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Internet and Development in Senegal: Towards New Forms of Use

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Abstract

This article addresses forms of Internet use within the framework of a development project. Through use of a case study of four telecentres set up by the Acacia initiative of Canada's International Development Research Centre (IDRC), the article presents the theoretical claims of Internet use for development and determines the impact of the Internet on members of Senegalese economic and popular organisations. In this sense, the telecentre project reflects the tendency of international development to regard the Internet as a new and efficient strategy. However, the article asserts that only concrete uses demonstrate the role of the Internet in development. Traditional Internet uses – electronic mail and navigation – do appear. However, the results show a broader dimension of use that includes the appropriation of the telecentre itself and they advance the recognition of the presence of traditional communication as a complimentary element to Internet use. The article concludes that the local context and culture must be integrated into Internet use as a development strategy.

Key Terms: Internet, development, telecentres, Senegal

Résumé

Cet article examine les formes d'utilisation d'Internet dans le cadre d'un projet de développement. En se basant sur une étude de cas de quatre télécentres mis sur pied par l'initiative Acacia de l'International Development Research Centre (IDRC) Canadien, l'article présente les arguments théoriques en faveur d'une utilisation d'Internet pour le développement et détermine l'impact de cette technologie sur les membres des organisations économiques et populaires du Sénégal. Dans cette perspective, le projet des télécentres participe à une

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tendance du développement international qui considère l'Internet comme une stratégie nouvelle et efficace. Toutefois, l'article précise que seules les utilisations concrètes démontrent le rôle qui est celui d'Internet dans le processus de développement. Les usages traditionnels – d'Internet messagerie électronique et navigation – y figurent en bonne place. Néanmoins, les résultats attestent d'une plus grande dimension d'utilisation qui comprend l'appropriation du télécentre même en même temps qu'ils voient en la présence de la communication traditionnelle un élément complémentaire à l'usage d'Internet. En conclusion, l'auteur recommande fortement l'intégration de la culture et du contexte locaux dans l'utilisation d'Internet en tant que stratégie de développement.

Mots clés : Internet, Développement, Télécentres, Sénégal

Introduction

In order to place the impact of the Internet and development into perspective and to move away from the dominant optimist or critical discourse on Information and Communication Technologies, this author is most interested in – within the scope of his Ph.D. in communication – a concrete development project in the African country of Senegal. As such, he has chosen to analyse the Acacia initiative, a project of Canada's International Development Research Centre (IDRC) focused on ICTs and development in Africa. The research touches upon four telecentres[1] established by the Acacia initiative and 41 survey respondents. Research results were obtained by means of semi-guided interviews, observations and content analysis. Two impacts which the project focused on were analysed: 1) network-building; and 2) action-related capacity building for Senegalese economic and popular organizations. Thus, this article has the following objectives: 1) to present the results of research on concrete Internet uses in Acacia telecentres; 2) to comprehend the logic of the theoretical discourse on the claims related to the Internet and development; and 3) to determine the impacts of use in network-building and action-related capacity building on Senegalese economic and popular organisations.

In order to attain these objectives, the first part of the article addresses the research by explaining the operations of the telecentres. The second part presents the theory on which development-related Internet use practices are inserted. The third part of the article explains and questions the forms of Internet use which have been observed in Senegal.

Research Context

The proposed project of Acacia contributed to the establishment of telecentres equipped with Internet access and dedicated to economic and social development. In this way, Senegalese economic and popular organisations could have access to the Internet and could attempt to create networks aimed at increasing their capacity. First, we will present the Acacia initiative, followed by an explanation of the nature and organisation of the telecentres.

The IDRC and the Acacia Initiative

The Acacia initiative is a program of the International Development Research Centre (IDRC) which is a Canadian Crown corporation founded in 1970 in order to help developing countries to find long-term solutions to economic, social and environmental problems that afflict them. Acacia was started in 1996 following a conference organised by the G-7 in South Africa. It aims to 'empower sub-Saharan communities with the ability to apply information and communication technologies (ICTs) to their own social and economic development' (Acacia 1997:1). In Senegal, Acacia developed a working method which shifts the focus to marginalized communities from financing ICT-related projects and their contribution to development. These projects are quite diverse: the integration of gender into the Acacia-Senegal strategy, the introduction of ICTs to marginalized youth, and the role of ICTs in the implementation of decentralization policies in Senegal, etc.

