

# The Connectivity Agenda

## Five years of success in Colombian e-gov initiatives

Diego Fernando Cardona\*

Recibido: septiembre de 2006 - Aprobado: octubre de 2006

### ABSTRACT

*In this article the author try to emphasize how the Connectivity Agenda, enacted in 2000 as the Colombian policy to move the country toward the knowledge society trough the intensive use of Information and Communication Technologies – ICT, has been a successful electronic government initiative. To achieve it, the author describes first the general policy outline and then the proposed benefits comparing them to the ones already obtained, and explaining how there is no gap between planning and execution. To complement this exposition, the author presents the results of an evaluation model applied, which focused on determining what the citizens expect from the electronic administration and how they perceive it. Finally, the author states how both approaches conclude that the Connectivity Agenda can be considered as a successful electronic government initiative.*

**Key words:** *Electronic Government, IT in Public Administration, IS Success, Public Policy, Governmental IS, Citizen Access.*

### RESUMEN

En este artículo el autor intenta mostrar cómo la agenda de conectividad, presentada en el 2000 como la política colombiana para llevar el país a la sociedad del conocimiento mediante el uso intensivo de las Tecnologías de la Información y las Comunicaciones –TIC, puede ser considerada como una iniciativa exitosa de gobierno electrónico. Para lograrlo, el autor presenta de manera general la política, para continuar con los beneficios esperados, comparándolos con los logros obtenidos, encontrando que no existe una diferencia importante entre lo propuesto y lo alcanzado. Para completar esta presentación, se describen los resultados de aplicar un modelo de evaluación que se focaliza en determinar las expectativas ciudadanas frente al gobierno electrónico y cómo éste es percibido. Finalmente, el autor concluye que usando ambas aproximaciones la agenda de conectividad puede ser considerada una iniciativa exitosa de gobierno electrónico.

**Palabras Clave:** gobierno electrónico, TI en la administración pública, políticas públicas, SI exitosos, SI gubernamentales, acceso ciudadano.

---

\* PhD. ESADE – Ramon Llull University. UNESCO scholarship holder. Research Assistant, Information System Department. April, 2005. E-mail: diego.cardona@esade.edu.

## 1. INTRODUCTION

The Connectivity Agenda (Mincomunicaciones, 2000) was enacted in 2000 by the Colombian government as the policy to move the country toward the knowledge society through the intensive use of Information and Communication Technologies – ICT by implementing different projects under six strategies distributed in four fields as will be explained later on. Each project produces some benefits that, slowly but firmly, have been reached during these five years of development.

First, the reader will find the objectives of the policy with the projects distributed by strategy. Then, in a second part, there are proposed benefits followed by the ones obtained, according to the progress reports prepared by the Colombian Communications Ministry. Additionally, there is a presentation of results of the evaluation model applied in Colombia to obtain the citizens' expectations and perceptions towards the electronic administration initiatives (Cardona, 2004). Finally, it is possible to conclude, based on the exposed facts and the statistical data from the referenced study, that the Connectivity Agenda can be considered as a successful electronic government initiative.

## 2. OBJECTIVES

The Connectivity Agenda is the Colombian policy to move the country toward the knowledge society through the intensive use of ICT approved

by the Council of Economic and Social Policy (CONPES)<sup>1</sup> under the document 3072 issued on February 9, 2000. The objectives of this policy can be classified in four different domains:

- Transparency
- Citizen participation
- Effectiveness
- Efficiency

At the first domain, the agenda tries to increase the visibility of public matters, the trust in public administration and to improve the public administration control. At the second one, the agenda is working in order to facilitate citizen access to public information, procedures and services and also is obtaining the citizens' feedback in the decisions making process.

In relation to effectiveness, this policy seeks to improve the quality of the results obtained and the attention in the interaction among the public administration and their internal and external clients in order to increase their satisfaction. Additionally, the idea is to simplify the transactions that citizens should carry out with the public administration. Finally, in the efficiency aspect, the idea is to improve the quality and accessibility in real time to the information for decision making, to reduce the public administration operative costs, and to optimize the Governmental investment in ICT.

<sup>1</sup> “Consejo Nacional de Política Social y Económica – CONPES” by its Spanish initials.

