

## **Broadband Networks and Services: Innovative Means of Human Communication**

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**Abstract:** *This paper focuses on the broadband networks and services, which are expected to open new horizons changing the way of communication and being stimulus for a rapid economical growth. These networks and services provide unhindered and transparent access to information and communication to all citizens. Their contribution to development can be confirmed by the intensive activities undertaken in several countries, which consider the projects for realization of such infrastructures as a basic strategic goal. Despite the fact that the broadband access is in its early stages, the applications and services, which will have a pivotal role in the near future are already visible. The implementation of broadband infrastructures can also benefit the expansion of the digital spectrum in remote and less developed areas, which are constantly facing the most intensive technological limitations. A special emphasis is given to the manner the issue of broadband access should be approached. Instead of communicating it as a necessity, it should be considered as an open opportunity for all. Broadband services must be implemented because they are essential for the development of every country and the progress of the entire society.*

**Keywords:** *broadband services, broadband networks, broadband access*

## **1. INTRODUCTION**

The Information and Communication Technologies (ICT) are developing with constant and rapid rate. The recent technological jumps facilitate new enterprise models introducing, thus, significant changes on national and global economic level. The foundation, upon which competitiveness will be bestowed within the state in the contemporary environment of high technology, mainly consists of advanced high-quality network infrastructures, at rational costs. They will offer adequate rates of transmission and continuous operation to the users as well as easy access to the majority of the population.

The broadband networks are able to cover from a technological point of view these contemporary appetites. They are expected to open new horizons and change the way of communication, providing incentive for substantial economical prosperity. Broadband networks will be as critical to this new century as roads, canals, and transcontinental railroads were to the nineteenth century and the interstate highway system and basic telecommunications networks were to the twentieth (Commissioner M. Copps, August 2003). Broadband infrastructures and services today are as much significant for the economy, as the emergence of the electricity was at the beginning of the twentieth century [4].

## **2. DEFINITION AND CHARACTERISTICS**

Broadbandness is defined in its broad sense as an advanced, effective and innovative environment from a political, social, economical and technological point of view, including hence [3]:

- Rendering of fast connection to the Internet to the majority of the population at competitive prices without limitations regarding the systems of transmission and the terminal equipment of the communications.
- Adequate network structure which will: 1) enable the development of the existing and future network applications and services, 2) provide the users with an opportunity for uninterrupted connection to them, 3) satisfy the needs for applications to broader extent, efficiency and availability and 4) be able to upgrade constantly and at low costs in order to continue to meet the needs as they increase and expand at pace and cost imposed by the ICT progress [9].
- Possibility for the user to choose between: 1) alternative solutions for access which correspond to his equipment 2) different network applications and 3) various services of entertainment including likely participation of the same user with reference to the rendered content, applications and services.

- Appropriate regulatory framework consisted of policies, measures, initiatives, direct and indirect interventions, necessary for strengthening the innovation, the protection of the competitiveness and the provision of considerably balanced economical development, able to originate from the general participation in broadbandness and the information society.

Broadband networks and services provide in each period, unhindered and transparent access to information and communication systems to all citizens for the fulfillment of their needs. These innovative means have the following seven characteristics [10]:

- Connected: connect and bond people, markets, goods, and entire communities.
- Cost: as they spread their cost drops.
- Benefit: as they spread their utility increases for each user.
- They dominate: the innovations finally become mass-consumable goods available to all social classes.
- Accessible: available everywhere and easy to get.
- Driven by investments: the most significant long-term investments in infrastructures prior to mass acceptance.
- Stimulating force: their expansion is often driven by some revolutionary application (even if it is not visible in the first years).

Broadband services gather fully all the above characteristics. The assumption for the next big change which will lead to new cycle of innovations and development is: will the broadbandness be the next major issue?

### **3. THE WORLDWIDE IMPORTANCE OF BROADBANDNESS**

The importance of broadband networks for the development of a country can be confirmed by the intensive activities undertaken by many countries which consider the projects for realization of such infrastructures as basic strategic goal. The improvements in the field of broadband networks and infrastructures are expected to be worldwide determined by both; the telecommunications organizations and providers of such services and the feedback gathered from the final recipients/users regarding these new services and applications. The expected development is taking place at slow pace due to the fact that the technological developments bring with them structural changes for all involved parties in the telecommunications market.

