NEW METHODS REGARDING THE ORGANISATION AND FUNCTIONALITY OF THE BUSINESS ENVIRONMENT IN THE VIRTUAL ECONOMY

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Abstract: Globalization represents the destiny humankind is drawing near, everybody being affected to a larger or smaller extent by its irreversible mechanism.The business environment relies on the expansion of markets globally.
Therefore it is achieved the transition from the international economy to the global one, in which transnational corporations become the main actors.
In conclusion, we witness in this eraof globalization the appearance of new types of relations between the enterprise and its environment.The existence and developmentof the third millenium enterprise relies on the impact of the informational and telecommunicational technology, vesting specific aspects.

Key words: virtual enterprise, virtual society, mobile Web applications

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1. The virtual enterprise. Characteristics.

The globalization of economyrepresents the intersection even more accentuatedof the national economies, reflected in the growth, within every country,of trading, investmentsand foreign capitals to make the gross domestic product (GDP).This means that even a slightest mistake in a country meaning the weakening of the economic interdependent chain ,can lead to the blockage of the whole mechanism because the same actors are active on all the worldwide markets.

The globalization era means at the same time the emergence of the virtual economy. In this respect, the Internet triggers the growth of efficiency regarding the activities within the actual enterprise. The enterprise benefits, on the one hand, of the growth in productivity which involves the production factors used and, on the other hand , the cutting of the production costs, especially because of the lowered prices for the purchase of the needed equipment and machines. Therefore, the enterprise makes large investments, thus keeping a growing economic rhythm.

In the globalization era, the specialists in the field talk about the « digital enterprise », « the third millenium enterprise ». This new enterprise acts in a « new » economy, based on four leading pillars :

  -informational revolution;
  -technological changes;
  -globalization;
  -demographic changes;

Within web-enterprises the organizational structure is streamlined with less bureaucracy and as such is more flexible.

With this new style of company there indubitably are extant certain characteristic features that serve to distinguish from the more "traditional" company, of which namely:

- That information is the most consequential resource of modern firms while at the same time their main source of competitive advantage. Information is a commodity like any other;
- Employees change how they work. Some no longer even have a job in the acknowledged sense of the word. They carry-out their activities at home while communicating with their managers through information and communication channels, leading to significant cost reductions;
- Workforce employment is conditional on possessing the necessary skills to routinely use computers with mundane effort;
- Ever more employees are contracted for defined, finite periods of time. Maintaining one's professional competence is of higher, long-term concern now for the individual employee than maintaining a stable job;
- It has the ability to act on global markets, possibly delocalizing to lower costs and directly engage in competition with companies in disparate geographical areas;
- Due to compounding inter-dependencies it establishes its locations with regards to economic partners;
- Markets the firm is intertwined are no longer of just a physical, corporeal dimension but also a virtual one. The Virtual Market is the child of the Internet;

- Competition is more fierce. On this "webbed" planet there is practically nothing that caters only locally making it such that at any time there is the possibility that the firm might be confronting unknown competitors;
- Products / services have a shorter life cycle than they used to, imposing of present companies to afford close scrutiny to research and development. The effect: numerous alliances between businesses in various forms;
- There is more and more externalising or outsourcing of less profitable operations.

Business over the Internet is still in its infancy but the future belongs to those companies which will use this tool avidly in competition.

A Virtual Enterprise (VE) / Organisation is a temporary alliance of companies, organizations for the course a joint project to solve a certain problem or to jointly commence of certain products and services.

The rapid evolution of communications and infrastructure enabling the establishment of connections between different units and organizations gave a new impetus to the development of virtual enterprises and organizations, because the new type of interaction between participants eliminates remotes in time and space between partners.

Grounds exist for which organizations and businesses are becoming virtual in a knowledge based society. Some of these reasons are:

a) globalization, with escalating trends of occurrence of emerging markets and global consumers,
b) ability to quickly focus, where necessity mandates, resources of knowledge,
c) creation of communities par excellence between individuals and organizations disjoint by great distance,
d) the swift changes in the requirements of consumers of assurgent markets,
e) increasing the ponderance of demand for specialised and custom products and services,
f) increased trust among partners and the need to shared use of specialized knowledge, etc.

Businesses and organizations, great and small, are all too often discovering for themselves the fact that they have more to gain by introducing collaborative networks and the principles of virtual organisation and thus overcoming the barriers of hierarchical and functional structures of organisations descended from the industrial society.

