

# **PROSPECTS OF DEVELOPMENT AND FUTURE OF ELECTRONIC COMMERCE**

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## **From Business to E-Business**

Electronic Commerce is the name given to the business process of selling products, goods, and services over the Web. It is the application of various communications technologies to provide the automated exchange of business information with internal and external customers, suppliers and financial institutions.

Electronic Commerce was born in a US research center in 1989. Lawrence Livermore National Laboratory began using the term 'Electronic Commerce' while proceeding with one of the US government's military projects, and the term was used from the following year by the private sector. Examples of these technologies include Electronic Data Interchange (EDI), bar coding, scanning, E-mail, E-commerce and fax, to name a few. The bottom line is that Electronic Commerce requires a paradigm shift in the way corporations do business today.

In the initial stage of e-commerce, studies concentrated on studying EDI, which is a device that enables electronic data exchange using a certain type of VAN (Value Added Network) among corporations (B2B: Business to Business) or between corporations and government (G2B: Government to Business). Such studies could be dispersed thanks to the growing commercialization of the Internet.

Any size business can have an e-commerce strategy. Like most things where business and Information Technology (IT) intersect, the e-commerce strategy you are able implement is dependent on the money you have to invest. For example, a large e-commerce company can directly place orders into a supplier's order

processing system, negating the need to have a telephone operator marshalling the sales requests from merchant to supplier and may be able to afford to buy space for prime time television commercials. A smaller e-commerce company may still have to phone in or fax their orders, but may only be able to buy adverts in the local paper or industry journals. Few would disagree that Amazon.com practices e-commerce. Airline on-line ticket reservations and purchasing are evidently candidates, as are *eBay*, *Mbank* and a host of others. But what of promotional web sites? What of ATMs? What about call centers that use telephony? And has all the Internet and Web hype really displaced the key functions of EDI? Telephones, FAX machines and dedicated data lines are very much a part of today's business delivery infrastructure, and will continue to be so for the foreseeable future. Clearly "e-commerce" is a whole lot more than one technology and one user community. It is about the use of many technologies by many different individuals and organizations. The challenge is matching technology to need.

### **Types of e-commerce**

E-commerce is defined as any type of transaction executed via online networks. There are various types of e-commerce, depending on the transaction: Business to Business (B2), Business to Consumer (B2C), Consumer to Business (C2B) and Consumer to Consumer (C2C). In addition, there are Government to Business (G2B) and Government to Consumer (G2C) e-commerce.

Out of the various types of e-commerce methods, there are several reasons why the B to B market should be highlighted:

*The B2B market size is expected to be 12 times larger than the well-known B2C market. The B2B market is growing at an astonishing 86.8% rate pa, which dwarfs the growth rates of such B2C companies like Amazon.com's. Forrester Research forecasts that the*

e-commerce market will grow from USD 10.9 billion in 1999 to USD 1.3 trillion in 2003, with B2B taking up 92% of the market. *Corporations' demand for Internet solution providers will increase due to its efforts to enhance communication with its existing clients, suppliers, as well as to develop and capture new clients.* The Internet provides a platform where corporations can communicate directly on the World Wide Web. Corporations that have access to a global clientele have a huge potential to reap great financial and economic benefits. Companies such as Vertical Net that puts limited efforts towards international marketing has 40% of its clients coming from overseas because of the Internet.

## **E-Commerce in Azerbaijan**

E-commerce is one of the major concerns playing on the minds of corporate executives the world over. Today e-commerce plays a major role in Azerbaijani business too. There are the following featured product and services and businesses in Azerbaijan.

