

MALL 2000 – A B2B E-MARKETPLACE SURVIVING E-COMMERCE EVOLUTION THROUGH STANDARDISATION AND PROFITABILITY

Subtitle

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Abstract: This paper introduces the concepts of e-commerce, e-business, and e-marketplaces. It follows the evolution of e-commerce and the transformation of e-business models it causes. The paper presents the Mall 2000 portal in the light of the concepts introduced and considers using two internationally accepted trade standards as a basis of integration of data formats of suppliers' and buyers' catalogues in the portal. The article briefly describes the functionality of the portal and compares it to similar, currently active portals. Are such portals still vital? What features should an e-marketplace possess to survive in the third phase of e-commerce evolution, in which the question is how to increase profitability? The paper proves that separating buyers from sellers in an e-marketplace gives an opportunity for the portal owner to generate more revenue, and hence, to increase profitability

Key words: e-marketplace, e-commerce evolution, standardization, catalogue data integration, profitability

1. INTRODUCTION

1.1 E-commerce Evolution: from a Simple Web-Presence to new Business Models

According to Merz [10] “*E-commerce is the support of trade activities through communication networks*” Merz divides a trade activity into three phases:

1. Information
2. Negotiation
3. Execution

Glushko [2]: defines e-business in the following way: “*e-business.... means using innovative technology to build global relationships and commerce.*”

These two definitions imply that e-commerce is just one particular aspect of e-business. This is also the common understanding in the scientific literature. In “E-Business 2.0 Roadmap for Success”, Kalakota, R., and Robinson, M [8] divide the evolution of e-commerce into three phases:

The first phase: (1994-1997) – in this phase, e-commerce meant ensuring that a company has web-presence: companies, big or small strove to have their web-sites, not every time quite sure about what and how exactly to present on their site;

The second phase (1997-2000) - was about transactions- buying or selling over digital media. Some of the focus in this phase was on the matching of buyers and sellers who never would have found each other in the past.

The third phase (2000-?) means, according to the authors, focus on how the Internet can impact profitability, whereas profitability is not about increasing gross revenues, but increasing gross margins.

1.2 Current state of e-commerce and the transformation in business models it causes

The authors call the third phase *e-business*, and hence, they consider *e-business as the last step in the evolution of e-commerce*. E-business not only encompasses e-commerce, it means transforming and redefining old business models, with the help of technology, to maximize customer value and profits.

In the e-Marketer report [1] we can clearly see an example of a transformation in the business models during the e-commerce evolution:

Initially, many startup B2B exchanges and software companies believed that their business models would permit them to take a commission off of the dollar value of an e-commerce trade (deal) that might flow through an online marketplace, or occur within a given industry. But as it became clear that most transaction-based business models would not be able to provide significant revenues, most of the surviving exchanges switched to subscription-based revenue models that rely upon selling flat-fee subscriptions, individual user seats, or charge usage fees based upon the volume of data that is transacted via exchange networks. As a result, tracking the dollar value of business-to-business e-commerce trade has become less relevant to many data users, *while the measurement of network membership, document transfers or productivity gains has become much more important.*

1.3 Electronic Marketplaces and their Characteristics

Saha, A. gives the following definition to an e-marketplace [12] “*The e-marketplaces are portals ... that connect buyers and sellers in virtual marketplaces. Such portals are cross-enterprise and can cater to specific industries...* ”.

According to Martin and Kar [9] all traditional and electronic marketplaces have the following characteristics:

1. Matching consumers and sellers;
2. Facilitating the exchange of information, goods, services and payments,
3. Providing an institutional infrastructure

For the purposes of this article we define *a brokering system as a software module, part of an e-marketplace implementation that automatically matches any sell offers to all corresponding buy requests, and any buy request to all corresponding sell offers, notifying the party interested* (by e-mail or similar channel) that a matching has occurred.

2. THE MALL 2000 PORTAL FROM A BUSINESS PERSPECTIVE

The Mall2000 portal [15] is an e-marketplace providing a set of B2B e-business services to Small and Midsized Enterprises (SMEs) in the EU and EU- Accession countries. The portal provides its members an ability to find out and step on new markets by strongly supporting them in the information phase, and, partially in the negotiation phase. The execution phase is left out of the scope of the portal. The portal emerged in the second phase of e-commerce evolution, but its the feature of separating portal members into buyers and sellers is an example of a successful business model capable of surviving into the third phase of e-commerce evolution.