Of the ICT projects financed by Acacia-Senegal, the focus will be on two: 1) Enda Tiers Monde's 'Use and appropriation of ICTs by popular organisations in Senegal' project; and 2) Trade Point Senegal's 'Decentralization' project. The project presented by Enda Tiers Monde aims to 'reinforce the operational and strategic capacities of popular organisations through the use and appropriation of information and communication technologies through a network coordinated by Enda Ecopole and composed of community resource centres[2] managed by groups of local actors.' When the project was proposed by Trade Point Senegal (1998:7), its goal was 'to experiment with decentralizing the services offered by Trade Point Senegal to contributing economic actors in areas outside of the capital, Dakar, by utilizing information and communication technologies through a network of local collectives in the country's two regions', all from the perspective of development.

Analysis of Telecentres

According to Reilly and Gómez (2001:1), 'Telecentres are a new trend in international development. Loosely defined, telecentres are a physical space that provides public access to information and communication technologies, notably the Internet, for educational, personal, social and economic development.' The research discussed here was conducted in 2002 and in 2004, and it analyses four telecentres in Senegal: Al-Baraka, Khadimou-Rassoul, Thiès and Yeumbeul, in order to consider telecentres as a new Internet-based development strategy. These telecentres bring together many members of economic and popular organisations that want to develop networks and increase their capacity. They are administered by one manager and one assistant. Content analysis, semi-guided interviews and observations were conducted. In all, 41 people were interviewed. These are divided into three categories: nine initiators, eight telecentre managers and assistants and 24 users. Of the 41 respondents, 11 were women: four members of the initiating groups, four working within the telecentres and three users.

Table 1**: Categorized Distribution of Respondents**

	Categories		Number
	Initiators	Acacia	2
		Enda Tiers Monde	2
	Telecentres	Senegal	5
		Al-Baraka	3
		Khadimou-Rassoul	1
		Thiès	3
		Yeumbeul	1
	Users	Individuals	3
		Economic and popular organizations	21
Total	3	9	41

During the observation periods, it was noted that the telecentres were equipped with computer and telecommunications infrastructure.

Table 2: Telecentre Materials

	2002				2004			
	Al-Baraka	Khadimou Rassoul	Thiès	Yembeul[i]	Al-Baraka	Khadimou-Rassoul[ii]	Thiès	Yeumbeul
Computers	4	1	4	-	4	-	8	-
Monitors	4	1	3	-	4	-	4	6
Printers	1	1	1	-	1	-	1	1
Telephone (community access)[iii]	1	2	0	-	1	-	0	2
Telephone (reserved for employees)[iv]	0	0	1	-	0	-	1	1
Phone call Counters[v]	1	2	0	-	1	-	0	2

i. The Yembeul telecentre could not be analyzed in 2002 as respondents were not available.

ii. The Khadimou-Rassoul telecentre could not be analyzed in 2004 as respondents were not available.

iii. The communicty access telephone refers to public telephone use in what we most commonly refer to as a telecentre in Senegal – that is, a centre which has a telephone the community can use for a fee. This type of telecentre is different from a telecentre dedicated to development, like those of Acacia.

iv. This is a telephone reserved exclusively for use by employees of the telecentres.

v. This is a machine that counts telephone pulses and calculaqtes rates. For example, if the unit is 70 francs CFA and the machine indicates that the number of pulses used, the user will need to pay 210 FCFA.

Starting from these numbers, more qualitative data were developed. In 2002, the telecentres in Al-Baraka, Khadimou-Rassoul and Thiès had computer equipment, software and an Internet connection. The telecentre in Al-Baraka had an Internet connection, but it was reserved for managers. According to their responses, members of the public had to pay a fee if they wanted Internet access. In 2004, only the telecentres in Thiès and Yeumbeul were functional. Baraka had no computer equipment or Internet connection. To elaborate, the Internet connection is a modem connection that, during the pilot phase, was paid for by the organisations that initiated the project (Enda tiers monde and Trade Point Senegal). At the end of the pilot phase in 2000, the organisations ceased payment. However, this aid continued for other projects until 2002. In 2004, the initiating organisations were no longer in charge of the Internet connection and only material support was possible.

