

The Importance of Digital TV for Countries in Development: a case study of Brazil

Hildegard Paulino Barbosa
MUS3-UFPB

Julio Cesar Ferreira da Silva
LAVID-UFPB

Ed Porto Bezerra
UFPB

hildegardpaulino@gmail.com

Cidade Universitária - João Pessoa -
PB - Brasil - CEP - 58059-900

edporto@di.ufpb.br

julio@lavid.ufpb.br

ABSTRACT

The Digital TV deployment allows to think a new paradigm for the vehicles of mass communication, by inserting mechanisms of interactivity. This means a new way to transmit content and connect the people of a nation and, thus, eventually shows up on various social aspects of a country. Brazil is undergoing a period of definitions and experimentations regarding the implementation of these mechanisms in the programs for Digital TV. Therefore, many aspects (technicians and mainly social) must be taken into account in this phase, because due to the interactivity, it is expected that there will be changes in education, industry, social inclusion, among other areas.

Categories and Subject Descriptors

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Economics, Human Factors

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TV Digital, Society, Education, Economy, T-Commerce

1. INTRODUCTION

The television, like other means of mass communication, follows the global trend of digitalization through an accelerated process of replacing its analog platforms to digital platforms interoperable.

The impacts of the digitalization won't be concentrated only on the technologies involved in the encoding, transmission and capture, but also in various aspects of society such as education, economy, trade, governance and others. The amount of change in these aspects can be greater than expected and, therefore, caution should be exercised in decisions to be taken and how the process will be taken by the authorities.

Another major impact to be felt after the adoption of the standard Digital Terrestrial TV (DTT) is the need to develop new business models that: (i) encourage people to invest in equipment of new generation TV and (ii) allow the broadcasting stations obtain return on investments made. According to this view, the resources used by television networks and audience must be seen as investments for the exploitation of new business. The highest expected return is the interaction.

This paper discusses the importance of digital TV for the Brazil, the changes and the risks that it brings for the country.

2. THE IMPORTANCE OF THE TV IN BRAZIL

Studies done by the Instituto Brasileiro de Geografia e Estatística (IBGE) shows that the percentage of households with television has increased since 1992, when the research began to be made. In that year, the percentage was 74% while in 2008, 96.8% [1]. These percentages represent ownership, in Brazilian residences, of the receivers of analog signal, the only in use until December 2, 2007. Since then, the broadcasting stations started to broadcast digital signal.

Thus it is possible to verify that, in a country where the social inequality and exclusion of goods and services is present in all regions, there is one means of communication that unites all classes indistinctly and where any information transmitted achieves the overwhelming majority of its huge population.

The possibility to offer services through a means of communication with this reach makes it possible to think in the eradication of an attribute unfortunately present in almost all the southern hemisphere: the exclusion of services. The unidirectional transmission (sense station-viewer), inherent in analog format, makes this impossible, but with the interactivity, innovation of Brazilian System of Digital Television (BSDTV), it is possible to think in ways to reduce this exclusion and so to make a society more egalitarian.

2.1 The Digital TV

A system of Interactive Digital TV (DTV) is a consequence of digital TV. One of biggest differentials of the signal transmission of digital television will be interactivity. With the DTV, an user leaves of be just a receiver of the signal and can also to send data of your interest, such an e-mail, requisition a web page, current account balance, response to a survey or files via torrent etc. According to [4], to send data to other people, the viewer answers a need inherent of the human being, which is to participate, give their opinion and feel more embedded in their social context.

2.2 BSDTV goals

The three main BSDTV objectives are resumed in follow.

- Promoting social inclusion, cultural diversity of the country and native language through access to digital technology, aimed at the democratization of information;

- Propitiate the creation of universal network of distance education;
- Stimulate research and development and propitiate the expansion of Brazilian technologies and national industry related to information technology and communication.

The BSDTV, perhaps unlike other digital TV systems in use today, has broader objectives and more focused on the social aspects. Among them, there is the digital and social inclusion and aid to distance education. This means that the deployment of the technology digital transmission in Brazil doesn't only aims modernize the system of transmission, but also to facilitate access of Brazilians, mainly the poorest, to digital technology.

3. CHALLENGES

The five main BSDTV challenges are education, economy, T-gov, T-commerce and T-banking. Each of these areas is discussed in follow.

3.1 Education

The current scenario of Brazilian education is very serious. In 2008, 10.4% of Brazilians were considered illiterate [2], which represents more than 19 million people, according to an estimate made by IBGE in July 2009 [3]. The public schools have a much lower quality than the private schools, which means that the poorest have no access to a quality education. In addition, teachers who teach in these institutions are sometimes not sufficiently trained for the profession. The teaching model is considered by many experts (and even by the Ministry of Education and Culture of Brazil) as overshot [4, 5]. The student performance, even in the best schools in the country is not always the most satisfying.

