

ПРОБЛЕМЫ И ПЕРСПЕКТИВЫ РАЗВИТИЯ СОТРУДНИЧЕСТВА МЕЖДУ СТРАНАМИ ЮГО-ВОСТОЧНОЙ ЕВРОПЫ В РАМКАХ ЧЕРНОМОРСКОГО ЭКОНОМИЧЕСКОГО СОТРУДНИЧЕСТВА И ГУАМ

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РЕЗЮМЕ

У статті розглядається так званий метод "дзеркальні зіставлення", які є підходящим для оцінки контрабанди в зовнішній торгівлі.

Ключові слова: дзеркальна статистика, дзеркальні зіставлення, зовнішня торгівля, міжнародна статистика.

РЕЗЮМЕ

В статье рассматривается так называемый метод „зеркальные сопоставления”, который является подходящим для оценки контрабанды во внешней торговле.

Ключевые слова: зеркальная статистика, зеркальные сопоставления, внешняя торговля, международная статистика.

SUMMARY

The paper considered eligible the so-called "mirror matching, which is suitable for assessing the smuggling of foreign trade.

Keywords: mirror statistics, mirrored comparison, foreign trade, international statistics.

B2B INTEGRATION OF BUSINESS ORGANIZATIONS INFORMATION SYSTEMS

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The integration of software applications of business partners from the Supply Chain becomes a key factor for the success of their cooperation. It is a competitive advantage when applications are capable of exchanging and sharing information and maintaining workflows.

The activity of business organizations depends on a multitude of incessantly increasing heterogeneous systems functioning on different platforms both within the organization itself and beyond it. The difference between systems involves significant expenses for integration.

The BSEC countries are at different stages of development, which naturally reflects on the technological level of the information systems used by them. The membership of these countries in various economic, commercial, political and other types of alliances like the European Union, NATO and GUAM requires that the systems meet a number of regulations and standards for communication, for defence, for maintaining electronic business, etc. Very often, besides among each other the business organizations of the countries from the region have contacts with organizations of other regions as well - the Caspian Sea, Central Asia and Middle East. The BSEC countries have different opportunities for investing in ICT. The GDP average annual percentage invested in ICT for the period 1993 – 2001 was respectively: Greece - 4.4%, Turkey - 3.3%, Bulgaria - 3.1%. Russia - 2.9%, Rumania - 1.5% [1, p.682]. The percentages are lower than that of the USA and the developed European countries (7.8% for USA, 6.9% for France, 6.8% for Czech Republic, 6.2% for Germany and Hungary). This is a fact that gives us grounds to conclude that ICT dissemination in the BSEC countries lags behind compared to that of USA and the countries of Western and Central Europe.

There are various opinions as to the essence of B2B integration. According to Bussler it can be viewed in a broad and narrow sense [2, p.3]. In a broad sense B2B integration includes everything – from the simple XML messages delivered on the Internet to the automated integration of a complex of dynamic multinational supply chains, developed on an electronic messages exchange basis. In a narrower sense B2B integration involves software technologies, which are an infrastructure for connecting various back-end applications inside the enterprise to all business partners via formal protocols for data interchange like EDI or RosettaNet.

The authors Chowdhury and Iqbal also view B2B integration in a broad sense. According to them B2B integration aims to coordinate the movement of information systems of companies at a very high degree of security [3, p.113].

In the present paper we adopt Bussler's definition interpreting B2B in a narrow sense. As an elaboration of the concept given in this definition we aim to study the software technologies providing the connection of back-end systems (ERP, CRM) of partners doing e-business. We choose the most popular software technologies and standards which aid the implementation of B2B integration like electronic data interchange (EDI), ebXML, RosetaNet, OAGIS and Web services. We mark the new trends in development of this integration by means of the Cloud computing concept.

EDI

EDI (Electronic Data Interchange) is a technology used for business documents interchange both within the company and between the business partners systems [4]. EDI is a means of exchanging business documents, standardized and independent of the specific platforms. The documents which are exchanged are standard for the respective branch (e.g. for trade – order, invoice, letter of notification and confirmation of delivery, etc.) and the data transferred follow a strictly specified model.

