

THE LIMITS OF SUSTAINABILITY IN E-COMMERCE FRAMEWORK

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ABSTRACT

The new economy that is based on knowledge, made out of the informational techniques a powerful source, which step by step infiltrates in every aspect of our life. If in the beginning they were seen as ring-shaped life-buoys in the state which brought mankind to the industrial era, today, we must admit that there are also negative effects of these. This article pursues to highlight the relationship between the concepts of sustainability and e-commerce, as well of the concrete aspects of the application of the sustainable practices as part of different forms of electronic commerce. We consider that is not late to identify and to become conscious of the positive effects of the propagation of electronic commerce, as well of those negative ones, to be able to elaborate and to implement politics and strategies which would turn to a good account the first ones and would permit to obviation or the minimization of the others.

KEYWORDS: *sustainable development, e-commerce, knowledge-based economy, eco-efficiency.*

1. Preliminaries

The term of durable development encounters a continuously rising popularity, since it was defined for the first time in the Brundtland Rapport, as being that development which “meets the needs of the present without compromising the ability of future generations to meet their own needs.”¹ Since then, this term has known different interpretations and utilizations, depending on the reality to which it was reported. This way, the first definitions are referred to, especially, to the technological factors, having in consideration the reality of the industrial society, stage in which the humanity was at that time. Ulterior it was recognized the impact of the social factors, and today it is talked about a durable informational society.

To notice in this meaning the initiative *Think Eco-Logical*² lanced by he BMP Forum (Best Management Practice), which presumes the combination of two types of actions: on one part, to educate the business domains about the application of sustainable informational technologies (ECO), and on the other part, to follow the eco-efficiency, this way saving money and saving the planet (LOGICAL). This initiative is lanced, in the first place for domains of businesses as the digital mass-media, Internet, date trade,

¹ To be seen World Commission on Environment and Development, *Our common future*, Oxford University Press, 1987, p. 9

² www.sgi.com/thikecological

entertainment, electronic commerce. Regarding the obtained successes in the application of this initiative there were set up more reports¹, the conclusion of these being unanimous regarding on one hand the good intentions and the consciousness of the necessity of implementation of plans in connection with the sustainability and efficiency, and on the other hand a bitter necessity of leadership, of action in this domain. Only rhetoric on these actions is not enough, having in view that the new realities of businesses bring a vast number of factors and forces of influence, regarding the challenges of the economy of knowledge, but also the durable group pressures, for social responsibility.

2. Electronic Commerce

Appeared as a natural result following the development of the electronic means of communication, in an era in which the industrialization has reached its limits as a study about the development of mankind, and the next challenge became, naturally, the informational society. Therefore, the notion was firstly used in the United States of America, as a synonym for the commerce that used, in combined manner, all the modern technologies of communication². In the French legislation³, unlike in the Romanian⁴, of the electronic commerce, which puts under silence this notion, the electronic commerce it is defined as the economical activity carried on by persons that propose or assure at distance, electronically, furnish goods or services.

The World Commerce Organization defined electronic commerce⁵ as that type of commerce which is accomplished through six instruments: “telephone, fax, television, electronic payment and money transfer systems, EDI (electronic data interchange)⁶ and Internet”.

In a wide meaning, electronic commerce covers any kind of commercial transaction performed through electronic way. In a limited meaning, through electronic commerce are understood the transactions realized through the computer, sometimes only just those in which also the delivery of products or services can be made also through electronic way, not only the payment of price. The notion electronic commerce was defined by the European Commission In Communication to the European Parliament, the Council, the Economic and Social Committee and the Committee of Regions COM (97) 157 of 16.04.1997: “*A European Initiative on Electronic Commerce*”.

Regarding the electronic commerce and the speed of development and spreading of this, there are two options diametrically opposed: some persons see this domain as an opportunity and others as a threatening for the international commerce and for the environment. In the present, however, there are not enough arguments which could sustain one of these points of view. In addition, there are no specific politics and regulations regarding the concept of durable development as part of the electronic commerce.

¹ For example: “Competitive Power Consumption and Power Efficiency Study”, or “Think Ecological: IT Sustainability Insights and Imperatives Focused on Green IT Efficiency”, etc.