A major problem that causes the students do not have their best performance is the lack of encouragement for their studies. Thanks to interactivity, digital TV could circumvent this problem. Combining the ease of manipulation of the apparatus with the possibilities of the digital technology embedded, a student might feel more encouraged to learn. Similarly a teacher could pass contents of a much more exciting way. A good suggestion for use of this technology is the development of applications for digital TV directed on education. These applications could be questions and answers about a particular subject in which student performance would be measured by the number of correct answers.

The use of digital TV for education is far more palpable than the computer, due to the price of the unit (it is assumed here that after a while the price of digital TV will be equal to the price of the current analog TVs, which are clearly cheaper than many of the personal computers). The computer stimulates individual use - one computer per student -, unlike television, which can be used collectively so comfortable. As the equipments and the applications are cheap (the latter could even be free, according to the ideology of free software), this new teaching tool may reach the majority of the population. The television, which currently can be seen as a problem to education, will become an ally in the teaching of students in Brazil, thanks to the interactivity and its

ability to connect to the internet. Thus, it is created a new term: the t-learning, i.e. learning through digital television, similar to e-learning, which almost always refers to learning via Internet.

Television can be used not only as an aid for alive teaching, but also, or rather, mainly to distance education. As mentioned in the section 2.2, among the goals that the Brazilian government has planned for the introduction of digital TV is the creation of a universal network of distance education. The intention is to allow students, wherever they are, can communicate with a teacher in order to ask questions, discuss or learn about a certain topic.

3.2 Economy

The digital TV may also be an opportunity for the Brazilian electronics industry. There are currently some efforts to strengthen the hardware industry in the country, such as the Brazil-IP (Brazil Intellectual Property), which aims to build a Brazilian market for integrated circuits [6]. By the fact Brazilian digital television to not be a imported technology, it could change the sad reality of the country (as regards the production of hardware components). Nowadays, it practically does not add intellectual value to any of the products of this industry sold here, that is, it only import them and, perhaps, mount them [7].

In addition to reducing the volume of imports reached today, Brazil has now the chance to export technology. Among the three digital TV systems in use today, only the Japanese is used only by him. The U.S system was adopted in Canada and South Korea, while the European is also used in Australia, India, Malaysia and South Africa [8]. As the Brazilian system is the most modern, it may also be adopted in other countries. Venezuela, Peru, Argentina and Chile adopted the Brazilian Digital TV, due to the possibility of transmission to mobile devices with no additional cost. The Brazilian government is still negotiating with Cuba and Ecuador.

3.3 T-gov

The T-gov, or government via television, is derived from the E-government (electronic government). The difference between the T-gov and E-gov is the medium of access that in the first case is the digital television. It consists in to ease access to government data and public services of interest to society, besides to make more efficient internal operations of government. This means that it makes possible the population have access to the accounts of the government of your city, may examine it and denounce it by any irregularities. In the case of Brazil to make appointments to the Healthy Universal System, to get passports, enroll yourself in an exam for a university or a governmental post etc. just by using a computer with internet access.

The problem with this approach is precisely the lack of access to it by the population. The great advantages of this new form of government have little utility if the population has no access to the means necessary to obtain them. Only 23.8% of Brazilian households (representing more than 13.7 million households) have access to the internet [9], essential means for the realization of electronic government. This means that 45.21 million people (considering the average number of residents per household of 3.3) must dislocate to government offices, face long queues if they want to solve some pending subject with the government, either

by lack of conditions to obtain a computer with internet access or just the inability to use the appliance. Very clearly this new format is good, but currently is not for everyone.

Taking advantage of the reach that the analog TV has in the country and of the possibilities that digital technology offers, combined with the ease of use of television, the country may gain even more efficiency in government. If digital television get the same presence than analog TV currently have, the poorest people will achieve most of the services to the government without leaving home. The efficiency would not be only within government offices, but also on the internet, on tasks of interest and accessible to (almost) the whole society.

3.4 T-commerce

This new technology not only promises to increase foreign trade, but also the internal. Thanks to interactivity, a new type of trade may arise in the country: the T-commerce, i.e. trading on television. According shows [10], in Japan is possible to buy any product through the digital TV (or mobile devices that receive the signal) as soon as it appears on the screen. It will also be possible in the Brazil.