### **Featured Products and Services**

Auto	Baby	Beauty	Books	Clothing
Computers	Electronics	Games	Gifts	Hardware
Health	Home	Magazines	Music	Office
Software	Sports	Toys	Travel	Videos
Accounting	Consulting	Domain Name	Education	Engineering
Event Planning	Financial	Health	Insurance	Internet
Legal	Moving	Personnel	Printing	Public Relation
Real Estate	Repairing	Storage	Telephone	Travel

### **Featured Businesses by Categories**

Automotive	Electronics & Computers	General & Personal Services
Financial Services	Food & Entertainment & Restaurants	Home & Garden
Hobbies & Pets	Housing & Lodging	Travel & Transportation

Professional Services	Retail & Shops	Government & Public Affairs
Oil & Mining	Industrial Products & Services	Government & Public Affairs

In our country use of Internet technology in business are still in infancy because of several reasons: lag in Information Technology development, non-stable economy, lack of Internet systems in native language in our domestic market, need to develop bilingual systems, etc.

The goals of the study of business issues relating to all E-Commerce in Azerbaijan are

- To enhance business through education and a better understanding of E-Commerce and business strategies;
- To cultivate relationships among the business community to promote the use of E-Commerce;
- To share experiences and exchange ideas that may aid member companies in the implementation and growth of E-Commerce programs;
- To develop bilingual systems;
- To inform and educate the business community regarding E-Commerce issues.

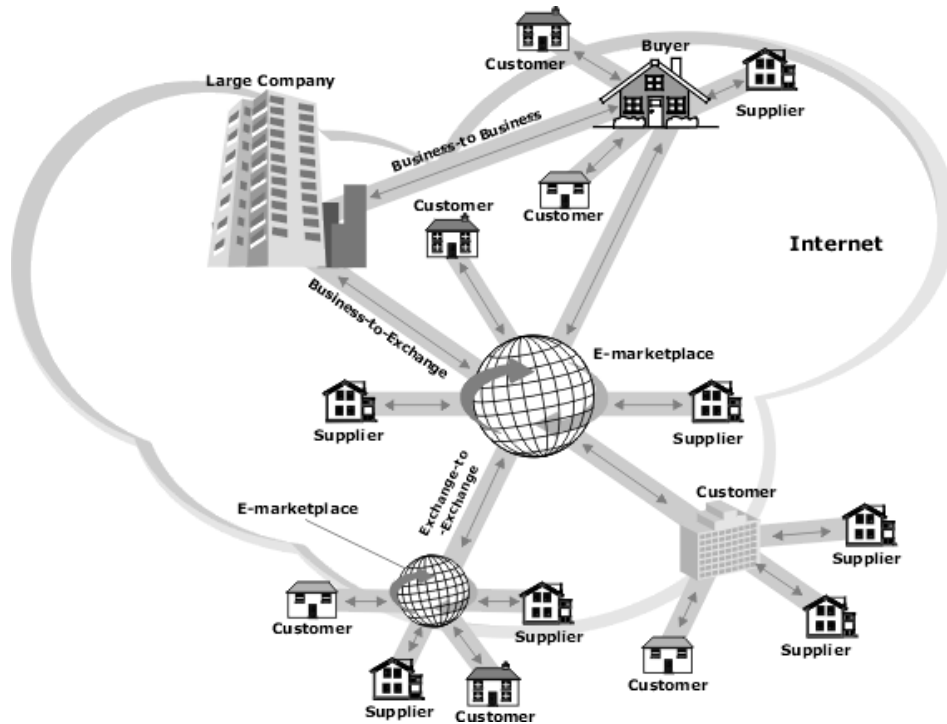
Azerbaijani companies for growing their businesses need to integrate businesses and use Web Services in B2B integration.

## **B2B Integration (B2Bi) and Web Services**

B2B integration or B2Bi is basically about the secured coordination of information among businesses and their information systems. It promises to dramatically transform the way business is conducted between partners, suppliers and customers or buyers. All companies (large, medium, small, or new) can experience increased growth and success through tightly integrated partnerships.

Companies, from across a variety of industries, are embracing B2Bi and realizing the enormous competitive advantage

it provides, through faster time to market, reduced cycle times, and increased customer service. Through integration of business and technical processes, companies are able to strengthen relationships with partners and customers, achieve seamless integration inside and outside the enterprise, gain real-time views of customer accounts, increase operational efficiencies, and reduce costs.