The EDI technology has been in use since 1960. In the course of development of e-commerce it was first applied to realize business processes related to only buying and selling of goods and services. Later on EDI technology was used to maintain the B2B integration (B2Bi), i.e. in all aspects of e-business (all electronically organized internal and external business processes) providing business partners' joint activities.

An important issue in using EDI is the development of international standards. At present about twelve standards are used, the most popular being UN/EDIFACT and ANSI X-12.

The UN/EDIFACT (United Nations rules for Electronic Data Interchange for Administration, Commerce and Transport) standard presents rules adopted by UN for electronic interchange of documents in the sphere of commerce and transport. ANSI X-12 is a similar standard which is used in North America. Other popular EDI standards are TRADACOMS, used mainly in retail trade in Great Britain and ODETTE, used in the automobile industry in Europe. Practically several types of technical EDI solutions are used. These are:

- Web-EDI – Interactive Web application making it possible to visualize and enter documents and support import and export functions which allow integration with fundamental management systems.
- Classic EDI – a solution providing a direct connection (online or in a certain time interval), as well as an automatic integration with ERP-systems of the business partners;
- EDI enterprise center (EDI Hub) – a solution intended for large-scale companies (METRO, P&G, KRAFT, etc.);

As indisputable advantages of EDI we must note the following: reducing transfer and processing expenses; possibility for automated processing of a large number of business documents; enhancing business processes, minimizing errors.

ebXML

XML (Extensible Markup Language) is a means of describing easily a common information format and of simultaneous transfer of data and their format in Web, intranet or other place. XML is intended for specific tasks, like e-business, supply chain integration, data management and publishing.

ebXML presents an alternative approach to XML distributed infrastructure, which is specially oriented to binding business processes between the supply chain partners via Internet.

ebXML is developed under a project sponsored by UN CEFAC (United Nations Centre for the Facilitation of Procedures and Practice for Administration, Commerce and Transport) and supported by OASIS (Organization for Advancement of Structured Information Standards). This is necessary as for maintaining an interaction of the B2B type in the virtual space, besides the basic technologies of Web services, some auxiliary

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technologies are needed as well. The ebXML consortium has defined a detailed list of specifications for exchange of XML documents between business partners.

The ebXML architecture is directed to documentary oriented interactions and it defines:

- business processes and messages and contents related to them;
- mechanisms for registering and finding out published business processes;
- company profiles;
- agreements between business partners;
- unified transport message layer;

The ebXML architecture provides an opportunity for business organizations to discover each other using a register, to define agreements between partners and to exchange XML messages in order to support business operations.

RosettaNet

Another standard based on XML is RosettaNet. It defines principles for passing messages over the net, for electronic interactions within a business process and between separate business processes, as well as implementation frameworks for carrying out electronic interactions between organizations. Although RosettaNet standard is oriented mainly to business processes of the supply chain it can successfully be used in the management of production and other processes.

The specifications of the RosettaNet implementation framework (RNIF) provide XML based standards for business documents and specify common business processes between business partners, i.e. the framework standardizes both data and processes in B2B cooperation. Widely applied by companies working in the sphere of electronics, semiconductor industry, information technology, telecommunications and logistics, the RosettaNet standard is used in North America and Asia and comparatively limited in Europe.

OAGIS

Like the other viewed standards the OAGIS (Open Applications Group Integration Specification), developed by OAG is supported with the aim to use a common business language for information integration. Applying XML format for messages delivered, this standard is widely used for carrying out processes realizing electronic orders. Its development is stimulated by leading software manufacturers.

Web services

Web services are XML-based applications coordinated with programmes, objects or database or with important business functions. Using an XML document (in the form of a message) a programme sends a request to a given web service in the network and, if the operation presupposes it gets an answer, again in the form of an XML document. The Web services standards define: the message form; the interface to which the message is sent; the conventions for coordination of the contents inside and outside the programmes implementing the service; mechanisms for publishing and discovering interfaces of Web services.

Web services are a technology which provides different types of organizations with an access to functionality, without having to download and install a programme code on the net. Web services interfaces are envelopes which are associated with any kind of software programme, a system for interim software, DBMS or package application. Providing a standard way for connecting various applications the Web services can be used for:

- access to Internet applications form desktop and portable clients;
- integration of applications in the enterprise (connecting the applications of a business organization inside and outside the firewall);
- B2B integration (connecting a multitude of applications used by partners in a chain of values).