Cooperation is continuously being enhanced by use of collaborative methods founded on digital technology. Of course, such cooperation may better be construed as more of a strategic alliance, rather than a virtual organization. An alliance is often established over a certain duration and is based on firm contracts. A virtual organization is temporary or easily reformable. It is constituted of digital connection and often based on less formal methods as pertaining to the respective obligations of the parties involved than a strategic alliance.

Romanian specialists are less accustomed with this organizational model and afford business partners limited trust. The virtual organization model is based on trust and the sharing of knowledge and skills among partners. This organizational model also requires prevailing over current conceptions regarding the computerization of firms.

The emphasis should be put on the means necessary for building networks of companies (enterprise networking), on the cooperation, the collaboration and the negotiation aspects that require more of the specialists than good knowledge of software in the economy.

Therefore, modeling and simulation will arise to be the predominant activities in the specialists' regard, in accordance with the inherent shift of more and more enterprises in our national economy to to the new, virtual organizational model.

An important factor in assuring the success of virtual enterprise is the modern informational structure, which enables functional, timely links that span great distance.

All aspects related to manufacturing and services offerings of a virtual enterprise are now integrated with Web-based protocols.

Activities such as design, continuous bidding, delivery and inventory management or services monitoring is done through automated procedures. Virtual enterprise can better anticipate requests for products, services and labor and is concentrated more on achieving the benefits of market innovation.

Under these conditions, new business models, techniques and procedures specific to virtual organizations and which are consistent with those used by companies in other countries arise with regard to opening markets for all companies in the European area. But there is also fiercer competition in these markets.

Relations in the context of virtual enterprise is based in particular on mutual trust, because in this context the legal and physical cadres lose their importance. Trust plays an important role in the optimal functioning of relationships between network partners.

- The most important features of virtual enterprises, listed in the literature, refer to:
- The ability to use temporary opportunities in some markets;
- Limited cooperation timewise;
- Complementary elemental skills, virtuality, flexibility;
- Waiving the institutionalization of the functions of centralised management;
- Trust and common understanding of the business type;
- Customer oriented and mindful;
- Using new technologies and based on organizational networks.

2. Information technology for the virtual society

Several virtual means of manifestation of the social are noticeable at the analytical level: virtual communities, virtual groups, virtual organizations etc. as well as interactions specific to the nature of the interpersonal, societal, communicational, informational, economic, cultural, etc.

Sociologist Bogdan Nadolu identifies five fundamental traits specific to the virtual society:

1. virtual social space is extant and manifests only within the framework of networks of computers;

2. computer support is man made, placed under his effective and exclusive control;

3. the virtual society is not an independent alternative to actual one but merely one of its manifestation modalities;

4. social actors involved in virtual type interactions are engaged in relations of the type individual - computer - network - computer - individual where they may control their identity but may not control or be controlled by others.

Jan Foster, Carl Kesselman and Steve Tuecke in the paper "The Anatomy of the Grid" define "the problem of the Grid" as coordinated resource sharing between authorities, institutions and resources - namely what is meant by virtual organizations.

Within these conceptual bases one discovers unique authentication, authorization, access to resources, information dissemination, etc.

In the mid-90 the term 'grid' meant an infrastructure model for the distributed computing environment, appropriate to the science and engineering environment. In fact, the concept of grid pertains to the coordinated sharing of resources and problem solving.

In fact, the grid concept is referring to the coordinated sharing of resources and problem resolution. This sharing is not just file sharing, but direct access to the computing resources, data, software and other resources, as needed by the whole range of applications indispensable to the distributed environment. It's imperative to not only clearly define the data suppliers and consumers, the shared content and who can share the resources, but also the terms of the sharing.

After analyzing the communication media and the services suppliers in the information area we need to mention and emphasize some of the complementary grid technologies:

-THE INTERNET is generally directed to satisfying the need of communication and informational exchange between computers, but it is not supplying the integrated tools for the coordinated sharing of resources on many sites ready to be connected to an integrated environment;

-The B2B (business-to-business) exchanges are focused on the information exchange, usually through central servers;

The enterprise distributed computing technologies that are increasingly being used are:

-CORBA and Enterprise JAVA, which enables the sharing within the same organization.