The market for B2Bi is huge. According to a recent report published in the post.com crash era from the International Data Corporation group, by 2005 B2B e-commerce will be of the order 4.7 trillion US Dollars approximately. B2B integration is expected to yield productivity gains of over a trillion USD by 2010.

### **Essential Features of a B2B Integration Solution**

Without the right selection of B2Bi solutions that meet your business and technical requirements, any integration implementation will be doomed. Before a company selects any B2Bi solution, it has to consider the following:

- Can the solution evolve with the company, with the industry, and with the IT industry?
- Does it offer comprehensive functionality with the flexibility to support third-party software vendors, and connect existing and new systems in a common framework?
- Does it work within scalable environments to accommodate customer and trading partner systems as well?
- Does it support open standards?

So, what are the key features that a company should look for before investing in any B2Bi software solution? Firstly, the integration solution should be able to enable any transaction, any time - end-to-end and partner-to-partner. It should be able to fully automate real-time exchange of data between disparate applications. Secondly, the solution should be able to conduct all transactions securely, maintain audit logs, etc. Thirdly, the solution should support diverse sets of file formats, protocols, and security standards. Fourthly, the solution should be based on open standards that allow a company and its partners to send transactions using any combination of applications and file formats, telecommunication pathways, communication protocols and B2B protocols, and XML standards such as Rosetta Net, ebXML, OAG, Biztalk, OBI, etc. The solution should also provide support for Web Services.

Lastly, the solution should be scalable, that is, companies should be able to scale it horizontally and vertically. Further, it should offer robust load balancing features, critical to the success of large applications.

## **Web Services and B2Bi**

Web Services, which are based on XML standards, are a boon to the world of B2B, as we discussed in the previous section that XML-based standards hold the key for the success of dynamic B2Bi and its wide spread adoption by companies of all sizes. Web Services are based on the following open standards: Web Services Description Language (WSDL - to describe), Universal Description, Discovery and Integration (UDDI - to advertise and syndicate), Simple Object Access Protocol (SOAP - to communicate) and Web Services Flow Language (WSFL - to define workflows).

Thus, Web Services use SOAP based messages to achieve dynamic integration between two disparate applications. Companies use WSDL, a Web Services standard, to describe their public and private Web Services and publish their Web Services either to a private or public repository and directory using UDDI.

### **Essential Features of B2B Applications and Web Services in Distributed Transaction Management**

It is very tough to maintain distributed transaction control even within disparate systems and applications within an enterprise. B2B transactions may be spread over disparate systems and applications across different enterprises, making them several times more difficult to maintain and control. In their current state, Web Services are not transactional in nature and provide basic “request/response” functionality.

### **Security**

B2Bi requires two levels of security. Firstly, B2Bi necessitates opening up corporate firewalls to enable cross boundary communication between enterprises. Thus, whatever mode of integration is used, companies have to secure their internal network against malicious attacks through these open ports.

Secondly, the data transmitted over dedicated leased lines, such as EDI, Internet, or any other mode, has to be secured. The data may contain classified information, such as corporate information and business transaction information, and thus cannot be left unguarded. In their current state, Web Services lack broad support and facilities for security. Thus, Web Services based B2Bi architecture may potentially have big security loopholes.

### **Dynamic**

For companies to participate in true dynamic business with other companies, integration between the systems of the two companies has to happen in real-time. Further, this integration is only possible if B2Bi is done using open standards over the Internet.

Web Services do provide a dynamic approach to integration by offering dynamic interfaces. Web Services are based on open standards such as UDDI, SOAP, and HTTP, and this is probably the single most important factor that would lead to the wide adoption of Web Services for B2Bi.

### **Integration Mode**

The integration mode or pattern is the most important element of B2B integration. Is the B2Bi data-, business process-, application-, function-, or portal-oriented? The answer to this question determines a lot of answers involved in the modalities and technology used for B2Bi. Typically in B2B integration, companies involved take a joint decision based on the technology available in-house, budgets, and level of synchronization needed to support business functionalities.