² D. Chilea, *Reglementarea comunitară a comerțului electronic*, in *Curentul Juridic*, nr.1-2/2004, p.81

³ Art.14 of Law no. 2004-575 since 21.06.2004 „pour la confiance dans l'économie numérique”, in *J.O.* from 22.06.2004

⁴ Law no.365/2002, republiced in *M.O.*, Part I, no.959 from 29.11.2006

⁵ M. Barchetta, P. Low, A. Mattoo, L. Schuknecht, H. Wager, M. Wehrens, *Electronic Commerce and the Role of WTO*, 1998, Geneva: World Trade Organization, p.5, apud P. Todd, *E-Commerce Law*, 2005, Cavendish Publishing, London

⁶ D. Rowland, E. Mcdonald, *Information Technology Law*, p.243, 2005, Cavendish Publishing, London

In the specialized literature there are presented 3 categories of the negative implications of the development of the electronic commerce over the principles of durable development:

➤ the I degree effects refer to the IT infrastructure and to its direct utilization and it is due to the usage and throwing away of the equipments and production equipments: the creation of chemical waste products, the exposition of workers to unsafe work conditions, a grown electric energy consumption etc. Generally, the most accentuated problem in connection with the growth of demand for Internet services, either if these are on-line shopping services, social networks or search engines, it is considered the fact that this inevitably leads to the growing of electric energy consumption (working, illumination, cooling/airing);

➤ the II degree effects refer to the change of activities and characteristics of the markets through the digitalization of products and services: growth of the number of ware houses, intensification of communications (telephone, fax, internet), the growth of the volume of transportation and implicitly, the emission of gases, the minimization of shifting and of the movements made by men.

➤ the III degree effects refer to the boomerang effect, known also as the effect of rebound. This consist in the inverse result which was brought by the informational society, meaning that the academic researches presumed that the wide application of the informational technologies will lead indispensably to the reduction of the consumption of resources, but in reality the consumption of resources is also growing, as a result of the growing access of a larger number of consumers of the goods that they need, and also as a result of the growth of the free time, in which men undertake activities, most probably, with effect on the nature.

3. The regulation in electronic commerce.

The domain of the new used technologies in electronic commerce is extremely dynamic, practically the rhythm of the replacement rate of technologies increasing exponentially since the industrial era until the present. The rules that accompanied over time the usage of various technologies that, have sustained the progress of mankind, they also entered into the caducity once with the disappearance of their object of regulation. On the other hand, regulations which drew only principles of the usage of certain types of technologies, even if the technologies itself havechanged,theyarestillapplicable.

Professor Benkler synthesizing several theories about the need and way of regulation in the technology of information and communications, said that workload can have as base only the architecture that defines this domain, respectively to consider the grounds on which technology is based, and on the visible part, the content¹. We also believe that in no case cannot be imposed the regulation, so that technology to take the shape of legislation, not vice versa. Summarizing his principle, Benkler created the diagram that bears his name (figure 1)².

¹ Yochai Benkler, *From Consumers to Users: Shifting the Deeper Structures of Regulation Toward Sustainable Commons and Users Acces*, 2002, 52 Fed Comm. LJ 561, apud Andrew D. Murray, *The Regulation of Cyberspace. Control in the Online Environment*, ed. Routledge-Cavendish, London, 2009, p.44 și urm.

² *Ibidem*;