Any reason that leads a person to decide not buying a product in the traditional commerce or the internet (i.e. forgetfulness or insecurity) may be eliminated with the trade on television, because it will always be available to the viewer while he watches the programs, beside to promise sale quickly and easily through the device. This results in a higher volume of sales and all the good consequences of that fact. Only in Brazil, the e-commerce turnover of R\$ 4.8 billion in the first half of 2009 [11], showing continued growth. The T-commerce, enjoying this growth and the increased public confidence in this type of service, may move similar or larger amount of money, given the supposed ease of it and also because it is always "in the right place at the right time."

3.5 T-banking

T-banking is the manipulation of accounts of an user via television. The idea is that the bank's customer can do everything do on the internet (or even in person), but through the television, including balance inquiry, payments, transfers and other services. This new means of access to the bank promises to increase the number of transactions made at a distance, to facilitate remote access to the bank and to gain new customers, mainly due to number of people that uses television and the facility that the applications developed to the new platform should offer. One of the first applications of T-Banking belongs to the official bank, called Caixa Econômica Federal. It provides funding of real properties by the digital TV. It is an application made by NCL/Lua [12] that displays the amount financed, the value of the installments, the interest rate etc..

4. RISKS

The two main BSDTV risks are in T-commerce and increase of the digitally excluded. They are resumed in follow.

4.1 T-commerce

The heating of the internal market through the T-commerce promises to increase the internal volume of sales due to the easy reach, speed and ease in shopping by television, attributes not always present in other types of trade. The problem is the potential indebtedness in the new business format. In [13] shows that this debt reached 34.8% of the annual income in June 2009, an increase of 8.1 percentage points compared with the previous two years, which shows the power of many Brazilians to run into debt. At the same time, [14] reported that the default rate in November 2009 reached 5.8% for credit. For individuals, this percentage is 8.1%. The T-commerce may increase this rates, due to the amenities of buying of the format and to (ugly) habit of some people do not pay off all your debts or spend more than have (especially the so-called compulsive consumers). This may result in the elevation of the quantity of dirty names in services protection credit or even, in one extreme case, in an economic crisis, if the default rate becomes too high.

4.2 Digital Exclusion

The first and major risk is the possibility of the poorest part of society to be left out of this process, at least initially. Although has been mentioned that digital TV likely will to include digitally this layer (even as because a goal is guaranteed by law), must be taken into account that they will only have the equipment and will make full use of all its possibilities and features if they know handle it. Even promising a powerful and simple interface, which will to make possible the use even by people that little (or nothing) handled digital applications in their life, these people should be educated about all that digital TV offers them. Moreover, they also need to know the meaning of the terms most commonly referred to in the transmission and the terms that they need to understand while handling. Otherwise, the Brazilian television, the only means which binds the layers together without distinction, will be another that differentiates people also by their class and level of education. In addition, one of the explicit objectives of the introduction of digital TV, which is the social and digital inclusion, will be increasingly far from being achieved, so that much investment will, in theory, "in vain".

Another risk is the price of set-top boxes. There are announcements of efforts to lower the price of the converter [15], but if no effective measure is taken, again the poorest Brazilian population will be likely to stay out of the process of modernization of its television system. The Ministry of the Casa Civil aims to implement a plan to leave the set-top boxes to levels between R\$ 100,00 and R\$ 120,00, but 42 million people live on minimum wage (R\$ 510,00), either in actual wages or social security benefits [16]. That is, even with the relatively low price, tens of millions of people will have to spend 1/5 of their income if they want receive the digital signal. This means that the only way that will allow people to buy these converters is the little installments. And to top it off, there is a growing trend of converters is not sold separately [17]. According to Marcelo Martins, director of new business of Century (a Brazilian company that operates in the field of satellite dishes), the manufacturers decided that because the converters sold separately lack of profits. If this is confirmed, all must bear the costs of purchasing the converter more the television, even those who live on minimum wage.

5. CONCLUSION

It is valid to conclude that digital TV is promising to Brazil and has potential to develop the country in many ways: economic, social, technological, educational and others.

The decision to create the system itself was the right decision - although perhaps the decision to import the Japanese system allowed the full operation nowadays - and can lead the country to be a relatively important exporter of technology, especially in South America, "status" that it is getting just recently.

In addition, this technology can be used as a means of distance education, that is, has the potential to be an effective and efficient mean of distance education, a goal that is provided by law. And certainly a country that invests in education will progress in future.

The progresses that it can bring to the economy, governance and commerce of the country are also promising and may, in extreme cases, cause a profound impact on quality of life of the population.

However, it is very unlikely that all the benefits of this deployment are achieved. There are various "hidden" forces in the country that are quite comfortable with the position they occupy now in relation to the rest of the population and will act aiming to prevent any great transformation. Throughout the Brazil's history has been verified that these forces tend to be successful in their attacks. So that even with all this potential of development, there is a serious risk of the country don't develop and all the evils of modern society remain intact in future times.

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