In this generation of Web Services, it is possible to achieve only function level integration between applications (for details on the difference between function level integration using API or RPC

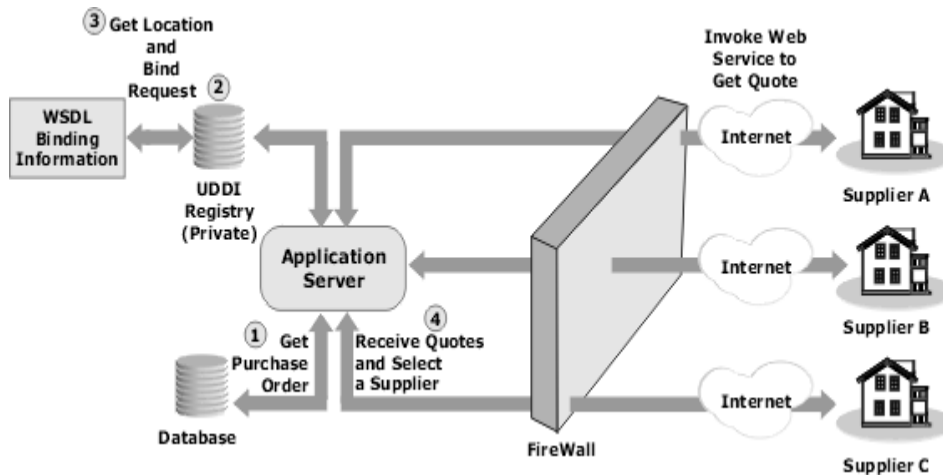


and Web Services, please refer to my previous article “Enterprise Application Integration and Web Services”).

The next generation of Web Services, however, will be functionally and technologically advanced, offering user interface encapsulation and security. They will be able to package an application and embed it into another application.

## Example of Web Services for B2Bi

The following diagram shows an example of using Web Services in a B2Bi scenario. In this example, the corporate procurement application running within an application server requests quotes from multiple vendors. The procurement application of the buyer gets information about Web Services offered by suppliers using a private UDDI registry and invokes these services over the Internet to get quotes for a specific item.



The sequence of steps is as follows:

1. The Buyer's procurement application, running within an application server, has to generate a purchase order for a specific item.
2. The procurement application gets information about Web Services of different suppliers for that specific item by doing a look up in the private UDDI registry.
3. The location of and WSDL binding information for the Web Services is sent to the procurement application.
4. The application invokes the Web Services published by the suppliers to get quotes for that item. The communication is based on SOAP over the Internet.

5. The application receives quotes from different suppliers. The communication is based on SOAP over the Internet.
6. The information is then analyzed, leading to the creation of the purchase order.

## **B2B E-Commerce forecast**

By Cyber Atlas staff Worldwide B2B e-commerce will total \$823.4 billion by the end of 2002, eMarketer found, and the strong growth will continue through 2004. According to eMarketer's "E-Commerce Trade and B2B Exchanges" report, Internet-based B2B trade will reach nearly \$2.4 trillion by 2004. "Despite last year's difficult economic climate, many companies pressed on with their e-business initiatives, continuing to lay the foundation for e-commerce trade," said Steve Butler, senior analyst at eMarketer. "Leading EDI vendors and industry-backed exchanges are currently helping large enterprises bring their smaller suppliers online, setting the stage for significant e-commerce growth."