-DCE (The Open Group's Distributed Computing Environment) which supports secured sharing between sites, but which is considered to be slow and inflexible.

-The SSPs Storage Service Providers) and ASPs (Application Service Providers) enable the outsourcing to third parties, but these types of communications are usually connected to the client using a VPN (Virtual Private Network).

Therefore, we notice that the current services on the information distribution and management market are only partially covering the scalability needs in a dynamic environment. Because the grid technologies are directed to the dynamic inter organizational sharing, they can be considered as complementary to the existing technologies.

The Grid architecture identifies the essential components of the system, specifies the purpose and functions of these components and indicates the manner in which they interact among each other. The main problem which the applications offered by the grid technologies solve, is the interoperability, which in the networks environment means common protocols. The grid architecture is in fact a protocol architecture on which the virtual organizations negotiate, establish, manage and utilize sharing relationships.

3. Strategies for designing and implementing mobile Web applications

In the current business environment and the new information technologies, the informatics systems designers are searching for and are suggesting new informatics solutions for the most diverse demands. One of these demands is the designing and implementation of a Web application for mobile devices.

A web application is a communication act, or in common terms, the path of information between a sender and a receiver communicating through a medium. In this perspective the technology choices are left in the background. In the foreground there is the target user, who has certain needs of information and is accessing the web application using an access device. Therefore, before starting the development, the application designers have to evaluate in detail what are the "access conditions" of the application or the service provided.

In other words, it is necessary to understand if the application that needs to be created will be used mainly on mobile devices, because its content is interesting only for moving users, or these devices are just one of the access means (or channels) to the application contents.

There are two strategies that can be implemented:

- creating a single version of the web application and adapting the PC version, which results in a mobile application;
- creating a mobile version of the web application, meaning a separate mobile web application

For the first scenario it's required not only to take technical precautions so that the web application will be displayed correctly on the mobile devices, but also we must define information and content structure and a graphic design adequate to mobile access. A web application, not just for a traditional application, but also for a mobile web application, consists of two fundamental dimensions: programming and developing.

The former, if created carefully can be adapted with minimal effort to the mobile device: to its display capacities, lower screen resolution and data input type. The latter is in charge of managing contents, organizing information and the structure of the information units, system usage functionality or, in short, the communication part of the application.

The developing strategy for a derived application is attempting to develop a web application using code that can be adapted without many difficulties to mobile devices and maintaining as much as possible the contents and functions of the application. In a completely different way, the development strategy for a dedicated web application starts with the idea that this has a main role and apart from the technological aspect and that they must take on the design of the service in a thoroughly way.

A "derived application" is the result of taking the following approach:
- The user is accessing the same pages (the same web address) using not just a PC, but also a mobile phone or a PALM device. Although the page structure is different, all the information and functionality will be available on both channels.

Therefore the modification of the web page components, for creating an adapted transformation when this page is accessed through a different device than the one it was made for, is required. The web technologies need to be used so that these devices can offer the users access to contents and functions in the same way to those offered to PC users. No matter which device is used, the users need to be able to not just view the dialogue, but also to have the possibility to complete the interaction with the dialogue (for example: registering for a service).

The objective of creating a derived application is, in general, the optimization of the existing code used to create the PC version. If the main application is in a restructuring faze, the design team's activity will be to make sure that the new version is solving a range of needs, that will allow new interfacing, and to be accessible through alternative devices as well. This does not mean the restriction of the version for the Personal Computer, but the inclusion of usable criterions in the design and development. It is interesting to note that these criterions do not require in depth changes and, thus, are very easy to adopt. By following this type of approach the result will be that the application can be used by mobile devices, applying to the project a greater sensibility to the multichannel information, without distorting the characteristics of the main application.