Mall2000 is not limited to any specific industry or business activity – it supports SMEs regardless of the industry they are in. Hence, the portal must provide a mechanism that defines the business activity a SME is operating in an unambiguous and widely accepted way. It must also provide such a mechanism for defining the products/ services a SME brings to the market- there must be clear, unambiguous, and widely accepted way to uniquely identify them. Mall2000 achieves the first goal by utilizing the Statistical Classification of the Economic Activities (NACE Rev.1) standard, and the second one by adopting the Harmonized Commodity Description and Coding System” (HS) standard. Portal members can search for potential business partners on the basis of the NACE Rev.1 standard, and publish offers to sell their products, or buy products from other members on the basis of the HS standard.

The portal encompasses a brokering system - a user publishes their buy request or sell offer once, and is further automatically informed per e-mail whenever any “opposite expression of interest” (for buy request it would be a sell offer, and for a sell offer- a buy request) regarding the same product is published by another user.

Utilizing NACE Rev.1 and HS trade standards is another feature, which makes the portal competitive in the third phase of e-commerce evolution.

2.1 The Mall 2000 Project

The Mall 2000 emerged as the result of a project funded by the European Commission under the INCO Copernicus Program in the period 1998-2001 and carried out by a Consortium of Universities, Companies and Research centres within EU, which included: Darmstadt University of Technology (Germany); Compaq Computer Corporation - Galway, Ireland; Directnet Consult Ltd., Brno (Czech Republic); Object Technology International (Germany); Stylo srl. Bologna (Italy); Institute of Informatics, FAST Technical University of Brno (Czech Republic); University of Sofia - Dept. of IT

(Bulgaria) ; Virtech Ltd. (Bulgaria) . The project coordinator was the University of Sofia - Dept. of IT (Bulgaria), and the development of the project took also place at the University of Sofia.

2.2 Standards Utilized in Mall 2000

The Mall 2000 utilizes two widely accepted business standards:

1. The Harmonized Commodity Description and Coding System [7], referred to as “HS”, is a multipurpose international product nomenclature developed by the World Customs Organization (WCO) and recommended by UN/CEFACT (United Nations Centre for Trade Facilitation and Electronic Business). It comprises about 5,000 commodity groups, each identified by a six digit code, arranged in a legal and logical structure. HS is used by more than 177 countries and economies. Over 98 % of the merchandise in international trade is classified in terms of the HS [16].

2. The Statistical Classification of the Economic Activities (NACE Rev.1) [4] provides accepted descriptions of economic activities (industries) and groups of economic activities that are most commonly presented in an economy.

2.3 Mall 2000 functionality and User Roles

Users of Mall 2000 are divided into two categories, depending upon the type of services they can use: suppliers and consumers. A summary of services offered to each user group is given:

Service	Suppliers	Consumers
Register a company and present it	YES	YES
Publish offers to sell goods/ commodities by a given date (HS standard used)	YES	NO
Receive notification by email if another subscriber has published a request, intending to buy a good/commodity specified by the supplier in their offer (HS standard used)	YES	NO
Publish requests to buy goods / commodities by a given date (HS standard used)	YES	YES
Receive notification by email if another supplier has published an offer, intending to sell a good/commodity specified by the supplier in their request (HS standard used)	YES	YES
Use a Search Wizard for instantly locating offers currently available in the database (HS standard used)	YES	YES
Search for the registered companies in Mall 2000 (NACE Rev.1 standard used)	YES	YES

2.4 Product Data Integration in B2B E-Marketplaces: HS as a basis for catalogue integration compared to other standards.

Our intent in this section is to give reader an insight of some commonly used standards a base of product integration in B2B e-marketplaces and why HS is the best alternative for Mall 2000.

E-marketplaces for B2B e-commerce bring together many online suppliers and buyers. Each individual participant can potentially use their own format to represent the products in their product catalogue.