The context of the research presented here and, above all, the information and data concerning telecentres demonstrate that information technology was a central concern for Acacia. Such evidence tends to indicate the growing importance of technology and, in particular, the Internet, in

the development strategies employed by Acacia in Senegal. The following theoretical discussion allows us to understand the emphasis placed on ICTs as development instruments.

Theoretical Comprehension of Internet Use in Development

While the Internet may have begun at the end of the 1960's (Béra & Mechoulan 1999), many authors agree on 1995 as the official birth year when NSFnet ceased operations and the public had access to personal computers (Godeluck 2002; Castells 2002). For Castells, 'the Internet is the technological basis for the organizational form of the Information Age: the network' (Castells 2002:1). Castells (2000:500) emphasizes that the networks 'constitute the new morphology of our societies, and the diffusion of the networking logic substantially modifies the operation and the outcomes in processes of production, experience, power and culture'. This situation moves Castells to state that 'under these conditions, the Internet (...) became the lever for the transition to a new form of society – the network society – and with it a new economy'[3] (Castells 2002:2). Elsewhere, the author asserts that 'core economic, social, political, and cultural activities throughout the planet are being structured by and around the Internet' (Castells 2002:3). In fact, the Internet has become a central actor in development. However, before explaining the role of the Internet in development, the notions of Internet use and impact need to be addressed.

Internet and the Notion of Use

Looking beyond its technical capacities and effects which implicate various actors such as the military-industrial complex and universities, as demonstrated by Béra and Mechoulan (1999:21), we find a space for examining the functions of the Internet. According to Desbois (1994:1),

> The most frequent use is certainly electronic mail (exchange of messages through a telematic network). Next is file transfer (transport of data or programmes from one computer to another on the network) and remote connectivity[4] (connection from a network computer appears at a different site).

The difficulty of use plays a central role in reflections on the Internet. This question is not new and has evolved over time. At the theoretical level, the *Uses and Gratifications* school (Katz & Lazarsfeld 1955) and reception theory (Hall 1980; Ravault 1986) have addressed the notion of reception and use in different manners while reflections on ICT use have solidified in recent years. Breton and Proulx (2002) see a driving continuum of simple adoption (purchase, consumption) as opposed to appro-

priation (technical mastery, creative integration, possible re-inventions) passing through to use (functional employment, conformity of manner of use, face-to-face with the object). In light of this proposition, the notion of use should be approached from two dimensions: a *stricto sensu* dimension relating to the use and seen as an appropriation of all the technical capacities of the Internet; and a *lato sensu* dimension that relates not to the technical object itself but to potential contribution of external factors.

Impacts of the Internet

Wolton (2000:45) notes that the Internet crystallizes three ideologies: 'the market as an end unto itself; technical super-performance, aspiring and claiming to transform society; and modernity, born of crisis in the grand utopias'. Yet, the derivative effects of the Internet such as the advent of the Information Society (Castells 2002) and the amelioration of living conditions (Lévy 2000; Quéau 2000; Negroponte 1995) permit an understanding of the expected social changes to be brought about by this technology. Nevertheless, even if the Internet tends to demonstrate universal characteristics, it is in local contexts that responses to these postulations can be found.

The Internet and the Excluded

Castells (2002:247) declares that: 'The central role of the Internet in many areas of social, economic, and political activity is tantamount to marginality for those without, or with only limited access to the Internet, as well as for those unable to use it effectively'. However, there are two types of marginality. The first concerns those who are already online while the second – of concern to this author – is the 'digital divide' which 'relates to unequal access to the Net and its content (...). The divide between developing countries and rich countries can be found in every nation where the poor, the minorities, the handicapped, the rural, the old are often left aside' (Godeluck 2002:20). Likewise, the digital divide is defined by Castells as 'inequality in Internet access'. Castells (2002:261) maintains that, 'the world, the global economy, and the networks of communication are being transformed with and around the Internet, while ignoring for the time being the overwhelming proportion of the population of the planet – over 93 percent in the year 2000'. In light of such a situation, one has to wonder how a change that has touched a measurable seven per cent of the world's population has all the force of a revolution.