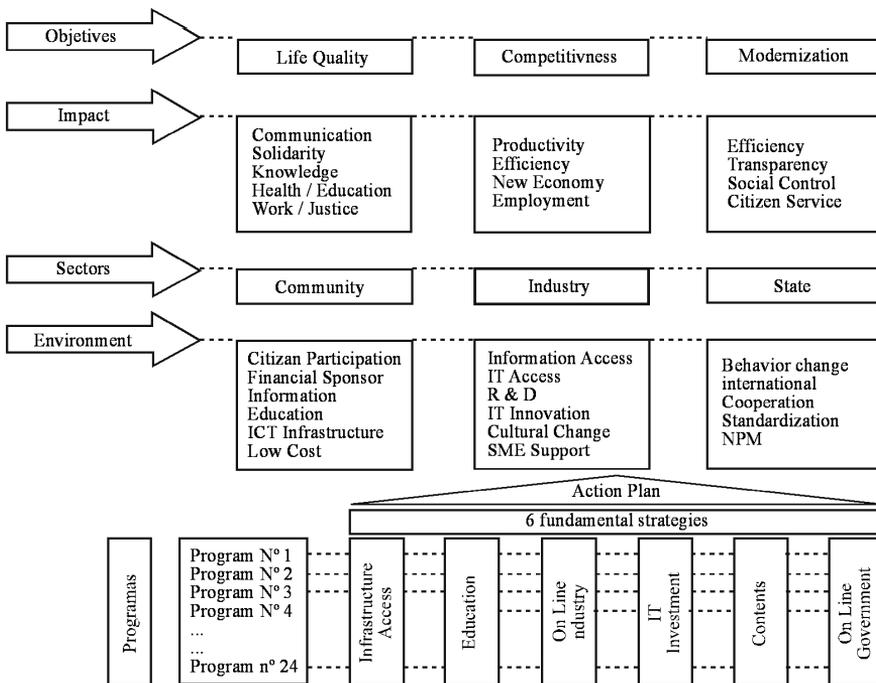
### 3. STRATEGIES

The Connectivity Agenda is based on six strategies:

- Infrastructure access
- Education

- On Line Industry
- Information Technology – IT Investment
- Contents
- On Line Government

FIGURE 1. Connectivity Agenda



Note: Free translation based on (Agenda de Conectividad, 2004).

#### 3.1. Infrastructure Access

This strategy includes six projects, the first one is COMPARTEL, cre-

ated to obtain wide telephony coverage at the country farthest regions, and the second one, Computers for Education works to improve the PC infrastructure at school nation wide.

Besides COMPARTEL, the government is creating also computer classrooms at schools to take advantage of the physical infrastructure all over the country. As a complement, there is a project to create Internet access points at military facilities, to take advantage of the physical infrastructure at the country farthest regions.

Another important project is focusing on the creation of ICT measurements, to generate real indexes to know and analyze the ICT Colombian situation. In the last project the government is investing in new research programs to obtain low cost access, creating innovative fare frames in order to improve Internet access, and in addition making evaluation connectivity projects. The government is also preparing the general law for communications to regulate and promote the new technology use.

### **3.2. Education**

This strategy requires the strategy mentioned above to create a Network service website. There are also efforts to include IT inside math curricula at secondary level, to improve English skills and to provide basic informatics education.

This strategy also explores new IT educative possibilities, as virtual education, which creates a closest relationship with community based on an

intelligent project and with a complete Connectivity Agenda divulgation.

### **3.3. On line Industry**

The third strategy includes projects that search the incorporation of Internet and electronic commerce in Small and Medium-sized Enterprises – SME, that requires an electronic commerce regulation and promotion and an IT innovation at SME by means of, for example, quality assurance projects and use of Electronic Data Interchange – EDI and bar code technology.

### **3.4. IT Investment**

As IT is fundamental to the policy defined by Connectivity Agenda, it is necessary to create an IT national infrastructure information system and to improve the creation of IT tax free areas, which supports the investment on local contents and software industry.

### **3.5. Contents**

In relation to the last project of the above strategy, the contents strategy is oriented to produce contents and services on line for Colombian citizens by means of the creation of best practices database, a national observatory on science and technology, the Cultural Colombian patrimony digi-

talization, the improvement of virtual collections, a health national system, and a National University Network.

### **3.6. On Line Government**

In order to develop this strategy, the presidency of the country promulgated the No. 02/2000 order that forces governmental institutions to offer, at specific dates and via Internet, On Line information, electronic services and procedures and an On Line purchase system. The National Planning Department is the institution inside the government in charge of the definition of the operation and management model that allows the electronic purchase via Internet.

## **4. PROPOSED BENEFITS**

### **4.1. Citizens**

The ICT has experienced a significant progress in the last years in Colombia. Different sectors of the society, the economy and the public sector began to incorporate IT in their activities at a different intensity and speed. Due to the necessity to assume actions, as soon as possible, to drive the country inside the cultural and technological changes that are transforming the XXI century, the national Government estab-

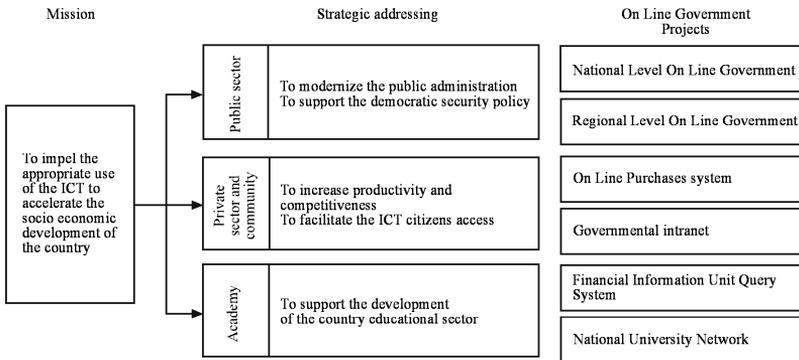
lished, as explained before, the Connectivity Agenda as a long term policy to achieve a massive penetration of the ICT in Colombia with the mission of impelling the massive ICT use as a support tool to the social and economic development of Colombia.