Omalenko and Fensel [11] justify the introduction of an intermediate catalogue to facilitate the integration between different catalogues: If a marketplace mediates between n suppliers and m buyers, then it must be able to provide a mechanism for mapping (automatically or manually) each of the n suppliers' catalogues into m buyers' formats. If this mapping is carried out directly- i.e. from each supplier's catalogue to each buyer's catalogue and vice versa, a total of $n \times m$ mappings will be needed. The numbers n and m may be high enough to make the problem of creating and maintaining these mappings nontrivial. Therefore, the first intuitive step for integrating these $n+m$ different catalogues would be to introduce a common, intermediate catalogue. All suppliers' and buyers' catalogues shall be mapped against this intermediate catalogue, instead of directly to each other. This will require only $n+m$ mappings

Fensel, D., and Ding, Y [3] go further stating that B2B marketplaces enabling intermediation between n suppliers and m buyers “*must classify all products according to a standard classification schema that helps buyers and suppliers communicate their product information.*” They also investigate the advantages and disadvantages of using the Universal Standard Products and Services Classification (UNSPSC) as such a standard. UNSPSC and HS have a common structure, UNSPSC being preferred in the United States. A comparison between these two standards would reveal that both of them are typical examples of a horizontal standard – one that covers all possible product domains but is not very detailed in any particular domain.

The authors state three disadvantages of using UNSPSC in B2B e-marketplaces, two of which are also applicable to HS:

- undescriptive- UNSPSC does not define any attributes for describing the products (Holds also for HS)
- unintuitive- suppliers and buyers do not find their products easily (must be less applicable to HS, since the system is worldwide used)
- shallow - UNSPSC does not provide enough distinctions for a vertical marketplace that provides numerous products from a certain domain. (Holds also for HS)

Fensel and Ding mention other types of standards that partially overcome the above disadvantages. Vertical standards describe a certain product domain in more detail than common horizontal ones - an example of such a vertical standard is RosattaNet, describing computer hardware and software products in detail.

Vertical standards are, due to their nature, inapplicable to the purpose of Mall2000- which is to intermediate suppliers and buyers *from virtually all industries (domains)*.

There are also appearing horizontal standards offering more descriptiveness than UNSPSC and HS. For example, ecl@ass is a product standard initiative, encompassing four-level, hierarchical classification similar to the one of HS and UNSPSC. In contrast to them, ecl@ss also provides attributes at many levels of the hierarchy, which are inherited top-down in the classification hierarchy. In this way, ecl@ss represents a strong alternative to the non-descriptiveness of UNSPSC and HS. However, it is a relatively young standard, used in mainly in Germany, and still not accepted outside it.

Regarding the structure of classification schemes and their intuitiveness, the structure of ecl@ss generally resembles that of UNSPSC and HS, but proposes a more intuitive hierarchy from an end-user's point of view. HS comes somewhere between these two standards – its structure is very similar to that of UNSPSC, but users must be more familiar with it, as 98 % of the merchandise in international trade is classified in terms of the HS.

From the standards presented here, HS is chosen for Mall 2000 because of the following reasons:

- a) Mall 2000 is a portal intended to connect suppliers and buyers from any kind of industry (domain) - for this purpose a horizontal standard is needed;
- b) Mall 2000 is intended to support suppliers and buyers predominantly in the information stage of an e-commerce transaction - therefore, *a widely accepted means* shall be provided to allow sellers and

buyers initially find each other's products or services. HS is chosen, as it is accepted by 177 countries, recommended by UN/CEFACT, and almost all merchandise in international trade is classified in its terms.

2.5 Why a second data integration standard is needed: NACE_REV 1

In the previous section, we investigated the need of a common standard for product data integration in B2B e-marketplaces. If e-marketplaces serve only for matching sell offers and buy requests, then having a single, common standard capable of uniquely and unambiguously identifying any product/service that is to be exchanged via the e-marketplace would suffice. But often e-marketplaces serve as a site of "first acquaintance" between two, up to then unfamiliar to each other, companies. If a company is not only interested in selling its products or acquiring raw materials through an e-marketplaces, but also in establishing long-term partnerships, then it may want to be able to find potential partners, not based on the products /services a company offers, but rather based on the business activity a company is operating in. The difference between classifying a company according to its business activity and according to the (types) of products it brings to the market pertains to the fact that often a company may change, improve its products or introduce new ones, while remaining in one and the same business activity. Changing business activity is, in general less, probable, while changing products is often a matter of marketing strategy. This is how the need for a common standard, describing business activity, arises. The Statistical Classification of the Economic Activities (NACE Rev.1) is this type of standard used in Mall 2000. It is intended to be used by members searching for long-term partnerships. As we shall see in the next section, almost any e-marketplace researched uses a type of a common catalogue which resembles, far or less, the NACE Rev.1 standard.

The disadvantage of using catalogues based on NACE Rev1 standard as product data integration catalogues is that NACE Rev1 is not intended for describing a product /or service. While it is convenient and intuitive to have a single, common catalogue both describing a business activity and products /services a company offers (or wishes to buy), it has the disadvantage that products and services described according to such a catalogue could not be exactly and unambiguously described by the standard itself, which leads to the need of additionally introducing free text descriptions of products, which, in turn, often makes it difficult for introducing a single brokering system that automatically detects and matches sell offers and buy requests.