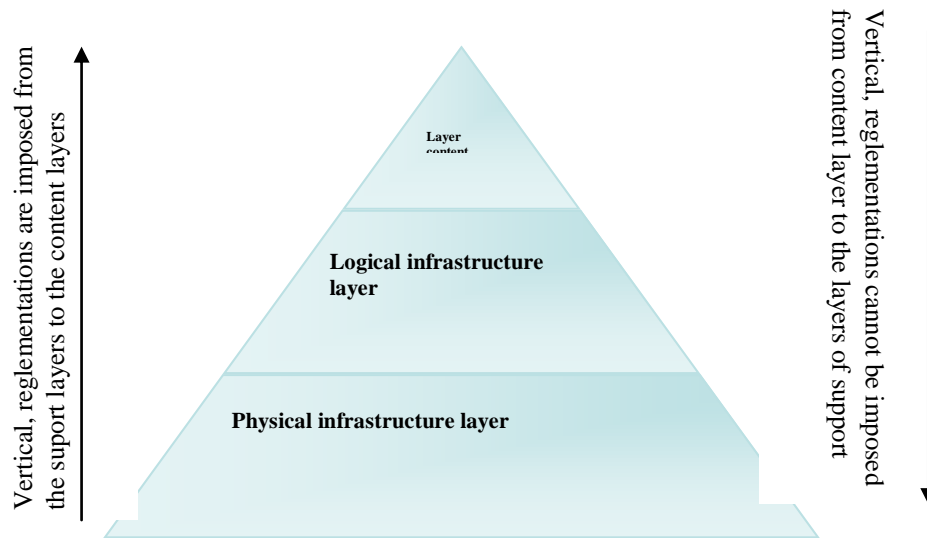


Figure 1. Benkler Pyramid

Electronic commerce has become an important recognizable part of the world economic life after 1996, when the UN General Assembly, in w the 51st session, adopted the Law which had the CNUDCI -UNCITRAL type on electronic commerce and its incorporation Guide¹. This act paved the way towards the appearance of some compatible regulations in different Member States of the UN, so that the attribute of the global Internet network can be coupled with the global market. Subsequently, appears the CNUDCI-UNCITRAL type of Law on electronic signatures and the incorporation guide² designed starting based on the principles of non-discrimination and technological neutrality³. Unfortunately, its late appearance in relation to the national regulations, including those of EU states, has not had the impact necessary for compatibility of national legislation. The third act of CNUDCI- UNCITRAL of a particular importance in this area is the United Nations Convention on the use of electronic communications in international contracts adopted on November 23, 2005⁴. It has general application, not just commercial, as in the case of law types, even if a great part of the used notions are those defined for the first time in these documents.

At a European level, since 1999, occurred a series of new regulations on electronic commerce and how to improve it. Among the important directives that were later incorporated into the national legislations of Member States we can recall the Directive regarding a community frame for electronic signatures No.1999/93/CE⁵ and the Directive

¹ Disponible on www.uncitral.org

² Adopted and recommended to the Member States of the Adunarea Generală on 24.01.2002 and disponible on www.uncitral.org;

³ E. A. Caprioli – op. cit., p.88; Anne Fitzgerald, Anneliese Moens – Regulating electronic commerce – emerging principles for the regulation of internet transactions, in *Convergence of the legal systems in the 21st century*, General Reports delivered at the XVith International Congress of Comparative Law – Brisbane 2002, ed. Bruylant, Bruxelles, 2006, p.1569;

⁴ Disponible on www.uncitral.org;

regarding certain legal aspects on the informational society services, in particular electronic commerce in the intern market No .2000/31/CE¹, the Directive on personal data and privacy, No. 2002/58/EC², as amended by the Directive No.2006/24/CE³, No.2002/77/CE⁴ Directive on competition. These, translated into legislation in member countries were received differently by the doctrine of these States.

This way, the Belgian law⁵ was harshly criticized for how it has transmuted the principles of the Directive into the principles of national legislation, which are thought to take reluctance to the Community framework for electronic communications regulations and new technologies⁶.

Regarding the French legislation⁷, it was accepted⁸ that it provides a coherent legal framework, although one that can be perfected, for all the activities of electronic communications networks and services by following economic logic.

Nationally, the main laws which are specially governing such matters are: No.455/2001⁹ electronic signature law, Law on electronic commerce No.365/2002, republished in the Law amending and supplementing No.121/2006¹⁰, Norma methodology nr.365/200 to apply the law, approved by the Government through H.G. No.1308/2002¹¹, Law on the legal status of electronic notaries work No.589/2004¹² Law No.135/2007 on archiving electronic documents¹³, the Regulation on emission and use of electronic payment transactions and relationships between participants in these instruments issued by National Bank of Romania in No.6/2006¹⁴, Law No.451/ regarding the temporal mark¹⁵, Law No.260/2007 regarding the registration of commercial operations through electric methods¹⁶. Principally these undertake the communitarian regulations, with few shades that are characteristic to the Romanian law, which come, principally, from the localization, sometimes a forced one, of norms.

¹⁵ Publicată în J. O. C. E., seria L, nr.13 din 19.01.2000;

¹ Publicată în J. O. C. E., seria L, nr.178 din 17.07.2000;

¹⁷ Publicată în J. O. C. E., seria L, nr.201/37;

¹⁸ Publicată în J. O. U. E., seria L, nr.105/54;

¹⁹ Publicată în J. O. C. E., seria L, nr.249/21;

²⁰ Loi du 13 juin 2005, relatif aux communications électroniques (M. B., 20 juin 2005);

²¹ F. Dehousse et T. Zgajewski – Le nouveau regime des communications électroniques en Belgique a la suite de la loi du 13 juin 2005, în *Journal des Tribunaux*, 23 septembre 2006, 125e anee, no 6235, p.537 si urm.;

²² Între cele mai importante reglementări fiind: L. no. 2003-1365 referitoare la serviciile publice de telecomunicații și la France Telecom, publicată în *J.Of.*, 1er janv. 2004, L. no. 2004-575, pentru încredere în economia digitală, anterior menționată, L. no. 2005-569, pentru comunicații electronice și servicii de comunicații audiovizuale, în *J.O.*, 10 juill. 2004;