As it will be explained later on, the Connectivity Agenda strategies are closely related among them. For the Public sector, the strategic guidelines are aimed to modernize the Public Administration and to support the democratic security policy. With the Private sector and Community, these guidelines are aimed to increase productivity and competitiveness and to facilitate the ICT citizens' access. Finally, in the Academy, the guidelines are supporting the development of the country education sector.

To support the policy implementation, the Connectivity Agenda formulated projects of high impact that have been approved by the Inter sector Commission of Policies and Administration of Information for the Public Administration – COINFO.<sup>2</sup> This Commission was created by the Law 3816 of 2003 (Mincomunicaciones, 2003) that has among its objectives to optimize the investment in ICT in public administration. This Commission is presided by the Republic Vice-

<sup>2</sup> “Comisión Intersectorial de Políticas y Gestión de la Información para la Administración Pública – COINFO” by its Spanish initials.

FIGURE 2. Action Plan



Note: Free translation based on (Agenda de Conectividad, 2004).

president and it is also integrated by a delegate of the Republic President, the Minister of Treasury and Public Credit; the Minister of Communications; the Director of the National Planning Department; the Director of the National Administrative Department of Statistic, the Director of the Administrative Department of Public Function and the Director of the Connectivity Agenda, as permanent guest.

To optimize the public resources designated for the On Line Government, the Connectivity Agenda defined a work architecture that allows the articulation of actions properly as it is described in figure 3.

The architecture is based on three fundamental components; the first of them is the political and control field, the second one is the technological planning field as complement

to the third component, the technological development, and all three are supported in a project of knowledge management developed by the Connectivity Agenda.

In the first component and due to the need to guide strategically the work, there is a first element, the strategic planning. On the other hand, the use of the ICT should be a facilitator to the political, normative and juridical field of the country, which is the second element of this component. Additionally, ICT are tools that allows the control organisms and the citizenship in general, exercise the work of audit in the daily action of the entities, their officials and the public servants in general, as the third element of this component.

In the second of the components, the technological planning field, it is important that Colombia can not ignore

FIGURE 3. Architecture for on line government

Political and control ambit			Technological development					Technological planning ambit		
Strategic planning	Political, normative and juridical ambit	Citizenship and governmental institution audit and control	On-line Government	Computer services	Portal	Information Systems	...	Security	Risk management	Norms, standards and ICT best practices
			Transactional services kernel							
			Standard communication interfaces among processes and information systems							
			Communications infrastructure (Connectivity)		Storage infrastructure (Data center)					
Project management: Connectivity agenda										
Knowledge management										

Note: Free translation based on (Agenda de Conectividad, 2004).

the norms, standards and ICT best practices and has to accept that new improvements will be generated continually. On the other hand, and as second element, at global level it still exists reasons to distrust the security that ICT represents, so it is necessary to manage it properly since it is possible to have technological solutions. Supplementing this topic, and as a third element of this component, it is required an appropriate risk management that allows to maintain a high level of readiness of On Line Government's services.

The third and last component, the technological development is planned via "layers" which permits to define and to delimit with clarity the needs as for the technological infrastructure,

the interoperability among entities and information systems, and the services to the community and the entities that will be developed and implemented; each layer defines a group of services to be provided at the superior layers, achieving in this way the use of all the previous efforts on behalf of the current ones.

With this perspective, a proper communications infrastructure that facilitates the flow of information through multiple channels should exist, like Internet, multimedia interaction centers, and points of service concentration. In a complementary way, it is required the existence of a storage infrastructure as a data center so that the common services, such as electronic mail for public servants, authentication of

the same ones and their respective digital signatures, the publishing of information by means of the lodging modality, among many others, can be provided in a centralized way, to homologue them and to obtain the scale economy benefits.

One of the On Line Government's objectives corresponds to the achievement and consolidation of standard of communication among processes and information systems, because through the interaction with the information systems of the different governmental entities, it will be possible to present to the whole community the new On Line services. Then the On Line Government corresponds to the interoperability among the systems of all the government entities. The interoperability makes sense by the existence of a transactional services kernel, such as the electronic payment, the authentication and digital signature, the verification of the fiscal situation of a citizen, etc.

The upper layer of the architecture corresponds to the specific services that are offered. Inside this group of services, there are, for example, the single window purchasing service, the Colombian Governmental Portal, with all the On Line Services, among many others.

Finally, in the architecture it is necessary to maintain coherence among the different actions, therefore it is required a project management to

guarantee the conductive thread of the different activities and also a proper knowledge management that allows the knowledge and the experience appropriation, regarding the development and application of ICT for modernization the State.