The first thing that needs to be tackled is the description of the relationship existing between the client and the server in the view of multi channeling. An important role is given to the final distribution context, meaning the multitude of hardware and software characteristics of the web access mechanism, the user's preferences and the environment (physical, cultural, social) in which the user is active. Figure 1 is illustrating the diagram of the elements involved in an HTTP transaction, in the view of multi channeling and therefore the device independence.
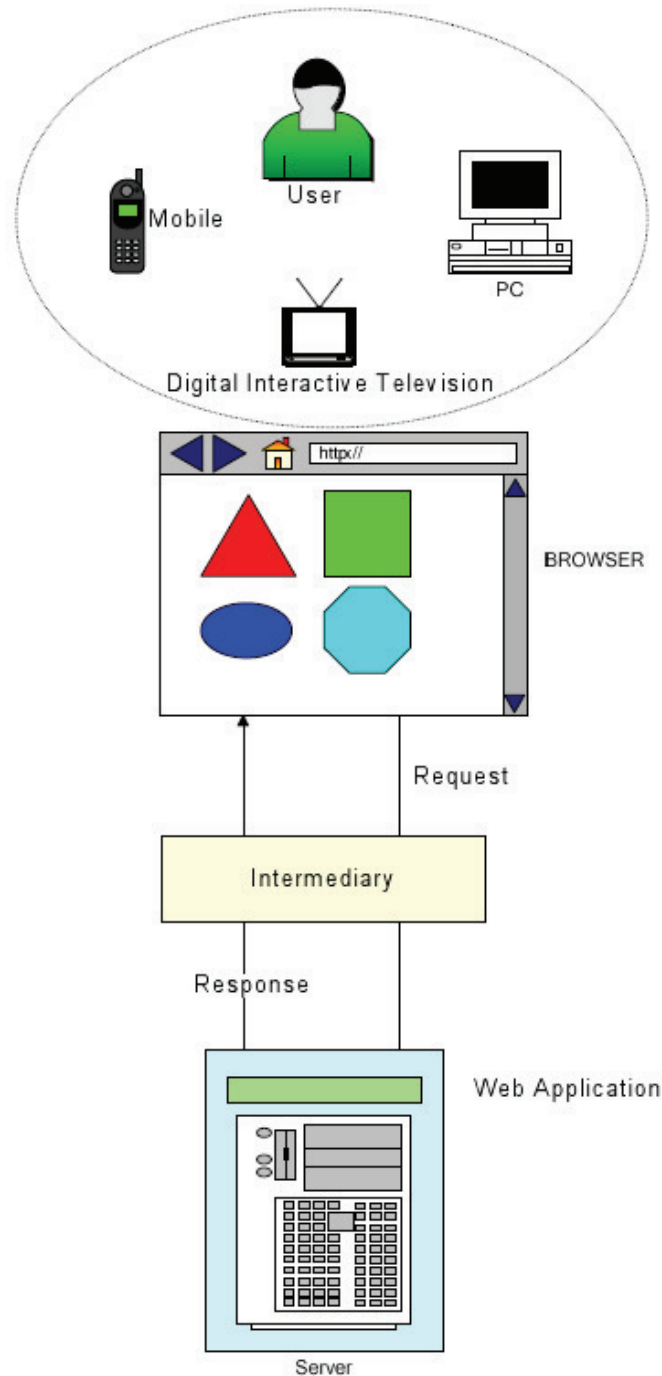
Figure 1: Elements involved in an HTTP transaction, in the view of multi channeling

4. Conclusions

The last 15 years have brought to the market a whole range of devices which, in a certain way, have similar approaches. Synthesizing, these devices can be split between the following categories:

-PDA (Personal Digital Assistant) devices – these are instruments designed to offer personal information management functionality, like agenda, text notes, meeting calendar;

-Smartphone devices – cellular phones that offer more functionality that just traditional voice and SMS messages communication. More and more individuals own mobile phones capable of working with images, managing complex data (addresses, meeting calendar) and especially can connect to a network of other similar devices ;

-RIM Blackberry devices – similar to a PDA for the basic features, these devices stand out as out of office email management devices. For this purpose, even the first models included a QWERTY type keyboard and a larger horizontal display. Because of the GPRS and UMTS support, these devices can be used for internet access;

-Tablet PC devices – potential internet access devices, having the dimensions of a bloc-note. Usually they don't have a keyboard and instead include a touch screen display. These devices are very common in the business environment, although we can expect them to be used in the context of a personal user (for example to watch movies or pictures).

Generally these classes of devices have a range of common attributes:

-The possibility to know the geographical position of the device;

-Network connectivity (wired and/or wireless);

-Limited processing power and memory (if compared to a desktop PC);

-Battery power supply with the possibility of having a low autonomy;

-Many types of platforms, hardware and software components, user interface (even for the case of the same device class)

All these issues will stimulate more and more the design of mobile Web applications, which will need to be integrated in complex and unified informatics systems. These are new challenges of out society and of the modern business environment for the developers of informatics systems.

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