2.6 Comparative Research: Mall2000 as compared with similar B2B e-commerce portals

Below are presented several portals, which may be considered rivals to Mall 2000, together with a short analysis of their advantages and drawbacks.

2.6.1 Criteria used

Main criteria under which the portals are researched are: core functionality, presence of a common product data integration catalogue, presence of a common business activity data integration catalogue; usage of trade standards as a basis of catalogue data integration, membership type (user roles), and presence of a brokering system.

2.6.2 Methodology Used

The methodology used in researching the portals and drawing a conclusion about the innovation Mall 2000 brings cannot be explained in a formal modeling mechanism. Because Mall 2000 is a portal intermediating SMEs from virtually any type of industry, coming from any state in Europe, its competitors

were searched among portals of chamber of commerce aiming at facilitating trade relations on an international level, and among privately owned portals, also having the same aim. The number of portals of public organizations is small, they are known, whereas privately owned portals are numerous. The authors investigated a couple of portals of chambers of commerce of EU and non- EU countries, such as Germany and Bulgaria, and several privately owned portals. The first type of portals was automatically included in the research. Inclusion of second type was based on initial random selection, followed by our own, subjective opinion. This is due to the fact that privately owned portals are established for profit purposes, often emphasizing on the advertisement, and there is not a reliable source ranking them in accordance with the criteria the authors are interested in.

When a set of portals having similar or identical features in relation to the criteria mentioned is encountered, only one portal instance characterizing the whole set of portals is given as an example.

2.6.3 Portals researched

2.6.3.1 E-Trade-Center: <http://www.e-trade-center.com/>

Core functionality: Set up by the German Chambers of Commerce abroad (AHKs) and the German Chambers of Commerce in Germany (IHKs), the site is a central data pool for assisting users in finding business co-operations. Business cooperation is defined as “sell cooperation”, “buy cooperation”, “presentation of user’s products”, “looking for agent”. The site has a search mechanism, in which all these types of co-operations can be sought solely on the basis of the business activity a company is operating in. Classification of business activities is alphabetically ordered (allows for more intuitiveness), and resembles NACE_Rev1 classification, level 2.

Common product data integration catalogue: No.

Common business activity data integration catalogue: Yes

Usage of trade standards as a basis of catalogue data integration: No

Membership: Free; two types - “Premium” and “Self”. Upon premium, the company data is confirmed by its business partners, upon “self” the company data is not confirmed (or approved) by anybody else.

Brokering System: No

2.6.3.2 EC 21: <http://ec21.com/>

Core functionality: A B2B e-Marketplace with 400,000 different products available EC21, open to all companies looking for global business. EC21 holds suppliers and buyers from 220 countries as its members. It supports suppliers by providing information of more than 500,000 buyers. Registered companies may post buy requests and sell offers, but their categorization is based on the business activity a company is operating in, not on the concrete product /service itself. In other words, the only common catalogue, on the basis of which postings are made and search is done, is the categorization of business activity a company is performing. Classification of business activities is alphabetically ordered (allows for more intuitiveness), and resembles NACE_Rev1 classification, level 2. The site distinguishes between BUYERS and SELLERS as different user roles (members). Each member – be it a seller or a buyer - is himself responsible for locating the product /commodity they are interested in by manually searching the available postings. The search mechanism is based solely on the classification of the company business activity. Once having posted a buy request, for example, a member of the site has to rely on the fact that later some seller would manually search the buy requests postings, choosing the same type of business activity the buy offer was categorized in.

Common product data integration catalogue: No.

Common business activity data integration catalogue: Yes

Usage of trade standards as a basis of catalogue data integration: No

Membership: The site distinguishes between BUYERS and SELLERS, and each company presented can be seller, buyer or both of these. Basic membership is free, Premium membership is paid, fees start from 360 USD per year; allows searching buyers and send group mails to them, priority listing and online promotion on EC21, homepage hosting, supplier verification service. It seems that premium membership is intended for sellers, whereas basic- for buyers.