## 4.2. Business

Keeping in mind that the Connectivity Agenda must promote the use of the ICT in order to support the economic growth and the competitiveness increase, the access to markets for the productive sector, and to reinforce the employment generation policy, a change is required in the pattern of business based on the electronic trade, to bring the country toward the new economy at international level. Additionally the Agenda has strengthened the industry of the ICT in the country, creating new employment sources. In this topic the PRYMEROS<sup>3</sup> project try to improve the competitiveness of the SME through the application of the ICT as a tool of business management and with the development of the electronic trade, supported by Colombian Confederation of Commerce Chambers – CONFECAMARAS,<sup>4</sup> the Bogotá Commerce

<sup>3</sup> <http://www.prymeros.com> (31 July, 2005).

<sup>4</sup> “Confederación Colombiana de las Cámaras de Comercio – Confecámaras” by its Spanish initials. <http://www.confecamaras.org.co/> (31 July, 2005).

Chamber,<sup>5</sup> and the Inter-American Development Bank – IADB.<sup>6</sup>

The PRYMEROS project is directed to the SME, which play a fundamental role in the Colombian economy, because according to recent reports (Forero, 2004), they generate near 4'500.000 employments that represent 62% of the Gross Domestic Product – GDP and they have a participation of 31% in the exports of the Country. The PRYMEROS project centers its efforts in supporting this type of companies with the purpose of improving its levels of competitiveness through the use of ICT. The beneficiaries of the project can be those Colombian companies constituted legally that generate between 11 and 200 permanent direct employments and whose total assets are among US \$55 thousand and US \$1,5 million in the precedent fiscal year – 2003.

Since the Project promotes the ICT use at managerial level, it is required that the participant SME conforms managerial communities for strategic economic sectors, in such a way that the PRYMEROS project can identify the common necessities to determine the action plans to continue with the implementation of the technological solution that adapts better to each community. Under this outline, the managerial communities

that can be beneficiaries of the Project must be conformed by a minimum of 10 and a maximum of 20 companies.

### 4.3. Government

The COINFO, already mentioned previously, delegates in the Connectivity Agenda the function to provide the necessary connectivity to manage the governmental institutions and to support the function of citizen service. In this field there are the following projects:

- National Level On Line Government
- Regional Level On Line Government
- On Line Purchases system
- Governmental intranet
- Financial Information Unit Query System
- National University Network

The national level On Line Government project is aimed to use the power of the ICT to improve the efficiency and transparency of the Public Administration, promoting the electronic offer of public procedures of high impact for the governmental institutions, citizens and managers. In this project, it is necessary to define the criteria and the technological solution that allow the electronic payment and to implement the electronic signature. Additionally, is necessary to define the standard and to provide

<sup>5</sup> <http://camara.ccb.org.co/default1.asp> (31 July, 2005).

<sup>6</sup> <http://www.iadb.org> (31 July, 2005).

the technological platform of exchange of information for electronic procedures, carrying out an inventory of them, standardizing the electronic offer of information and interaction to develop the electronic identified procedures by means of a single access point. Finally it is necessary to design and to develop a campaign to communicate to citizens and managers, the existence and benefits of the project.

The regional level On Line Government project is aimed to endow to the territorial entities a technological solution to support their administrative management and administration of public procedures, and to facilitate the access of the citizens and officials to On Line Government's services in the regional level. To achieve this objective the Connectivity Agenda works with the entities of the national order that are developing actions directed to improve the administration of the municipalities (COMPARTEL, Computers to Educate,<sup>7</sup> Ministry of Education, Ministry of Social Protection, Ministry of Culture, National Planning Department, Ministry of Treasury). The project is addressed to 1045 municipalities and 32 regional level governments. The beneficiaries are all the citizens and officials that interact with the Government, the public entities of the national, regional and local level, the suppliers of technologi-

cal solutions that support the municipal administration and the attention to the citizens and the entities of the national level that are developing actions aimed at improving the administration of the municipalities.

The aim of the On Line Purchases system project, is to provide a technological tool for the contractual administration of the public entities to carry out the purchases processes for the acquisition of goods and services, including the selection processes through electronic means, On Line contracts, to award contracts in electronic form, as well as to allow the tracking down the contracts celebrated by public entities on behalf of the citizens and the control organisms, benefiting the public entities and the suppliers.

The Intranet Government project seeks to create a technological infrastructure that allows the development of On Line Government's architecture. This infrastructure should allow public entities to share resources, to exchange information, to carry out processes and combined activities, to develop procedures and On Line services, to promote the electronic trade and to facilitate the citizen access to its information and services. This project implies 4 sub projects:

- High-speed network of the Colombian Government – RAVEC<sup>8</sup>

<sup>7</sup> <http://www.computadoresparaeducar.gov.co/> (31 July, 2005).

<sup>8</sup> “Red de Alta Velocidad del Estado Colombiano – RAVEC” by its Spanish initials.

to provide proper channels to the Governmental entities so that their systems of information can interact.