The Internet in Senegal

The technological lag of African countries weighs heavily on a massive investment being made in ICTs in order to stave off the aforementioned digital divide. Thus, the choice of Senegal as one of the IDRC's focus areas is justified as it is in most African countries: teledensity is very low. As noted in a document issued by the Senegalese Minister of Communication (1999:13),

> We draw attention to the fact that for the entire continent the median teledensity is the lowest in the world. For the sub-Saharan region (excluding South Africa), it is 0.5 telephone lines per 100 individuals, compared to 36 for Europe, more than 50 for North America and a world average 13 telephone lines per 100 individuals'.

According to Osiris (2004), the teledensity of Senegal was 2.27 per cent and according to Sagna (2001), until 1983, there were less than 100 computers in Senegal. Since 1996, the rate of market growth has stayed between 15 per cent and 20 per cent and in 1998 the number of computers sold was between 10,000 and 12,000.

The Internet made its first appearance at the end of the 1980's with the implementation of a node on Orstom's[5] RIO network (Réseau intertropical d'ordinateurs or Inter-tropical computer network). This network, however, only included a few dozen people. Officially, the Internet was born in Senegal in March 1996, thanks to an agreement signed by Sonatel and the American company MCI. Nevertheless, Internet access remains excessively difficult for potential users, most of them found in large cities. According to Sagna (2001:65), it is because of this that clients of cybercafes are predominantly made up of expatriates, travellers, members of the upper-class and 'generally wealthy youth for whom it is a "must" to go surf in a cybercafé'. Despite the presence of these cybercafes, Internet access remains limited. Many international organizations have established projects aimed at improving public access to the Internet, a strategy that counters the marginality demonstrated by Castells and Godeluck. It is within this setting that telecentres were established with the goal of improving the living conditions of the population. Ultimately, when looking beyond the universal characteristics of the Internet, only the analysis of the local context permits the comprehension of different development-related Internet uses.

Internet: Technology as A Development Strategy

The origin of the question of development came principally from post-World War II political and theoretical spheres (Albertini 1987). It was

born primarily of a report on the retardation of one part of the planet by another. However, in order for development to become a reality, many methods, economic as well as social, are put forward. In this strategic quest, the presence of technology is important. Suggesting that countries research new technological and economic approaches, Albertini (1987) submits that 'countries of the Third World must be provided with the means for technological appropriation'. Are we to understand that technology is an efficient means for successful development? Guillaumont (1985:283) puts forward certain responses to this question, maintaining that 'If the existence of ''modern'' techniques, said to utilize a certain proportion of capital or to resort to recent innovations, characterizes the industrial sector, industrialization can be regarded as the diffusion of this type of technique to the whole of the economy.'

All the same, industrialization is integrated in the logic of development. This is much more often the case than of the 'steps to knowledge' mentioned above. Rostow (1963:19) maintains that 'the subsequent cause of startup was essentially (but not exclusively) of the technological sort'. On the whole, we are led to understand development as inextricably bound to industrialization (modernization) and technology.

The link between technologies and development does not seem to be new (Mowlana & Wilson 1990:25). What appears to be an innovation is the insistence that ICTs are the only means by which other indicators of under-development can be resolved: health, education, democracy, etc. Many authors espouse this view, presenting ICTs as the primary appropriative means for development. It is in this manner that Ossama (2001) argues for the adoption of ICTs for successful development in Africa; the challenge of ICTs would be to manage development problems as they arise. For him, if there are difficulties related to adoption it is because African decision-makers have not established a veritable link between ICTs and development. And yet, for Ossama (2001:16-17), it is clear that ICTs can serve as a lever for development in Africa for three reasons:

> 1) They make easier and cheaper access to information possible in a context where the mastery of ICTs has become a critical factor of development. (...);
>
> 2) New information technologies provide African countries with the possibility for profound economic and cultural global integration. (...);
>
> 3) New information technologies create new riches which will be accessible to developing countries because they will be more conditioned by

> intelligence and creativity than by the traditional capital that founds industry.

The principal theories on development or the role of the Internet in development tend to forget that development remains 'the history of an occidental belief' (Rist 1996) and that development should be analyzed according to forms of knowledge, forms of subjectivity maintained by this discourse and the system of power that it characterizes (Escobar 1995). Proceeding along these lines, Internet use in development should be approached with the analytical framework advanced by Vitalis (1994:9):

> It comes, in other words, from the recognition of the power of the user, but also a power that is constrained and severely limited by the dominating power of production. Indeed, use appears at the intersection of three principal logics: a technical logic that defines the range of possibilities, an economic logic that determines the range of viable uses and a social logic that determines the particular position of the consumer with his/her needs and desires.