Brokering System: No

2.6.3.3 FOREIGN TRADE ON-LINE <http://www.foreign-trade.com/>

Core functionality: A privately owned, global B2B trade portal helping companies around the world to expand their business. Companies are classified as exporters, importers, and organizers of trade shows. Upon registration, a company specifies products /services it offers, whereby products are written in a free text form, one word for each product, different products separated by spaces. Brand names a company offers are specified in the same way in a different field. Additional text area is provided for a free text description of company activity. Search is based on two criteria: a country of origin of a company, and a key-word search either in products/services available in the database or in company business activity. Since both company activity and products/services it offers are posted in a free text description form, there is no guarantee that two companies operating within the same business activity or offering the same products will specify them in identical manner (by using identical key-words), so that later both can be found with one and the same keywords- search. In this way, there is actually neither a standardized catalogue for business activities, nor for products /services offered.

Common product data integration catalogue: No.

Common business activity data integration catalogue: No

Usage of trade standards as a basis of catalogue data integration: No

Membership: Two types: Basic - free and Premium- paid. Both basic and premium membership allow viewing and posting trade leads, accessing basic exporter/importer database, directory listing (Premium membership allows extended rights here). Premium membership offers also confidential price quotation system, and receipt of online inquiries. An interesting feature of the portal is that it allows basic members to use some of the services intended for premium members on “Pay per view” basis. For this purpose, the basic member buys a predefined pay-per use points, and for each usage of a particular “premium service, a corresponding amount of this points is taken from their account.

Brokering System: No

2.6.3.4 Bizeurope: <http://www.bizeurope.com>

Core functionality: The site contains sell offers, buy requests and company profiles of over 7000 importers / distributors worldwide, as well as access to international buyer registrations. Company activity is classified on the basis of a common, pre-determined, but not conforming to a standard, business activity catalogue. This catalogue is used for classifying a product upon posting a sell offer, whereas upon posting a buy offer a user does not classify the product he/she wishes to buy on the basis of a common classification catalogue, but rather provides only free-text description. No membership is required to post neither a buy nor a sell offer.

Common product data integration catalogue: No.

Common business activity data integration catalogue: Yes

Usage of trade standards as a basis of catalogue data integration: No

Membership: paid, required mainly to have a full access of all buy requests and sell offers. Standard member fee is 150 EUR per year; gold membership costs 450 EUR and includes opportunities for company advertising.

Brokering System: No

2.6.3.5 The BCCI Trade Directory: http://bccl.bg/services/directory/catalog_en.htm

Core functionality: Login as user: guest; pass: guest. BCCI stands for Bulgarian Chamber of Commerce and Industry. The site allows searching for BCCI member companies by their type of business activity, region, company type (Ltd, PLC, etc), trade type (export, import, etc). Business activities are 2 level nested, which allows a narrower specification. There is not a possibility for publishing offers or requests, or for a company presentation (for example, through a web site, for example).

Common product data integration catalogue: Not applicable as the site is not intended for publishing sell offers or buy requests.

Common business activity data integration catalogue: Yes

Usage of trade standards as a basis of catalogue data integration: No

Membership paid; No distinction between buyers and sellers.

Brokering System: Not applicable as the site is not intended for publishing sell offers or buy requests.

2.6.3.6 TBC_WORLD.COM: <http://www.tbc-world.com/>.

Core functionality: The site is a rich resource pool for finding business partners globally. Business partners are divided into exporters, importers, transporters, brokers and insurers. While exporters and importers can operate in any of 28 pre-defined, intuitive (but not conforming to a given standard) business activities, the rest of the site-members are only listed according to their country of origin. The site does not allow publishing buy requests or sell offers. Search of a particular partner can only be done on the basis of choosing among these 28 predefined business activities, which are a intuitive, easy, but “site-own” invention, e.g. do not conform any standard.

Common product data integration catalogue: Not applicable as the site is not intended for publishing sell offers or buy requests.

Common business activity data integration catalogue: Yes

Usage of trade standards as a basis of catalogue data integration: No

Membership: paid, fees starting form \$ 199 annually. Membership offers: Full access to the database of importers and exporters, priority listing in search results, company own web-page. Registering as a member is possibly in one of the categories: exporter, importer, transporter, broker, insurer, but membership fee is uniform for all member types.

Brokering System: Not applicable as the site is not intended for publishing sell offers or buy requests.