- Data Center to place On Line Government's infrastructure that allows the entities to obtain proper levels of quality of service, computer security and savings when purchasing technological solutions
- Interoperability Platform to incorporate standards of information exchange for the government, and tools of interoperability that allow to establish a solid technological base for the information exchange, services, and the implementation of On Line procedures.
- Contact Citizen Center with multiple channels (call center, portal Web, electronic mail, chat, and fax) to offer attention and immediate answer to the citizen requirements.

As it is observed, the beneficiaries of this project are public entities and citizens that interact with the government to develop procedures and to obtain against Line Government services.

A specific project is the Financial Information Unit Query System led by the Unit of Information and Financial Analysis – UIAF<sup>9</sup> that has proposed a project to exchange information that allows speeding up the investigations

on Money Laundry. This project coincides with On Line Government's vision and it is a technological model for the exchange of information and services among entities of the government, starting from the interoperability among information systems and technological platforms using Web Services. Initially, the system have the participation of 16 public and private entities.

The last project, but not the less important one, is the National University Network. Its objective is to implement a data network of new generation at national level that connects the universities and the investigation centers of the country, and they with the high-speed international network and the world developed investigation centers. This communication facilitates and promotes the efficient exchange of information and stimulates the execution of national projects of investigation, education and development, improving the competitiveness and the progress of all the regions and participant entities. In addition, there are benefits for the academic, investigative and scientific institutions of the country and, obviously, to the citizenship in general who, through this type of projects, can find better access options to the education.

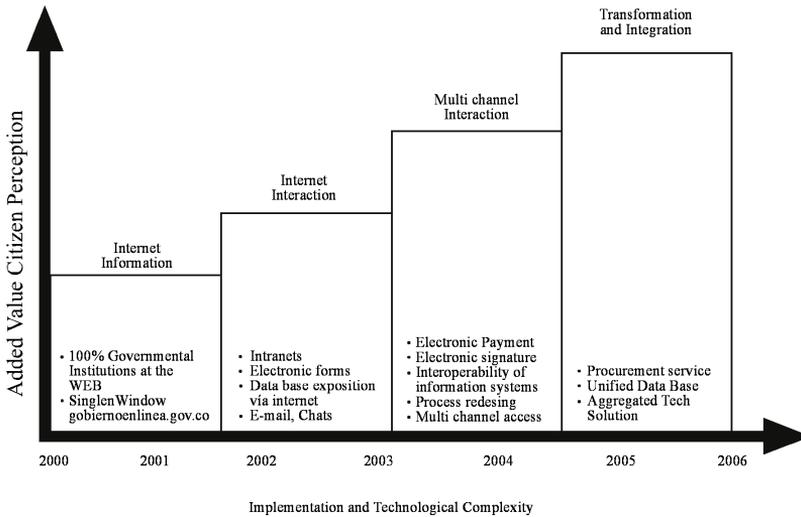
## 5. ACHIEVED BENEFITS

As Maria Paula Duque, Colombian Communications Vice minister ex-

<sup>9</sup> “Unidad de Información y Análisis Financiero – UIAF” by its Spanish initials.

plained in a conference at Oracle (Duque, 2005), the Connectivity Agenda has been evolving as explained in the following figure.

FIGURE 4. Colombian e-gov evolution



Note: Free translation based on (Duque, 2005).

Colombia is, today, in a multi channel interaction level and it is evolving to a transformation and integration level as a result of the application of the Connectivity Agenda policy which started at 2000. On the other hand, the governmental web site <http://www.gobiernoenlinea.gov.co> (15 April, 2005) receives more than 550 thousands single monthly hits, ranking this site on the top ten Colombian sites (López, 2004).

The Connectivity Agenda has been converted in a key element in the communications development, and the Government ratified, last 28 April, 2005 its commitment to consolidate an infrastructure of broadband tele-

communications. In a forum organized by ANDESCO<sup>10</sup> with the participation of experts from Colombia, Peru, Chile and Canada (ANDESCO, 2005), the Colombian Communications Minister acknowledged that in spite of the growth of the use of broadband present in Colombia, our country possesses one of lower user penetrations of Latin America, only 1.2 users for each 100 inhabitants, by July of 2004, according to the report of the last trimester of 2004 published by the Telecommunications Regula-

<sup>10</sup> “Asociación Nacional de Empresas de Servicios Públicos Domiciliarios y Actividades Inherentes y Complementarias – ANDESCO” by its Spanish initials.

tory Commission – CRT<sup>11</sup> at the beginning of 2005. The idea is not only to work in the infrastructure development, but to include actions that facilitate the access to Internet on behalf of the whole population, through the decrease of the connectivity costs and programs of massive access to Internet, with initiatives like COMPARTTEL.

Today, 100% of the national level governmental agencies offer the possibility to use Internet to present complains. The idea is that all this agencies followed this phases:

- Identification of services and procedures.
- Classification of this services and procedures.
- Identification of the totally electronic ones.
- Identification of the phases that can be implemented via Internet.
- Definition and solution of requirements.
- Implementation.