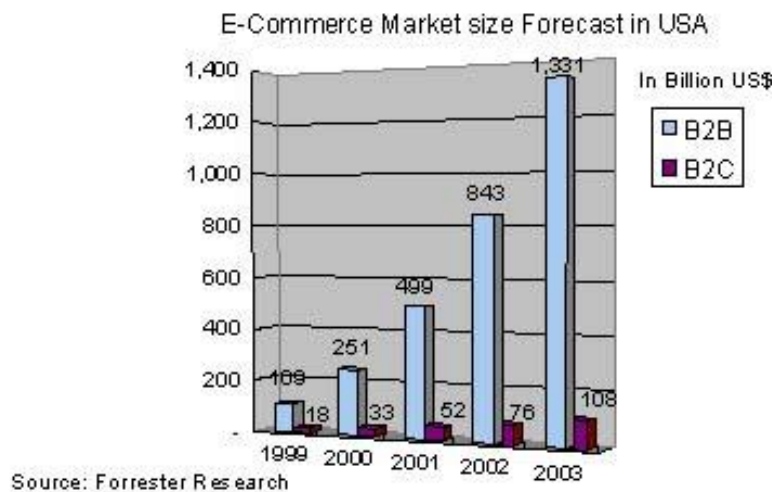
EMarketer estimates that online e-commerce accounted for slightly less than 2 percent of all U.S. B2B trade during 2001. In early 2001, there were over 2,200 Internet-based marketplaces worldwide, and there's evidence the market has plenty of room for growth. Only 11 percent of corporations report fully implemented e-business strategies.

The B2B e-commerce projection from International Data Corp. (IDC) is more ambitious than eMarketer's. IDC expects the total worldwide value of goods and services purchased by businesses through e-commerce solutions will increase from \$282 billion in 2000 to \$4.3 trillion by 2005.

According to IDC, the United States will remain the largest region for B2B e-commerce, with purchases increasing at a compound annual growth rate of 68 percent from 2001 to 2005. Close behind is Western Europe, where B2B purchasing will increase at a compound annual growth rate of 91 percent from

2001 to 2005. Asia-Pacific is the growth leader with a compound annual growth rate of 109 percent during this time.

To take the US market as an example, B2B versus B2C markets will show dramatic differences in terms of market size: market size has been predicted using GDP (Gross Domestic Product) divided by each industry and taking each industry's e-commerce ratio growth rate. According to Forrester Research Inc, under the current economic structure, 60% of goods are exchanged between corporations, 30% with consumers and 10% with governments. As the potential market is enormous, more and more Internet companies are trying to enter into the B2B market place.



## Barriers to E-Commerce

Some state regulations and private business practices may be having “significant” anti-competitive effects on e-commerce. There are many state regulations adopted ostensibly for one purpose that had the effect of protecting existing businesses from Internet competition. For example, some states prohibit online sales of certain products or require that e-businesses maintain a physical

office in their state. Some estimates suggest that the potential costs to consumers of these anti-competitive restrictions “may exceed \$15 billion annually.”

Industries in which significant restrictions on Internet commerce have been alleged, include retailing, auto sales, real estate and mortgages, health care, pharmaceuticals, telemedicine, the sale of wine, auction services, the sale of contact lenses and the sale of caskets.

One specific topic will be “whether auto manufacturers been forced to limit Internet sales of automobiles, and if so how?” On the private business side, some private companies “have engaged in conduct that may raise antitrust issues ... For instance, some dealers do not list prices for certain items they sell online; others refrain from selling certain items in their product line over the Internet at all, and urge competitors to follow suit.”

The willingness of businesses to use the government to restrict competition remains at a high level. Reducing the barriers to e-commerce could dramatically increase competition and benefit consumers. E-commerce has tremendous potential, especially if anti-competitive barriers to dynamic new forms of Internet competition can be understood and eliminated.

## **Conclusion**

The Internet is rapidly becoming the technology of choice for e-commerce because it offers businesses an even easier way to link with other companies or individuals at very low cost. The Internet’s global connectivity and ease of use can provide companies with access to businesses or individuals that would normally be outside their reach. Web sites, where the customer and the company conduct their business, are available to consumers 24 hours a day.

Results show that effective e-commerce sites should provide information search, generation of alternatives, product

customization, purchase decision, transaction processing, international service and security.

Web Services certainly have the potential of redefining the whole paradigm of B2B integration by making it truly dynamic, easily implemented in a modular fashion, and in the longer run being cheaper. The application of Web Services for B2Bi, however, will be limited if services for authentication, encryption, access control, and data integrity are not available. Web Services intermediaries that provide services such as UDDI repository hosting, security services, quality assurance of Web Services, performance checks, etc., will have a big role to play in the B2Bi space.