2.6.3.7 ECOMY: <http://www.ecomy.com/>

Core functionality: ECOMY is a vertical, free of charge B2B portal meant for companies creating market tools, development and internationalization for Italian companies and supplying information and professional training to entrepreneurs and managers. It is suitable for SMEs and micro-companies. The site allows for publishing commercial advertisements (sell offers and buy requests). Upon publishing a sell offer /a buy request products/services offered /required are classified on the basis of a common, pre-determined catalogue of business activities (a total of 25). Each member can search for sell offers and buy requests, and search is only based on the date of publishing. Although declared as “vertical”, the portal does not provide any vertical –based classification mechanisms (see for example ecl@ass standard described above).

Common product data integration catalogue: No

Common business activity data integration catalogue: Yes

Usage of trade standards as a basis of catalogue data integration: No

Brokering System: No

Membership: free, no restrictions

2.6.3.8 1st World Trade Portal: <http://www.1stworldtradeportal.com/>

Core functionality: a privately owned, global B2B e-marketplace for companies of all industries. A company may register in the portal in any three of the following categories: manufacturer, distributor, trading company, agent, buying office, importer/exporter. Upon registration, the company may point up to 4 industries (business activities) it operates in. Industries are classified in around 300 positions, but no conformance to any specific standard is mentioned. This classification slightly resembles a mixture of NACE_REV 1 and HS standards, whereby descriptions given are far more simple, and to some extent more intuitive. After having registered, a company may post a trade lead, which can be any of a “sell”, “buy” or a “business opportunity” lead. Any of the trade leads mentioned are classified according to the same industry classification as described in relation to company registration- i.e. one and the same catalogue is used both for product classification and for business activity classification. The site has a kind of brokering system allowing matching of trade leads- this brokering system is more likely to be determined as a “subscription” on the part of a registered user to receive e-mails regarding trade leads of other members in any positions of the industry classification mentioned above. Trade leads may be additionally filtered on the basis of country of origin. This type of brokering system has the disadvantage of being too general.

Common product data integration catalogue: No

Common business activity data integration catalogue: Yes

Usage of trade standards as a basis of catalogue data integration: No

Membership: free or paid. Usage of some services requires buying credit points, which can be done at any time. Posting a trade lead to particular audience (meaning that this particular audience will receive this trade lead even without having subscribed for trade leads receipt before) requires credit point usage depending on the size of the targeted audience. Basic membership is free, membership plus acquisition of credit points is paid, fees starting from 9.95 for 30 credits up to 39.95 for 200 credits.

Brokering system: The portal possesses a general purpose brokering system, which is more likely to be described as “permanent subscription” to receive trade leads of some industry category.

2.7 The Innovation Mall 2000 brings

2.7.1 Higher profitability for portal owner through separation of membership types

Mall 2000 divides portal members into buyers and sellers, thus giving an opportunity for the portal owner to generate more revenue, and hence, to increase profitability. Separating portal members into buyers and sellers is an example of the third-degree price discrimination economic model, which is described in detail in Appendix A. Of all portals researched, there is only one - <http://ec21.com/> that also provides this separation of membership types. According to the model described in the appendix, this separation shall always provide the portal owner an opportunity to generate more revenue, regardless of any additional types of “services” that may be provided by the portal owner. Hence, it must be considered a “best practice” when designing the functionality of e-marketplaces. In the light of the e-commerce evolution, dividing portal members into buyers and sellers represents a transformation of a business model from a single type membership into a user-role based membership that brings higher profitability.

2.7.2 Separation of data integration catalogues and standard-based brokering system

Of all portals researched, Mall2000 is the only one that uses two internationally accepted standards for the two different types of data integration catalogues it uses- the product integration catalogue and the business activity integration catalogue are both based on the corresponding standards, specifically

designed for this purpose. According to the theoretical considerations, this must be the way e-marketplaces are implemented (see section 2.4 and 2.5). In practice, however, it seems that the intuitiveness and the ease-of-use of proprietary composed integration catalogues, which do not directly conform to any standard, are the features that are preferred to the exactness, clarity and (relatively) difficulty to use of standards-based catalogues.

Usage of product data integration standards in Mall2000 allows portal members to finely tune the brokering system offered by the portal and hence to receive exact matches of products /services they wish to buy /sell. The brokering system offered by the portal guarantees that a member using it will only be notified when an exact match of his/her intend to sell/ buy has occurred.

3. PROJECT ACHIEVEMENTS

Currently, the Mall 2000 database contains information about over 500 Bulgarian companies and several tenths of companies form Central Europe. The majority of them are distributed into: Wholesale and commission trade industry (35%), and the Manufacture of foods and beverages industry (22%). The group of Agriculture, hunting and related service activities and Manufacture of chemicals and chemical products accounts for about 14% of all companies.