This agencies offer more than one thousand procedures via Internet, saving time to the citizens, improving the reception process, avoiding delays and displacements, transferring the control process to the citizen, diminishing direct attention, and optimizing it.

These achievements are the result of the IT incorporation in the Colombian culture, situation demonstrated by facts like that in December 2002, where 10 of each 100 Colombian citizens had a cellular phone and today there are 16. In the same period, the number of Internet users raised from 1.6 millions in June 2002 to more than 3 millions in December 2003. During 2003 the number of PC reached a 45% of coverage that is equivalent to more than 3 millions of PC (Pinto, 2004).

The Connectivity Agenda has carried out an enormous advance with the creation, last May 2005, of the National Academic High Speed Network, a project to interconnect regional networks and to connect the Latin-American Cooperation Advanced Network – CLARA<sup>12</sup> (Utreras, 2005). The higher education institutions and the investigation centers connected are able to use services and tools of new generation in investigation and education processes as virtual laboratories, digital libraries, centers of virtual education, video conferences of high definition, super computation centers, scientific and technological instruments not existent in the country, participation of world teams of advanced investigation, among many other alternatives.

<sup>11</sup> “Comisión Reguladora de las Telecomunicaciones – CRT” by its Spanish initials.

<sup>12</sup> “Cooperación Latinoamericana de Redes Avanzadas – CLARA” by its Spanish initials.

As for May 2005, there are in Colombia three academic regional advanced networks formally constituted:

- Cauca's Valley High Speed University Network - RUAV<sup>13</sup>
- Bogota's Metropolitan University Network – RUMBO<sup>14</sup>
- Bucaramanga's Metropolitan University Network – UNIRED.<sup>15</sup>

Additionally, there are other networks in development in Medellín, Barranquilla, Manizales and Popayán.

The CLARA Network was constituted in June 2003 to integrate a regional telecommunications network of the most advanced technology to interconnect the national academic networks of the region and to promote the direct integration with the scientific communities of Europe. CLARA Network is connected to the European Advanced Network GEANT<sup>16</sup> thanks to the project ALICE.<sup>17</sup> The Latin American members of the CLARA Network are:<sup>18</sup>

- Argentina: Red TeleInformática Académica / RETINA [www.retina.ar](http://www.retina.ar).
- Bolivia: Red Boliviana de Comunicación de Datos / BolNet [www.bolnet.bo/](http://www.bolnet.bo/).
- Brasil Red Nacional de Enseñanza e Investigación / RNP [www.rnp.br](http://www.rnp.br).
- Colombia: Agenda de Conectividad [www.agenda.gov.co](http://www.agenda.gov.co).
- Costa Rica Red Nacional de Investigación / CRnet [www.crnet.cr/cr2net](http://www.crnet.cr/cr2net).
- Cuba: RedUniv [www.mes.edu.cu](http://www.mes.edu.cu)
- Chile: Red Universitaria Nacional / REUNA [www.reuna.cl](http://www.reuna.cl).
- Ecuador: Consorcio Ecuatoriano para el Desarrollo de Internet Avanzado / CEDIA <http://www.cedia.org.ec/>.
- El Salvador: Red Avanzada de Investigación, Ciencia y Educación Salvadoreña / RAICES [www.raices.org.sv](http://www.raices.org.sv).
- Guatemala: Red Avanzada Guatemalteca para la Investigación y Educación / RAGIE [www.ragie.org.gt](http://www.ragie.org.gt).
- Honduras: Universidad Tecnológica Centroamericana / UNITEC [www.unitec.edu](http://www.unitec.edu).
- México: Corporación Universitaria para el Desarrollo de Internet / CUDI [www.cudi.edu.mx](http://www.cudi.edu.mx).
- Nicaragua: Red Nicaragüense de Internet / RENIA [www.unanleon.edu.ni/renia](http://www.unanleon.edu.ni/renia).
- Panamá: Red científica y Tecnológica / RedCyT [www.redcyt.org.pa](http://www.redcyt.org.pa).

<sup>13</sup> “Red Universitaria de Alta Velocidad del Valle del Cauca – RUAV” by its Spanish initials.

<sup>14</sup> “Red Universitaria Metropolitana de Bogotá – RUMBO” by its Spanish initials.

<sup>15</sup> “Red Universitaria Metropolitana de Bucaramanga – UNIRED” by its Spanish initials.

<sup>16</sup> Specific information can be consulted at <http://www.geant.net/> (31 July, 2005).

<sup>17</sup> “América Latina Interconectada Con Europa – ALICE” by its Spanish initials.

<sup>18</sup> As for 15 April, 2005.

- Paraguay: Arandu [www.arandu.net.py](http://www.arandu.net.py).
- Perú: Red Académica Peruana / RAAP [www.rap.org.pe](http://www.rap.org.pe).
- Uruguay: Red Académica Uruguaya / RAU [www.rau.edu.uy](http://www.rau.edu.uy).
- Venezuela: Red Académica de Centros de Investigación y Universidades Nacionales / REAC-CIUN [www.reacciun2.edu.ve](http://www.reacciun2.edu.ve).