Along with the many advantages, the Web services still have some serious drawbacks, which do not let them turn into an only and universal solution to integration (table 1)

Table 1.

Advantages	Drawbacks
<ul style="list-style-type: none"> - based on widespread standards - independence from the operational system and programming language - a cheap means of integration - easy to develop and supported by a multitude of programming languages 	<ul style="list-style-type: none"> - reducing the efficiency when transferring a great deal of information - there are difficulties when exchanging data in real time, not allowing delay - HTTP is not the most effective protocol for information transfer - security problems

Analyzing the advantages and drawbacks we can conclude that the Web services gain recognition as an integration technology, which is particularly suitable in the following cases:

- B2B integration of different business systems, which work independently and are not controlled by an individual or an organization;
- loosely connected systems, which do not need to transfer a large amount of data;
- economic subjects of smaller size, which cannot afford lots of funds for integration solutions.

B2Bi and Web services

As regards the complexity of organization and support there are two types of Web services – simple and ones which are supported jointly via cooperation. The so-called simple Web services are constructive blocks in a highly distributed network applications. The joint Web services are composite protocols defining the interaction between applications and organizations. They can be presented as protocols for B2B integration, which are built based on Web services standards. EbXML and RosettaNet are very good examples of this. We must note that in such cases it is necessary to: ensure business processes management; increase security through providing the “impossibility to abort the transaction” function; provide opportunity for managing continuous transactions.

ebXML is a joint initiative of OASIS (OOH) и CEFACT "Electronic Business XML" and combines the efforts of XML- and EDI-communities for developing a new generation of B2B. The standard which they create can be characterized as [5, p. 7]:

- open, fully based on XML infrastructure;
- a whole B2Bi framework which provides an opportunity for business cooperation on the basis of sharing Web-based business services;
- supporting the defining and implementing of business services, which realize B2Bi, expressed in orchestrating the sequence in business services exchange;
- unfolding on the basis of the first generation of B2B solutions of the EDI type through standardized business processes, contracts between partners, etc.;
- an infrastructure which ensures a multiple use and expansion of key competences.

Cloud computing

In its nature **Cloud computing** technology is an Internet-based processing which is implemented via joint use of hardware, software and information, providing access to them when required.

Cloud computing describes a new Internet-based model of applying, using and providing IT services. In other words, it is providing dynamically scalable and in most cases virtual resources (e.g. remote sites which process information). The parts of the cloud system, i.e. the processing resources are taken by the customers who do not need them at that moment.

"Cloud computing" is a term, which is connected to the concept for integrating the computing capacity of a number of computer devices in a system. Depending on the technology with which a Cloud computing system is created, it has different characteristics. It can be a system of physical devices or of virtual machines.

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Cloud computing offers three possibilities (called levels) – providing: infrastructure, platforms and software [6, p.51]. In specialized literature they are called in different ways: "shapes", "segments", "types", "levels" or "layers". The levels of Cloud computing are shown in figure 1.

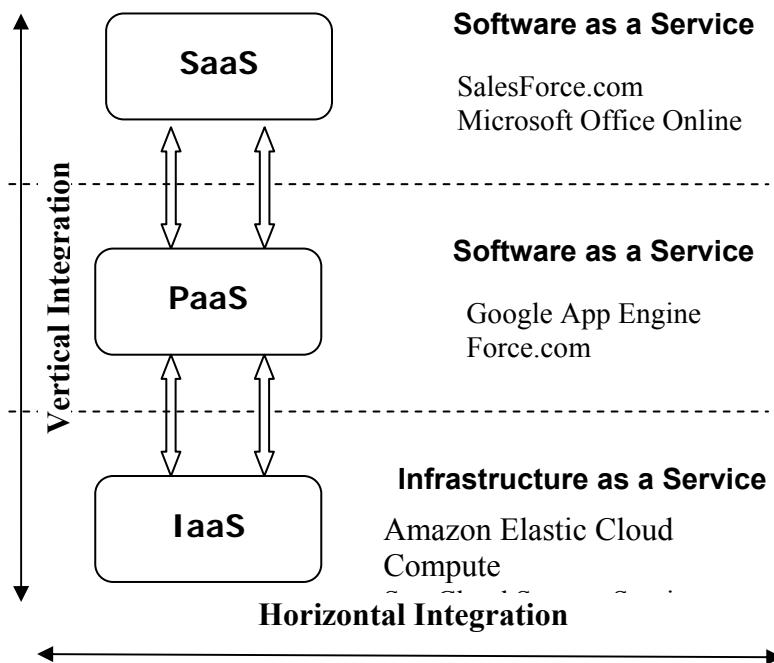


Fig.1. Levels of cloud computing [6, p.51]