An official Letter of Intention has been signed on the part of Bulgarian Industrial Association (BIA), aimed at cooperation with the Bulgarian Mall2000 team and support on the exploitation and promotion of Mall 2000 web-site.

The results of the Experimental Run of the Mall 2000 Portal carried out shortly after the portal completion show that the system could serve as an electronic environment that supports trade relations between companies, providing information base, tools and a set of core services allowing system administration and management. The involvement and participation of initial users in the Experimental Run shows that there is a significant interest towards the portal. At this stage there is no principal problem for portal members to conclude deals, using the system.

4. CONCLUSIONS AND FUTURE WORK

In this paper we underlined two features of e-commerce portals that help them survive in the changing conditions of e-commerce- an adoption of internationally accepted trade standards, and supporting two types of membership services intended for “buyers” and “sellers”. Apparently, current B2B e-marketplaces are implemented with emphasis on user-friendliness, rather than on the strict conformity to internationally accepted trade standards. The fact that, of all portals researched, no one refers explicitly to a given trade standard, shows that marketing requirements favour such practice. However, recent technological advancements, such as the increasing usage of Web-Services, and especially of UDDI, will inevitably require the come-back of standards-conformity.

In the future, the essence of portals such as Mall2000 will be constantly challenged by Web Services and UDDI. The Universal Description, Discovery and Integration (UDDI) specifications define a way to publish and discover information about Web services [14]. The term “Web service” describes specific business functionality exposed by a company, usually through an Internet connection, for the purpose of providing a way for another company or software program to use the service. Web services and consumers of Web services are typically businesses, making Web services predominantly business-to-business (B-to-B) transactions [5]. UDDI creates a standard interoperable platform that enables companies and applications to quickly, easily, and dynamically find and use Web services over the Internet [6].

UDDI is designed to complement existing online marketplaces and search engines by providing them with standardized formats for programmatic business and service discovery [14]. The ability to

locate parties that can provide a specific product or service at a given price or within a specific geographic boundary in a given timeframe is not directly covered by the UDDI specifications. These kinds of advanced discovery features require further collaboration and design work between buyer and sellers.

However, in only a couple of years, portals as Mall2000, where users register themselves manually, search for business partners, offer goods or posts request to buy goods may have undergone significant changes. If UDDI and Web Services grow in the extend, which was initially believed upon their introduction, then the only prerequisite for a business to register and participate in the global UDDI exchange would be to have the necessary UDDI client, or to integrate its existing applications with an UDDI client.

Most, if not all, of the work that is now carried out by e-marketplaces such as Mall2000 may be seamlessly and automatically performed by communication between UDDI clients, UDDI registers, and the integrated business applications of a company.

5. APPENDIX: WHY SEPARATING SELLERS FROM BUYERS RESULTS IN BIGGER REVENUE FOR THE PORTAL OWNER?

In this appendix we consider an economic model in which there is one supplier (monopolist.) of “membership” services and a number of consumers of these services.

The supplier of membership services is the owner of a B2B e-commerce portal, where members can post sell offers and buy requests. Portal members are consumers of these “membership” services. Each portal member may want to sell goods via the portal, buy goods, or both of them. At that, buyers are sensitive to the “quality” of sellers- they will, generally, want to make sure that they are going to buy a particular good from a “trusted” seller- one with a good record of consumer confidence; Sellers, on the other hand, are much more interested in the potential number of buyers they can find within the portal- the higher the potential number of buyers, the more tempted are sellers to register in the portal in order to sell their goods. Hence, there is a relationship between these two different groups of portal members.

In the real world, the main goal of a company is to sell. Each profit-making organisation needs to sell something on the market to generate revenue and bring profit to its owners. Under this assumption it seems reasonable that each company will want to sell via the portal, and in some cases, to buy raw materials (input products) from it. It seems natural that consumer preferences will favour the “sell” type membership over the “buy” type membership.

What we assume further is that some companies CAN NOT, due to their nature of business, directly sell via an e-commerce portal. Consulting companies- layers, business consulting companies, software implementation companies- offer such services, which are very customisable, particular, and to some extent, unique. These companies can advertise on such a portal, but never formulate a “sell” offer, as each such sell offer will typically depend on the concrete client, on his concrete requirements or particular circumstances. Insurance companies are also not always possible to formulate a sell offer for every particular piece of insurance they provide, as very often, especially in the case of company insurance, the total amount and the insurance premium are subject to concrete, on the spot ascertainable characteristics of the insured object (business buildings, machinery, etc.)