The Social Telecommunications Program – COMPARTEL<sup>19</sup> is a clear example of the efficient use of available resources. With this program, Colombia uses ICT to enhance its economic development and its competitiveness. Besides, the Government is reducing the gap between those who have access to information and those who do not, by rapidly adding the most isolated regions of the country to telecommunications networks. By 1998 Colombia was in a situation of total disparity in terms of access to telecommunications services between urban and rural areas of the country. In that year, 77% of the main telephone lines were concentrated in the 23 main cities in which only 46% of the population was located. The rest of the Colombian cities along with the rural areas of the country, where 54% of the population lived, just had installed 33% of the lines. This situation becomes evident when the number of rural telephone lines installed by that year was

revised. These lines were the 1.25% of the total installed lines, and they did not meet the needs of the most isolated regions of the country (ITU, 2003).

In order to address this situation, the National Government developed a strategy to close the telecommunications gap. According to what was established by the Government, COMPARTEL should focus on providing ICT services to the community, rather than financing the purchase of equipment. Considering the policy guidelines stated by the Government, COMPARTEL Rural Telephony Program was structured in 1999. The objective of the program was to facilitate universal access to ICT services in rural areas throughout the country, by installing Community Telecommunications Points of Service in rural locations of Colombia, as a basis for the development of telecommunications centers. COMPARTEL introduced a new concept in the design and implementation of these types of programs in developing countries such as Colombia, not only because it focused in technical and social aspects, but also because it looked for the active participation of the private sector in operating networks and providing services.

The program, in a first stage, covered the installation, operation, and maintenance of 6.745 Rural Community Telephony Points of Service in

<sup>19</sup> <http://www.COMPARTEL.gov.co> (31 July, 2005)

rural locations covering nearly 3.7 million citizens that did not have access to telecommunications services, at affordable rates. In a second stage the coverage was incremented in nearly 1.3 million additional citizens

Representing the most aggressive Internet initiative in Colombia, as well as one of the most important social programs of the National Government, COMPARTEL Social Internet Program included the installation of community centers with Internet access in all of Colombia's municipal seats. This has provided Colombians with the possibility of accessing the Internet in their own municipalities.

The main objective of this program was to allow the Internet to be used by all the population, developing a telecommunications infrastructure that makes it possible for IT to attain mass levels of usage in Colombia, through installation of Community Internet Access Centers in the main municipal seats. In addition, this program has provided Local Switched Internet Access services in medium size municipalities. The maximum rate that the operator is actually allowed to charge is about US \$ 75 cents per hour of use of the services. The program covered the installation, operation and maintenance of Community Internet Access Centers installed in 670 municipal seats with a population of less than 10,000, and 270 centers in municipal seats with a population

over 10,000. In addition, the Program's operator was forced to provide Local Switched Internet Access services in 40 medium size municipalities. This initiative benefits approximately 2.5 million Colombians, mainly in the rural areas. Taking into account that the previous stages of COMPARTEL Internet Program was not covering all the municipal seats of the country and that there are important population centers that do not have access to the Internet, the National Government formulated COMPARTEL Telecenters Program. Today it is possible to say that a Community Internet Access Center is operating in every municipal seat of Colombia. The operator has installed 372 Telecenters serving a population of more than 1.8 million Colombians with different types of Telecenters, depending on each town's needs.

Additionally, there is COMPARTEL Broadband Connectivity Program for Public Institutions. The purpose was to provide Internet connectivity services in public education establishments, mayor's Offices, hospitals and military bases. The program has been in line with the policy guidelines established in the National Development Plan in terms of:

- Development of physical infrastructure for rural communities
- Access to ICT, which involves education and training in its use, as well as the generation of rel-

evant content for community development

- Building social equity through access to the IT infrastructure in rural areas.

The aim has been to guarantee Internet access in 3.000 public educational establishments which have computers with certain minimum characteristics in operation but which lack connectivity services. With the participation of the Ministry of Education, the objective has been to generate educational contents to attain maximum impact and efficiency in the use of the ICT, thereby improving the level of education of the students. Currently, 624 mayor's offices are served as 120 public hospitals supporting the tasks of the medical personnel and hospital administration, as well as "telemedicine" projects. In relation to military bases, the aim has been to strengthen the democratic security strategy of the National Government, the civic-military tasks and the virtual training programs of the Military Forces in 30 military bases; furthermore, the program has contributed to the strengthening of State presence in the conflict zones and has facilitated soldiers' communication with their families. This Program has defined the installation, operation and maintenance of 3.774 public institutions, serving a population of nearly 2.5 million students.