²³ Ph. Achilleas – Un an de regulation du marche des communications électroniques, în *Juriscasseur – Communication – Commerce Electronique*, Chronique “un an de...”, fevrier 2007, p.18; D. Fenouillet – Commerce électronique et droit de la consommation: une rencontre incertaine, în *Revue des Contrats*, oct.2004, p.955 și urm.; J. Rochfeld – Droit des contrats, loi, régulation, autorégulation et corégulation, în *Revue de Contrats*, oct.2004, p.915;

²⁴ Publicată în M. O., Partea I, nr.429 din 31.07.2001;

²⁵ Publicată în M. O., Partea I, nr.403 din 10.05.2006;

²⁶ Publicată în M. O., Partea I, nr.877 din 05.12.2002;

²⁷ Publicată în M. O., Partea I, nr.1227 din 20.12.2004;

²⁸ Publicată în M.O., Partea I, nr.345 din 22.05.2007;

²⁹ Publicat în M. O., Partea I, nr.927 din 15.11.2006;

³⁰ Publicat în M.O. Partea I, nr.1021 din 05.11.2004;

³¹ Publicat în M.O., Partea I, nr.506 din 27.07.2007;

3. Classification procedures for conducting electronic commerce

Examines the development of electronic commerce that can be done in terms of business model online. As participants of e-commerce models may appear firms (denoted by B - business), consumers (denoted by C - consumers) and state (denoted by G - government). Depending on the vendor-consumer torque, defined several businessmodels:

- B2B-businessstobusiness
- B2C - business to consumer
- B2G - business to government
- B2E - business to employee
- C2B – consumer to business
- C2C – consumer to consumer
- C2G – consumer to government
- G2B – government to business
- G2C – government to consumer
- G2G – government to government
- G2E – government to employee

B2B (business to business), represents the on- line businesses between firms, no matter if they are producers or intermediaries (for example: rtcoffee.ro). The working of this model of businesses presents a multitude of advantages regarding the classical commerce, advantages that can be alienated to the actions of durable development. In the first place, there is a dematerialization of businesses, meaning that the roads taken by men and the multitude of documents of different types of supports were replaced with electronic change of any type of information: written documents, images, video. In the second place, by the rationalization of demand and the safety of the offer it was reduced the necessity of the energy consumption, warehouse spaces, transport and the number of roads taken by men. In the third place, the informational technologies offer access to information which can serve the efficiency of the businesses in connection with the offer over tending, recirculation possibilities, and opportunities for new partnerships with firms from the satellite domains etc. Although, it must be mentioned that the firms are not using these measures taking into consideration the durability considerate, their purpose, and in this case, there is the idea of obtaining some benefits that are way higher and the discovery of new gaining sources. In this case, to maintain the direction of alienation of the durable development principles, the economic initiatives must correspond to some responsibilities regarding the natural and social environment. Of course, we cannot count every time on the well faith of men, this is why some decisions taken by firms must be “forced” by the government using taxes, subventions, cap-and –trade type systems from the U.S.A., etc.

B2C (business to consumer), represents that model of electronic commerce in which the firms are commercializing goods and services to the individual consumers (for example: amazon.com). The advantages of this pattern of electronic commerce, from the individual consumer point of view, is that this is no longer forced to consume time, energy, fuel to reach a store, an, in addition, he can obtain enough information to make an good choice comparing the offers of more firms, without being forced to go from a store to another to make the researches. Also, in the case of electronic commerce there are no parking spaces needed, no electricity consumption for the illumination of the warehouse and also for the store, there are no attractive packing needed, intern merchandise, from the warehouse to the store and vice versa, if is needed. In the meantime, as a consequence of this business model, the consumer can make sufficient economies to buy a car, or even one for each family member, he can look towards the suburbs from where is no problem to arrive at the place where he undertakes his activity, he can build a bigger house, respectively to rise the maintenance consume, there will be roads build.

From the perspective of finances, the B2C model is an opportunity to enlarge the business. In the meantime, the firm managers that participate have instruments to sustain and to promote the principles of durable development: to encourage the electronic payments, to overtake on-line publicity, to offer on-line utilization manuals, to offer information regarding the producers which are respecting the provisions regarding the environment protection and producers that take social responsibility measures, to inform the consumer regarding the alternative fuel, at the electric energy consume, water and other resources for devices, instruments, equipments, to organize as efficient as it possible the delivery, to use ecologic packing, to offer complete information to the consumer regarding the content and the characteristics of the products etc.

B2G (business to government) is a derivation of the B2B model and represents a definition in the terms of the market in the public marketing area. It contains the commercialization of different products and services towards governmental agencies, through specific techniques of strategic management of public relations, branding, publicity, and communication with electric methods. Principally, it presents advantages as the B2B model, and the role of the state in the reglementations of this model of electronic commerce and his alienation to the durable development principles were presented above.