The different theoretical reflections presented here each emphasize the possibilities of social transformation attributed to the Internet. All the same, these discourses – at times contradictory – should be confronted by the reality of field research in order to overcome the discursive dichotomy of the Internet and to explore a less speculative course of reflection. Likewise, the goal here is to comprehend and analyse forms of Internet use within a specific development project. Throughout this inquisitive process, attention is devoted to concrete impacts as well as the impact of the Internet on privileged target groups.

Concrete Internet Uses in Acacia Telecentres

Concrete uses of the Internet for Senegalese economic and popular organisations can be determined through interviews and observations. As a whole, of the 41 respondents, 30 people use the Internet and 11 have never used it. However, a particular concept takes shape here. Of the 30 Internet users, eight maintain that they are indeed users while elaborating that they use the Internet through other users – above all, the individuals responsible for the telecentres. Of the 11 respondents who have never used the Internet, the data demonstrate that two of them have used the Internet through other telecentre users. Thus, there are, in fact, 32 Internet users.

Consequently, we can divide these results into three categories. First, it can be determined that there are 22 direct users. These are users who go to the telecentre in order to use the Internet themselves. Secondly, there

are 10 *indirect users*. These respondents maintain that they navigate the Internet but, generally for reasons of illiteracy, cannot do so as they do not know how to read or write, do not understand French or English (primary Internet languages), nor are they familiar with computers. Due to these qualifying factors, they usually call upon the services of telecentre employees to navigate the Internet on their behalf. Thirdly, there are 9 *non-users*. These have never used the Internet nor have they used intermediaries able to navigate the Internet for them.

Table 4: Number of Internet Users

Direct Users	Indirect Users	Non-Users	Total
22	10	9	41

Of the 32 Internet users, 11 are women and 21 are members of economic and popular organisations. Of the latter, 20 use the Internet – 9 directly and 11 indirectly.

However, if these numbers are valid for 2002, it should be noted that in 2004, when telecentre Internet connections were cut, the same number of users was maintained as users began to obtain their access in cybercafes as opposed to telecentres. It should nevertheless be mentioned that these figures rest primarily on observations and remarks of the respondents as collected in 2002 and in 2004.

The problem is that real Internet use in the telecentres is of a far lower rate if we are to base it upon the fact that two telecentres were without Internet connections during field research periods and that the connection at another telecentre was reserved for exclusive use by management. If respondents from the two connection-less telecentres are eliminated, the number of Internet users drops from 20 to 12 for members of economic and popular organisations. On the contrary, the fact that Internet use is reserved for the manager of the third qualifying telecentre does not change the number of Internet users at all. In fact, the majority of users are, in reality, indirect users as the manager carries out Internet-related activities for them.

Internet: Reasons For, and Forms of Use

Having presented the types of Internet users, it is important to explain the motivations that drive members of economic and popular organisations to use the Internet. For the 21 direct Internet users who are members of these organisations, types of use do not vary; none of the respondents stated that they use the Internet for personal reasons and observations support these

statements. Thus, one can draw the conclusion that one solitary goal guides them: Internet use for professional reasons. In effect, they are all using the Internet to resolve certain issues pertaining to their organisations.

With regard to the responses and observations gathered, one can deduce two forms of Internet use: electronic mail and Internet navigation. Users assert that electronic mail is used to carry out discussions with companies or organisations. Through Internet navigation, they search for precise information. However, while there are some users with a clear idea of what they would like to use the Internet for, others leave this definition of use to the discretion of the direct Internet users. They wish nothing more than to see concrete results – whether or not their message has been received. However, the results of their Internet use are not always visible as reception of messages sent is not always easily ascertained.

Over the course of this research, the use of a particular telecentre became evident. Ultimately, the telecentre seems to be a place for meetings and informal discussions by members of economic and popular organisations who do not often see one another and have adopted this location as a meeting place. Members of economic groups meet to discuss probable business opportunities while those from popular groups hold meetings in order to organise and coordinate their activities. They discuss politics and problems concerning the region, Africa or the world. However, members of these groups sometimes ask the managers for help which the managers willingly provide.