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## Х ц л а с я

### ЕЛЕКТРОН ТИЪАРЯТИН ИНКИШАФ ПЕРСПЕКТИВЛЯРИ ВЯ ЭЯЛЯЪЯЙИ

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#### **Бизнесдян Електрон бизнеся**

Електрон тиъарят мящсулларын, малларын, хидмятлярин Web васитясиля сатышы просесидир. Бу информасийанын дахили вя хариъи мщтярилярля, сифаришчилярля, малийя мцяссисяляри иля автоматлашдырылмыш мцбадяляси цццн мцхтялиф коммуникасийа технолоэийаларынын тятбигидир.

Електрон тиъарятин транзаксийалардан асылы олараг мцхтялиф типляри вар: Бизнесдян бизнеся, Бизнесдян истифадячийя, Истифадячидян бизнеся, Истифадячидян истифадячийя. Бундан башга електрон тиъарятин Дювлятдян бизнеся вя Дювлятдян истифадячийя типляри дя мювъуддур. Електрон тиъарятин мювъуд типляриндян Бизнесдян бизнеся юн плана чякилмялидир. Бунун сябябляри ашаъыдакылардыр:

- Бизнесдян-бизнеся типинин базар юлчцсцнцн Бизнесдян-истифадячийя типинин юлчцсцндян 12 дяфя чох олмасы эюзлянилир.
- Корпорасийаларын мювъуд мщтяриляр вя тяъщизатчылар иля ялагялярини мющкямляндирмяк вя йени мщтяриляръялб етмякляри цццн Internet провайдерляриня олан тялябатлары артыр.

#### **Електрон тиъарят Азярбайъанда**

Бу эцн електрон тиъарят Азярбайъан бизнесиндя дя ясас рол ойнайыр. Бунунла беля Азярбайъанда бизнесдя Интернет технолоэийаларындан истифадя едилмяси щяля йахшы инкишаф

етмямишдир. Бу информасийа технолоэийасынын инкишафындакы дурьунлуг, гейри-стабил игтисадийат , азырбайъан дилиндя Интернет системляриня ещтийаь, ики дилли системлярин инкишафы вя с. иля ялагядардыр.

Азырбайъанда электрон тиъарятля ялагядар бизнесин инкишафы цццн ясас мягсядляр ашаъыдакылар ола биляр :

- Электрон тиъаряти вя бизнес стратегийаларыны йахшы баша дцщмяк цццн бизнес тящсилинин сявиййясини артырмаг;
- Бизнес тяшкилатларында гаршылыглы ялягяляри артырмаг цццн электрон тиъаряти юн плана чякмяк;
- Электрон тиъаряти инкишаф етдирмяк цццн компанийаларла тяърцбя вя идеялары бюлцщдцрмяк;
- Икидилли системлярин инкишаф етдирилмяси;
- Бизнес тяшкилатлары электрон тиъарятля баълы проблемляря мялуматландырмаг вя юйрятмяк.

## **Нятиъя**

Интернет бизнес тяшкилатларына диъяр компанийалар вя фярдлярля асан вя уъуз ялагя йаратмаг технолоэийасыдыр. Бу бахымдан интернет компанийалары щятта ади щалда ялчатмаз олан бизнес тяшкилатлары вя фярдлярля ялагяляндириян глобал ялагяляндириъидир. Мцщтяриляр иля компанийаларын бизнесини тяшкил едян Web сайт электрон тиъарятин ясас компоненти олуб суткада 24 саат фяалийят эюстярир. Нятиъяляр эюстярир ки, ефектив электрон тиъарят сайтлары информасийа ахтарышыны, алтернативлярин йарадылмасыны, мящсулун сазланмасыны, алыщда гярар гябул етмяйи, транзаксийаларын апарылмасыны, бейнялхалг хидмятляри вя тящлцкясизлийи тямин етмялидирляр.