B2E (business to employee) represents an intranet web, which permits to the companies to offer his products to his employees. Is regarded also as a strategy of the firm to maintain qualified personnel. Under the aspect of durability it can be regarded analog with the B2C model, with the mention that besides the benefit of the firm, it is followed the satisfaction of the employee and the obtainance of a corresponding image in the community.

C2B (consumer to business) is the pattern of individual consumers that use the Internet to offer their products to the firms (for example: priceline.com). Actually, is an inverse form of the classical commerce model, in which the firms are those that offer the products, and the consumers are those that buy. The advantages of this model is that they create opportunities of realization of some supplementary incomes to the persons that have already a job, and to those that do not have – permits to them to create an income source. On the other hand, such an activity permits an immobilized way of life of humans, with unproductive consequences towards their health.

C2C (consumer to consumer) is the model of electronic commerce between two individuals which implies, usually, a third person with intermediary role (for example: ebay.com). Is the case of on-line licitation, when a third person oblige himself, for commission, to find the transaction partner, regarding the extreme number of individuals which can be registrated with a demand or an offer on the respective site.

G2B (government to business) it is a category which is very important regarding the models of electronic commerce, with the point of view that the firms represent the essence of the economic situation in a state, and if these are rich ones, this way the PIB of that state will be bigger. The G2b applications could reduce the costs substantially and the terms of realization of public licitation, of the acquisitions that are made public, could assure the information of companies with minimal costs, could have a base of dates that could be complete regarding the real state of the firms etc. (for example: <http://dti.gov.uk>)

G2C (government to citizen) it covers the category between the government with the citizen (for example: on-line payment of fiscal obligations). Is the domain which raises very much question marks and debates. It is realized harder, even in the developed countries, and, usually, in few steps. In an initial stage there will be a unilateral fluctuation of information from the government to the citizen, in a second stage there will be a dialog established, in the sense of a bilateral flux of information and in a third step will be established the transactional relations like the payment of taxes, bills, documents checking, debate of votes etc.

The diversity of G2C applications determined the delimitation of three categories of these¹:

I. applications in connection with the transparent way of the government and the free trade of information between citizen and the government. This way, any citizen should have access to the site of public institutions to activity reports, day orders, word takings, law projects, analysing and conclusions of experts, budgets, statistics etc.

II. applications in connection with the governmental services offer on-line. This way, the citizen should be able to register a demand of elaboration of documents or copies, to pay his dues to the budget, and to make certain declarations and to receive answer regarding the solution of his problems.

III. applications regarding the exprimation of the votes on-line. This aspect is ambiguous enough, regarding the complexity in the assurance of the security of servers.

G2G (government to government) it represents the communication through electronic methods between different institutions of the states, implied in the resolution of a problem that is more complex, which demands the competence of these institutions. This pattern of electric commerce is developed in the idea of overtaking barriers of birocracy of communication and the resolution of problems of the citizen in a good timing. Many times, with the implementation of informational technologies we are not able to overpass the communication barriers, especially because these are determined by more interests of departmental level, and not the impossibility and incapacity of collaboration between institutions.

C2E (government to employee) is a form of on-line management of the personnel of a public institution. It is thought, on one side to facilitate the gestion of the institution, and on the other way to facilitate the communication on the vertical of the employees. This way the G2E contains: the usage of a utile information data base, eliminating the time we lost on roads and with the looking in physical archives; the possibility to actualization the personal file; the possibility to distribute in an equilibrate way the resting holidays, having ale the demands of employees centralized; the possibility to attribute and to verify the completion of demands etc.

5. Conclusions

Certainly, the new technologies and the electronic commerce contribute substantially to the solutionation of some sustainable problems, but neither the negative effects must not be neglected, even if there are just derivates. More, even if in the frame of action of electronic commerce there are numerous solutions and opportunities of conception and realization of new technologies, the new products and services, of new packing and delivery systems, all the convergences the objects of durable development, all these, any times remain only on paper in beautiful phrases.

We consider that the sustainable practices should exist and to be sustained in the strategies of long term, and in the all day works. The durable content should be adaptive not only to the national specific of the aspect to which it refers; concrete instruments should be identified for the application, function, operationalisation of those components. And not ultimately, the constientisation of importance is needed, the promovation of it, by the existing generations and especially by those that will follow.

¹ Bogdan Ghilic-Micu, Guvernarea electronică, în Revista Informatica economică nr.1 (21), 2002, p.21