If this particular use appears frequently in the telecentres, the *stricto sensu* types of use – electronic mail and navigation – must be performed in an optimal environment. This, however, does not appear to always be the case.

Difficulties of Internet Use

On the whole, Internet use is not without difficulties, the first of which is cost. This is an opinion that is shared here as well. The majority of members of the economic and popular organisations, as well as the management of the telecentres, assert that costs for Internet use are exorbitant. The second difficulty has to do with conditions of Internet use which are related to the use of the tool itself. Even if users find it to be a faster and more efficient tool than other means of communication such as the post, very few users believe their problems to be purely technical. Disconnection issues, though, are a recurring problem. The third difficulty has to do with problems outside the immediate scope of the Internet: throughout 2002, power cuts in Senegal were quite

regular.[6] This situation was harmful to the telecentres as users were unable to use computers during power cuts.

The difficulties related to Internet use have had an impact on Internet access as can be seen in some telecentres that have suspended their Internet connection for one reason or another. However, other telecentres have maintained Internet service, confirming that Internet use impacted on the economic and popular organisations.

Impacts of Internet Use

There are two sorts of impacts expected from Internet use: 1) network-building by economic and popular organizations; and 2) improved capacity-building for these groups.

In terms of network-building, all 21 economic and popular organisations mentioned that they have made contacts with other local groups, citing the names of groups that were in their neighbourhood, town or suburbs. They asserted that if these other groups had certain needs or information they would phone them to see if they could be of use. However, it should be mentioned that only one organisation stated that it had made contact with another local group by email and not simply discovered the group and their telephone number on the Internet. Ten of the 21 organisations stated they have international contacts. Thus, we can conclude that the constitution of an international network remains quite limited.

Network-building at the local level deserves to be analysed thoroughly. Paradoxically, it seems to have acquired a more important place than the constitution of an international network. In effect, the results demonstrate that an informal local network was created by the economic and popular organisations that frequent the telecentres. This link could have been established through the simultaneous presence of members of these groups in the telecentres, discussions between these individuals developing into more profound contacts between their groups. In fact, face-to-face communication seems to be the central tool of communication in informal local network-building. In order for this face-to-face communication to take place, however, the pretext of Internet use in the telecentres needs to exist.

When pursuing improved capacity-building, economic organisations essentially use the Internet to find partners, create an online commercial presence and to sell their products. They believe that successfully making international contacts will allow them to increase their revenues, employ more people and to have greater financial means at their disposal. In this setting, we can deduce that increased capacity relates to a purely eco-

nomic volition while the social organisations have a much more social vision attached to their actions. In the case of these groups, improved institutional capacity makes them more capable of improving living conditions in their neighbourhoods: fighting against poverty, poor health, sickness, etc. In this sense, the Internet, for them, has become a way to do things better than before and has become a means by which they can overcome their previous institutional limitations. The results indicate one case of improved capacity through the foreign sale of artisanal products by a Senegalese economic organization. However, in analyzing this encouraging case of sales to American organisations, we come to understand that the situation has perhaps been made possible because the Senegalese group has had a willingness to use the Internet. This example demonstrates that the volition to use the Internet existed even before the Acacia telecentre programme was initiated, at least within one Senegalese organisation.

Conclusion: Internet Use – A Solution for Development in Africa?

Analysis of the telecentres shows that the interactive situation we find there demonstrates Internet use from a perspective larger than that of the technical tool itself. We find this in the *lato sensu* dimension of Internet use. In fact, for the managers as much as for the users, the Internet is a signifier much larger than the content of a computer. We could perhaps posit that Internet use can be understood to be the appropriation of a centre as a place for communication. If the goal of the Internet is to connect computers around the work with one another, in the case of Acacia's telecentres, Internet use manifests itself according to broader social phenomena depending on where access points are situated. Consequently, Internet use consists of an appropriation of the physical space in which it is located. It is as if the active sphere of the Internet has grown to include the actual telecentre. However, this appropriation corresponds to the contextual reality of use demonstrated by the fact that traditional communication, based on orality and face-to-face communication, is present in Senegal, even in the context of Internet use.

