and which is evaluated on the market. The model should be successful and competitive, designed as the system support to the buyer, i.e. the representative of the contemporary digital organization, oriented towards the network business.

The process of trade development via the Web has, in fact, opened the new market and it reflects the digital possibility of commercial (trade) transactions between companies and individuals. Of course, from the standpoint of the business strategy, organizations, in accordance with their telecommunication services and tools associated with the infrastructure, choose the form of e-commerce. The level of development and implementation can be twofold (Laudon & Laudon, 2005):

- Completely electronically oriented EC: all dimensions are digital
 - Completely online oriented (virtual) organizations
 - Organization – new economy
 - All products or services are online only
- Partly electronically oriented EC: combination of digital and physical dimensions
 - Physical selling space of the organization (buildings and sale locations)
 - Electronic managing of EC activities
 - Organizations perform primary business in the physical form (contrary to virtual one).

The model of e-commerce can be observed in layers, through three levels (Badal): (a)

infrastructure; (b) level of services; (c) product level/structural level. Further decomposition would represent functional layers, i.e. levels:

- Technical infrastructure (the Internet and www);
- Providing services of electronic reporting and Electronic Data Interchange;
- Support services;
- Commercial products, services and systems (e-retail sale);
- Electronic market (online auction).

The analysis of the technical model of e-commerce system shows that it is characterized by three levels, firstly, the client side (interface with the user – buyer), then, the system of services (business logic management) and the backend system providing necessary information for realizing transactions completely.

The field of EC functioning can be, in addition, classified into two segments. The first segment would include the electronic market relating to the network of interactions and relations where information exchange is carried out, as well as products, services and payment (for example, B2C, B2B). The second segment includes the interorganizational information system (IOS) which consists of information flows and processing routine transactions through in advance defined formats, between one or more organizations (applied in B2B applications only). This class also includes EDI (electronic data interchange), EFT (electronic funds transfer), extranet, the integrative message system and mutual databases. IOS systems enable cost reduction, information quality increase, cycle time reduction, paper document elimination, and very important, the process of trade is significantly easier for the user.

It cannot be neglected that e-commerce is based, to its nature, on the international concept. From that standpoint, it means that international companies have an adding set of activities requiring business harmonization to the wishes of different buyers. It is thought, before all, on confidence building and overcoming barriers relating to language, culture and infrastructure. The

infrastructure of digital networking and communications provide the global platform for interaction, communication, collaboration and information retrieval.

4. Concluding Remarks

The contemporary market is characterized by the global dimension and increasing competition, therefore organizations are oriented towards finding and applying new strategic solutions, which will enable business process reengineering and improved management of their relationships with buyers and suppliers. Realizing the new concept, usually called the digital economy, means the integration of all business applications. It directs to the convergence of information and communication technologies on the Internet and other networks. The web-based systems of e-business enable competitive advantages for the organization. The integration of information systems and s-business represents the contemporary paradigm of business which supports market expansion, information creating and processing in the digital form, easier supply chain management, product customization and lower telecommunication costs. The aspect of information technologies has an adding importance as the integration factor because the Internet represents the infrastructure for other technologies, too, business partners can access to any database by means of networking, and the ERP system is used as the support for standard transactions.

References

- Balaban, N., Ristić, Ž., Đurković, J., Trninić, J., & Tumbas, P. (2007). *Informacione tehnologije i informacioni sistemi*. Subotica: Ekonomski fakultet.
- Laudon, K. C., & Laudon, J. P. (2005). *Management Information Systems: Managing the Digital Firm* (9th Edition ed.). New Jersey: Pearson Prentice Hall, Pearson Education, Inc.
- Trninić, J., Tumbas, P., & Đurković, J. (2005). *Reinženjering poslovnih procesa, sistem upravljanja kvalitetom i informacioni sistem: integrativni pristup*. 4th Research/Expert Conference with International Participation. Spa Fojnica.

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