The development of the broadband services in the field of public administration, education and health, can demonstrate their importance for the expansion of the broadbandness. A single vehicle (i.e. the state) represents the major pivot of development by promoting the usage to the public and the enterprises. The state, being in the role of an important user of telecommunication services and

consequently as a key client, apart from the attempt to cover its needs, can also work as a vehicle of important changes in the development of the telecommunications market.

State carriers were worldwide guided to develop suitable frame that will deal with all relevant parameters (social, economical, geographical allocation of the population, peculiarities of certain areas) and will take into consideration the current technological infrastructure and expansion. Within the last two years broadband task forces were created in many countries (England, Ireland, Italy, Canada, USA, etc.). Their role is mainly to guide, regulate and sensitize [2].

The broadband services will enable their users with an access to a variety of enhanced services and applications. Despite the fact that the broadband access is in its early phase, applications and services which will have a pivotal role in the near future are already visible. These include all “tele” services (e.g. tele-working, tele-education, teleconference, tele-medicine etc.) peer-to-peer networking services, high quality video broadcasting, interactive games, as well as bulk of value added services related to rendering of information and commercial exchanges.

The most remarkable characteristic of broadband networks is the lack of significant factors which constrain enormous groups of population and areas of a country, in distance and time. The implementation of broadband infrastructures can benefit the expansion of the digital spectrum, mainly in remote and less developed areas which are constantly facing the most intensive technological limitations [7].

#### **4. THE NEED FOR BROADBAND ACCESS IN GREECE**

The need for broadband access in Greece accompanied by the usage of advanced ICT is equally present as in other countries. The advantages from the expansion and the usage of new technologies will create a substantial tool for open and successful governing aiding, thus, the progression of enterprise competitiveness. They will also create new models of work and new skills, providing permanent schooling and education of the citizens. At the same time, they will also affect the improvement of life quality by providing advanced health services, transportation and environmental protection. The expansion and usage of broadbandness is expected to increase the effectiveness and quality of the rendered services in the community, the culture and the economy and to ensure scale economies.

A special emphasis should be given to the manner of communicating the broadband access issue. Instead of communicating it as a necessity, it should be articulated as an open opportunity for all. This matter should not be absorbed by

questions whether the need or offer is a vehicle for the issue of broadband access. The answer is how to implement it given that it is necessary for the development of a country and the progress of the entire society. With the promotion of these infrastructures, the users will enjoy wide band connections with constant access to new applications and services, changing and increasing dramatically the contemporary opportunities for internet access. These characteristics are expected to strengthen significantly the e-commerce activities and consequently the economy of the country [6].

With regard to the benefits that will be brought by the broadband infrastructures to the population, it is worth mentioning that Greece has a significant number of people with university education, who are indebted to participate in life-lasting training programs in order to permanently improve their skills and preserve their competitiveness. The broadband services and infrastructures can cover this need through appropriate e-learning applications or educational programmes, within flexible timeframes and with low cost participation [1]. Due to the fact that there is in Greece a significant concentration of population in very few cities, the existence of broadband networks and structures is expected to strengthen the efforts for keeping the local population in the area where he lives through provision of access to unlimited resources of information, training activities, high quality health services, as well as other value added services (e.g. bank exchanges). In addition, the nature of the new technologies and the possibilities offered by broadband infrastructures grant to long-term enterprises access to larger markets, regardless of their geographical location. In this way there is an improvement of the local economy and consequently retention of the population in the remote areas [5].

The relative interventions are divided on those generated from the offer's perspective on one hand and demand's perspective on the other. These interventions are being applied in one or another form in different markets throughout the world. It is apparent that all specified actions can play a role in the common general approach required in Greece. Actually most of them have already been applied or they are planned to be applied in various programmes which are currently under development [8].

## **5. CONCLUSION**

It is obvious that the broadband access is a new “ power ” both in the sectors for economical development and competitiveness and in our daily and public life. In opposite case, there is a serious risk of economical and social blockade of the regional areas and national, regional and local inequalities threaten to emerge.

Finally, in this transitional period towards broadband access, the politics creators call for the positive signs and foster prompt and critical assumption for the innovative, under the motto of common benefit and overall development. Alerting the carriers, the common sense, the creation of “broadband culture”, the increase in demand for broadband services and the creation of potentials for broadband infrastructure development is beneficial to the whole population.

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