Surely, the Internet should be associated with the local context of development. Development projects thus should envision the integration of traditional communication practices with modern techniques. Such a choice would aide in the re-appropriation of development by Africans themselves and the integration of ICTs in their development strategies. All the same, the culture seems to have been inculcated with the concept of Internet

use. The research explored here, however, demonstrates the centrality of this inculcation of Internet use. As such, do development strategies not need to rely on the culture of the local Internet use setting (as it is done in Senegal) rather than considering it simply through the eyes of the production (i.e. North America or Asia)? Similarly, resources for national languages must be considered in the provision of Internet access. These different points, however, imply many adjustments aimed at optimizing the use of the Internet: training for computer specialists, integration of national languages in Internet content, etc. Putting these propositions into practice would allow for the realisation of the full potential of the Internet.

Nevertheless, Internet uses such as those exercised in the Acacia telecentres demonstrate a willingness of Senegalese people to follow the technological evolution. Some sort of belief in the Internet as a tool for development is present here and this expectation creates a motivation for its use. However, this use has encountered problems that sometimes are independent of the technical object itself, in this case related to local use. Would it not be better to envisage other forms of technology that better reflect local realities? Indeed, with rolling electrical blackouts, Internet use via new computers such as the '$100 laptop computer' project could be one alternative strategy. Hence, even if Internet use is valued by the Senegalese, the development strategy does not need to be limited to the singular use of ICTs. Other urgent problems are, indeed, present: sanitation issues, poor schooling, lack of potable water, etc. The Internet by itself cannot resolve these issues.

The uses of the Internet, thus, exhibit interesting dynamics that deserve to be reinforced. While the Internet has, indeed, been present, the organisations examined here tend to always focus on their local environment when building networks. In the Senegalese context, it is used primarily for building international networks. In addition, the improvement in capacity-building for economic and popular organisations seems to be carried out to the detriment of Internet use. This tool could have been used as a catalyst but traditional networks were quite active and made it possible for these organisations to strengthen work they had previously engaged in. Moreover, the research presented here asserts that the Senegalese have integrated the theoretical discourse of the Internet and development, demonstrated through their use of the Internet as a development tool. Theoretical discourse, thus, seems to have provided motivation for Internet use. These various factors help to explain why the Internet remains a means of development, but simply as a tool. It must be put at the service

of the general population and respond to the desires of their popular base rather than dictating these desires.

Notes

1. The nature and configuration of the telecentres are explained in detail later in the article.
2. The community resource centres are another name for the telecentres.
3. It must be noted that throughout this entire book concerning the Internet, Castells takes certain methodological precautions, affirming that his work was based on 'limited observation' and has a central goal 'to nourish and found the on-going debate on the Internet'.
4. Emphasis by Desbois.
5. Orstom was founded in 1943 and is a French research organization now known as l'Institut de recherche pour le Développement (Development Research Institute). The IRD is a French public organization that focuses on science and technology under the direction of ministers of National Education and Research; Foreign Affairs – Cooperation; Foreign Affairs; Economy, Finances and Industry; and the Overseas minister. Its mission is to develop scientific projects centred on relations between humankind and its environment in the inter-tropical zone.
6. It must be noted that during the first research trip, a duration of almost 4 months, I recorded power cuts at least once per week. However, seeing as the cuts were isolated, I am unable to provide a general opinion on electrical outages in Senegal. Once, I noticed the power cut while spending time in a telecentre and it lasted an hour or two. However, when I went to a different neighbourhood, electricity was available.

Bibliography

Acacia, 1997, 'Minutes from Meeting of Acacia-Senegal Actors', [*Bulletin de liaison des acteurs de la stratégie Acacia-Sénégal]*, Acacia, Dakar.

Albertini, J-M., 1987, 'Mechanisms of Under-development and Development' [*Mécanismes du sous-développement et développements]*, Paris: Les éditions ouvrières.

Bell, D., 1979, 'The Social Framework of the Information Society', in Michael L. Dertouzos & Joel Moses (eds.) *The Computer Age: A Twenty Year View,* Cambridge: MIT Press.

Béra, M. & Mechoulan, E., 1999, The Internet Machine [*La machine Internet]*, Paris: Editions Odile Jacob.

Breton, Ph., 2000, The Cult of the Internet: Menacing Social Relations? [*Le culte de l'Internet : une menace pour le lien social?],* Paris: La découverte.

Brzezinski, Z., 1970, *The Technetronic Revolution* [*La révolution technétronique],* Paris: Calmann-Lévy.