Infrastructure as a Service (IaaS) offers resources of the type: processing capacity; storage capacity; networks offered as services. Therefore IaaS is viewed as expanding the computer hosting potentialities in the data centre, for example, Amazon Elastic Cloud Compute (EC2), Sun Cloud Storage Service. IaaS is an appropriate solution for hiring foreign infrastructure, instead of maintaining own infrastructure. *Platform as a Service* (PaaS) offers programme platforms (.NET, Java, etc.), and/or APIs (Application Program Interface) for creating applications for Cloud computing, for example Google App Engine and Force.com. *Software as a Service* (SaaS) offers using software via Internet, which works on cloud infrastructure, e.g. Salesforce.com and Microsoft Office Online.

Some advantages of the Cloud computing model are reducing the total number of operations and reducing the time for implementing them. Its application results in reducing the total number of physical devices, which is followed by cutting the expenses for hardware and respectively for electrical power. Business consumers use Cloud computing infrastructure for increasing productivity and cutting expenses. That practically is a result of the fact that they use the equipment of the other participants in the cloud system. At the same time they reduce the expenses for hardware, software and personnel.

According to Archer [7], B2B integration helps to increase the efficiency of the Supply Chain, and the use of Cloud computing will reduce the expenses for B2B integration.

Cloud computing has three basic models of development [8]: public cloud, private cloud and community cloud. The Public cloud model presents an environment which is open and widely accessible. Private cloud is an infrastructure managed and used by only one organization. The access to resources is restricted only to the members of the particular organization. Community Cloud is an environment which is managed by a group of similar organizations, participating in a joint domain or vertical market. Community Cloud is the most suitable model for business cooperation and B2B integration of BSEC business organizations. It can be managed and supported by commercial providers offering Cloud services or it can be specialized for an appropriate market and supported by branch organizations.

In spite of the great expectations from Cloud computing for reducing the expenses and aiding business cooperation, using it involves some risks and problems. According to Gartner [9] analysts the risks for the security are:

- Privileged consumer access – data important for the organization are processed outside it, which leads to a risk;
- Observing the normative regulations – clients are responsible for data entirety and integrity. While traditional providers of services are subject to external audits, providers of cloud services are not;
- Data about the location – when using cloud services it is not known where exactly the data are processed. It is not known even in which country they are stored;
- Data segregation – the data of different clients are processed together, which gives rise to doubts for infringing security;
- Recovery – reliable guarantees must be received from the service provider for the possibilities to recover data from adversity;
- Support in investigation – the investigation of illegal activity can hardly be impeded in a cloud computing environment;
- Long-term vitality – what the possibilities are for receiving back the data after discontinuing the operation of a cloud services provider.

The integration of information systems supporting organizations' businesses in BSEC countries is an important factor for increasing their competitiveness and for cultivating cooperation among them. Although the countries of the region are at different stages of their development and the degree of maturity of the information systems they use is different, business organizations in BSEC countries can solve the integration problems using appropriate software technologies and standards which help realize B2B integration. EDI, ebXML, RosetaNet, OAGIS and Web services are appropriate for B2Bi. They offer possibilities for connecting the back-end systems of business organizations, providing successful communication through organizations' firewalls. These technologies are based on open standards; they are widely spread and are not bound up with a particular provider.

The development of one of the newest and rapidly gaining popularity concept of information processing – Cloud computing hopes not only to realize B2B integration, but also to do that very effectively cutting basic expenses and stimulating business cooperation. In spite of the great expectations from that technology it has some risks for its consumers, like security of processed data, observing normative regulations and problems with discontinuing the activity of the provider of such services.