This assumption allows us to distinguish a group of portal users, which would only demand a “buy” type membership.

For the portal owner, it makes practically no difference if he/she offers a “sell” membership or a “buy” membership. Initial costs for acquiring an e-commerce portal supporting two user roles may be slightly higher than those of acquiring an e-commerce portal that supports only one user role, but this difference would not be significant, as it pertains only to user management. Whether the portal offers only one type of membership, or two types of membership, if it is to support matching sell offers and buy requests, it shall encompass the same core functionality, which will make up the difference in the acquisition cost negligible. The costs for maintaining the portal depend slightly on the number of registered users, more sensitively on the number of sell offers/buy requests posted (as their number is expected to be greater than the number of registered users, and to increase more rapidly than the number of users), and on the current number of on-line users at each point in time. It is reasonable to assume an upward-sloping, linear marginal cost curve for the portal owner. After some point Q^* , this curve may turn out to be no more linear, where this Q^* denotes such a number of registered users (members), after which the probability of reaching a critical number of simultaneous on-line users becomes unacceptable for the portal owner. We limit our discussion below this point Q^* .

Under the assumptions above, we come up with the situation in which the portal owner is faced up with two different demand curves- one of the “sellers” group, and one of the “buyers” group. The portal owner has one and the same cost curve, which does not depend on the type of membership service he offers. The two groups mentioned have different demand curves, as, from their point of view; they are faced with two different types of markets. The “buyers” group is obviously composed of fewer companies, as cases in which a company CAN NOT sell via an e-commerce portal are limited. Hence, for each membership service price, the quantity of sellers wishing to subscribe will exceed the quantity of buyers. Additionally, “buyers” group is often sensitive to the

“quality” of the sellers they would like to buy from. In the B2B world, loyal buyers may even require price discounts. In other words, the “buyers” group is far more sensitive to the price of the service offered than is the “sellers” group, i.e. its demand curve is more elastic than that of the “sellers” group.

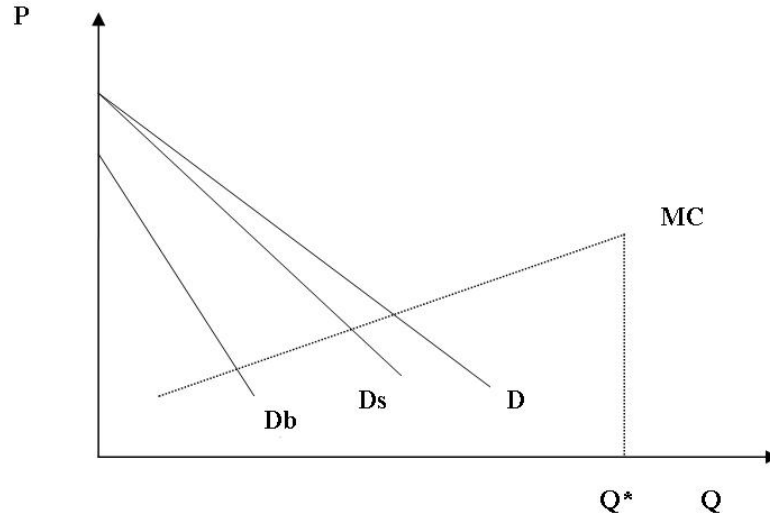


Figure 1: Demand curve of buyers (Db), demand curve of sellers (Ds), aggregate demand curve (D) of both groups, corresponding to the case when only single type of membership is offered, and the marginal cost curve (MC) of the portal owner

The situation depicted is an example of a multi-market, third-degree price discrimination, known in the economic literature, and also described in [13]. The third-degree price discrimination is defined as a situation in which a monopolist delivers the same economic good to different groups of consumers, and charges them different prices for the same units of the good bought by different groups on the basis of direct signal about demand, sent by each group. In [13] Tirole proves that if a monopolist is able to distinguish between m groups of consumers on “exogenous” information about each group (e.g. age, sex, occupation, location), each group having distinct downward-sloping demand curve, and no arbitrage is possible between these groups, then optimal pricing implies that monopolist should charge more in markets with lower elasticity of demand. According to Tirole, charging both groups different prices will lead to maximum profit for the portal owner. This is only possible if portal owner offers two types of memberships – for the “buyers” and for the “sellers” group instead of just a single type.

This is how separating portal members into buyers and sellers offers an opportunity for the portal owner for higher profitability.

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