Castells, M., 2000, *The Information Age: Economy, Society and Culture Volume 1 – The Rise of the Network Society,* Oxford, UK: Blackwell.

Castells, M., 2002, *The Internet Galaxy,* Oxford, UK: Oxford University Press.

Enda tiers-monde, 1998, Use and Appropriation of ICTs by Popular Organizations in Senegal – Pilot phase [*Utilisation et appropriation des TIC par les organisations populaires au Sénégal – Phase pilote],* Dakar.

Escobar, A., 1995, *Encountering Development: The Making and Unmaking of the Third World*, Princeton, New Jersey: Princeton University Press.

Guillaumont, P., 1985, *Economy of Development, Volume 1: Under-Development* [*Économie du développement, tome 1: Le sous-développement],* Thémis/ Presses universitaires de France.

Godeluck, S., 2002, *The Geopolitics of the Internet* [*La géopolitique d'Internet],* Paris: La Découverte.

Lévy, P., 2000, World Philosophy: Market, Cyberspace and Conscience [World philosophie*: le marché, le cyberespace, la conscience],* Paris: Odile Jacob.

Masuda, Y., 1980, *The Information Society as Post-Industrial Society,* Tokyo: Institute for the Information Society.

Sénégal, 1999, *Développement du secteur des téléservives au Sénégal: proposition de politique,* ministère de la communication, Dakar.

Mosco, V., 2000, 'New Communication Technologies: A Politico-Economic Approach' [Les nouvelles technologies de communication : une approche politico-économique*], Réseaux*, 18(101): 95-118, Paris: France Télécom R&D/ Hermès Science Publications.

Mowlana, H. & Wilson, L.J., 1990, *Communication, Technology and Development* [*Communication, Technologie et Développement],* Coll. 'Études et documents d'information' no 101, Paris: UNESCO.

Negroponte, N., 1995, *The Digital Man* [*L'homme numérique],* Paris: Robert Laffont.

Ossama, F., 2001, *New Information Technologies: Stakes for Sub-Saharan Africa* [*Les nouvelles technologies de l'information: enjeux pour l'Afrique subsaharienne]*, Paris/Montréal/Budapest/Torino: L'Harmattan.

Quéau, Ph., 2000, *The Spirit Planet: For A Politics of Cyberspace* [*La planète des esprits: pour une politique du cyberespace],* Paris: O. Jacob.

Reilly, Katherine and Ricardo Gómez, 2001, *Comparing Approaches: Telecentre Evaluation Experiences in Asia and Latin America, The Electronic Journal on Information Systems in Developing Countries*, available online, 4: 1-17: http://www.ejisdc.org/ojs2/index.php/ejisdc/article/viewFile/23/23

Rist, G., 1996, *Development: History of an Occidental Belief* [*Le Développement: Histoire d'une croyance occidentale*, Paris: Presses de la fondation nationale des sciences politiques.

Rostow, W. W., 1963, *The Steps of Economic Understanding* [*Les étapes de la croissance économique]*, Paris: Éditions du Seuil.

Roszak, T., 1986, *The Cult of Information*, New York: Pantheon Books.

Sagna, O., 2001, *Information and Communication Technologies and Social Development in Senegal* [*Les technologies de l'information et de la communication et le développement social au Sénégal: un état des lieux]*, Dakar, Senegal: Institut de recherche des Nations Unies pour le développement social (UNRISD).

Sciadas, G., 2003, *The Digital Divide Observatory – and Beyond* [*L'observatoire de la fracture numérique – et au-delà]*, Montreal: Orbicom.

Shannon, C. & Weaver, W., 1949, *A Mathematical Theory of Communication*, Urbana, Illinois: University of Illinois Press.

Trade-Point Sénégal, 1998, Decentralization of Trade Point Senegal – Experimental Phase [*Décentralisation du Trade Point Sénégal – phase expérimentale]*, Dakar.

Vitalis, A. (sous la dir.), 1994, *Media and New Technologies: For a Sociopolitics of Use* [*Médias et nouvelles technologies. Pour une sociopolitique des usages],* Apogée, Coll. 'Médias et nouvelles technologies', Rennes.

Wolton, D., 2000, *After the Internet? A New Critical Approach* [*Internet et après ? une théorie critique des nouveaux]*, Paris: Flammarion.