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РЕЗЮМЕ

Важливим чинником підвищення конкурентоспроможності ділових організацій в країнах BSEC як в рамках спільноти, так і в рамках глобального ринку що отражається на технологічному рівні використовуваних, ними інформаційних систем і створює проблеми з їх інтеграцією. У доповіді розглядаються найбільш популярні програмні технології і стандарти, які сприяють виконанню B2B інтеграції, також як електронний обмін даними (EDI), мова ebXML, Roseta Net, OAGIS і Web services. Автор зробив спробу представити нові тенденції в розвитку B2B інтеграції в особі технології Cloud computing.

Ключові слова: конкурентоспроможність, країни BSEC, B2B інтеграція, електронний обмін даними, мова ebXML, Roseta Net, OAGIS і Web services

РЕЗЮМЕ

Важным фактором повышения конкурентоспособности деловых организаций в странах BSEC как в рамках сообщества, так и в рамках глобального рынка что отражается на технологическом уровне используемых, ими информационных систем и создает проблемы с их интеграцией. В докладе рассматриваются наиболее популярные программные технологии и стандарты, способствующие осуществлению B2B интеграции, также как электронный обмен данными (EDI), язык ebXML, Roseta Net, OAGIS и Web services. Автор предпринял попытку представить новые тенденции в развитии B2B интеграции в лице технологии Cloud computing.

Ключевые слова: конкурентоспособность, страны BSEC, B2B интеграция, электронный обмен данными, язык ebXML, Roseta Net, OAGIS и Web services

SUMMARY

An important factor for raising competitiveness of business organizations in BSEC countries, both within the community and within the global market, is the integration of information systems that support business. The BSEC countries are at different stages of development, which reflects on the technological level of information systems used by them and gives rise to problems with their integration. The paper examines the most popular software technologies and standards which help realize the B2B integration as an electronic data interchange (EDI) - the ebXML, Roseta Net, OAGIS and Web services. The new trends in developing this integration using the Cloud computing concept are outlined.

Key words: competitiveness, the country BSEC, B2B integration, electronic data interchange, language ebXML, Roseta Net, OAGIS and the Web services

EVALUATION OF GEORGIA'S INTERNATIONAL COMPETITIVENESS IN THE BSEC MEMBERSHIP CONTEXT

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In the last quarter of the 20th century economic globalization has made rapid progress. Parallel to modern globalization there has been an expansion of regional integration. Indeed, integration has been a hallmark of the second half of the 20th century and part of the integration dynamics seems to be a response to the problems and challenges of economic globalization. One of the main challenges facing modern states in the global world is increasing their international competitiveness.

Competitiveness is a broad concept, which can be observed from different perspectives: through products, companies, branches of the economy, the short-run or the long-run. The most complex of these is the concept of the competitiveness of the national economy. The popularity of the competitiveness benchmarking at the country level such as global Competitiveness Reports (WEF), World Competitiveness Yearbooks (IMD), and National Competitiveness Reports is an indicator of growing interest in comprehensive frameworks and data for competitiveness-related decision-making.

In the economic literature there is a term of international competitiveness defined as the long-term competitive ability of national economy and a term of competitive position (static approach), which refers mainly to the participation of a given country in international exchange. The meaning here is narrower than that of the international competitive ability.

M. Porter has explained new view related on competitiveness of the national economy emphasizing the productivity as the most important factor. "Modern competition depends on productivity, not on access to inputs or the scale of individual enterprises. Productivity rests on *how* companies compete, not on the particular fields they compete in. Companies can be highly productive in any industry—shoes, agriculture, or semiconductors—if they employ sophisticated methods, use advanced technology, and offer unique products and services. All industries can employ advanced technology; all industries can be knowledge intensive." (Porter 1998).

In the international context, competitive economy is the one which adjusts its social and economic targets and its mechanism of functioning not only to internal conditions but also to international circumstances; on the other hand, it is able to undertake actions which will take advantage of the changes occurring in the world economy in a creative way in order to stimulate its own development. It is also able to change conditions of competition in the way which will enhance benefits from the participation in the international division of labour.

A level and quality of international competitiveness of the national economy are determined by its whole economic and social performances. The main factors which influence a formation, state and development of international competitiveness in one country can be divided in four groups: systemic, marketing, external, and internal. (Petrovic et al 2008).