The project PRYMEROS (Agenda de Conectividad, 2004) has supported

2.000 companies assigning an expert consultant in e-commerce and traditional consultancy to detect the true necessities of managers such as electronic trade and to outline a proposal of improvement that serves as input for the implementation phase. The diagnoses has been developed in Medellín with the managerial communities of underwear industry, construction, fruits, milk industry, tourism and forest industry; in Cartagena with the metal mechanic communities, navy and car parts; in Cali with health and leather; in Manizales with the tourism community; in Bucaramanga with the supply chain and finally in Bogotá, with the pharmacist industry.

Science and IT are a piece on the development puzzle, and has been a very useful tool to obtain sustainable solutions of high impact and with a wide social coverage; in other words, science and IT has been a way to country development. For this reason, this policy is moving from the national level to the local one, where there is a direct interaction with citizens, whom have perceptions and expectatives toward the electronic government that must be measured in order to improve this type of projects.

The success grade of the policy is supported also with a recent research (Cardona, 2004)<sup>20</sup> that implies that

<sup>20</sup> The research demonstrates, that the citizen Perception and the Expectative towards its

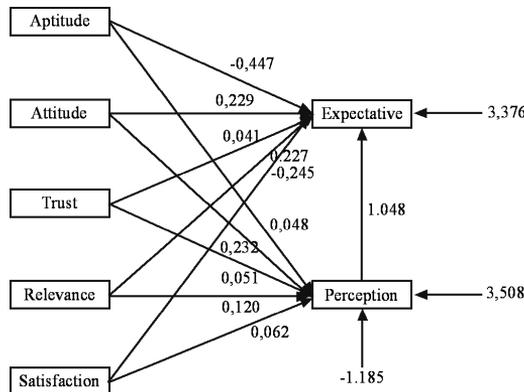
using a confidence interval for trust, there is enough statistical evidence to conclude that the Colombian population represented by the sample con-

siders that there is higher trust with the electronic services than with the traditionally delivered services. Besides, the Colombian population

relationship with the public administration through the use of ICT can be evaluated via five (5) different independent and latent constructs, Attitude, Aptitude, Trust, Relevance and Satisfaction, under the effect of illustrative variables related to citizens, institutions and ambit in a model as formulated as follows.

$\text{Per\_Relacion} = 3,376 - 0,447*Ap + 0,229*Ac + 0,041*C + 0,227*R - 0,024*S$ $\text{Exp\_Relacion} = 3,508 + 0,048*Ap + 0,232*Ac + 0,051*C + 0,120*R - 0,062*S$ $\text{Per\_Relacion} = - 1,185 + 1,048*\text{Exp\_Relacion}$	
With:	
Per_Relacion	Level of agreement with the phrase: I consider that the services offered by the public administration via Internet has improved my relationship with the public administration
Exp_Relacion	Level of agreement with the phrase: In case of interaction with the Public Administration via Internet, I expect an excellent relationship
Ap	Aptitude, citizens skills to use ICT at her / his relationship with the public administration
Ac	Attitude, citizen disposition to use ICT at her / his relationship with the public administration
C	Trust
R	Relevance
S	Satisfaction

FIGURE 5. Expectative and Perception Evaluation Model



Specific results of the research applied at the Colombian ambit, for the interested readers, can be reached at <http://dsi.esade.edu/dcardona/tesis> (31 July, 2005).

represented by the sample considers that the information transmitted has been confidentially managed, there is no violation of her / his privacy, the process has been secure, the result obtained electronically has been equivalent to the one obtained traditionally, and the process has been equivalent to the one developed traditionally.

Additionally, using a confidence interval for relevance, there is enough statistical evidence to conclude that the Colombian population represented by the sample considers that the services provided by the public administration are the relevant ones. Besides, there is enough statistical evidence to conclude that the Colombian population represented by the sample considers that the process has been developed by an identifiable responsible. Another conclusion is that there has been higher perception of easy of use, public administration innovation has been improved, and integration among public administration agencies has been improved. But there is not enough statistical evidence to conclude that the Colombian population represented by the sample considers that the public administration credibility has been improved.

Finally, at the perceptions aspect, and using a confidence interval for satisfaction, there is enough statistical evidence to conclude that the Colombian population represented by the

sample considers that there is a higher level of satisfaction with the electronic delivered services than with the traditionally delivered services. Besides, there has been reduced the time spent and the cost when the electronic services are used, the information quantity has been increased, and there has been a 24X7 public administration availability. But, there is not enough statistical evidence to conclude that the Colombian population represented by the sample considers that the electronic services are excellent and that there has been a public administration transparency increment.

On the other hand, in relation to expectation, and using the data obtained in the survey, it is possible to conclude that the Colombian sample surveyed considers that the most desired interaction system with the public administration is "Vía WEB -email-Internet". It is not possible to conclude that the most desired process is the procedure accomplishment; and that the most desired area is the employment one. The measurements of central tendency for the benefits expressed at the citizen expectation, show that the most desired benefit on behalf of the citizen is the cost reduction and the easy of use

## 5. CONCLUSION

As can be observed, the achieved benefits are very near to the proposed ones for each project devel-

oped by the Connectivity Agenda policy. This accomplishment is due to the work developed by the governmental institutions based on a strong policy document.

Additionally, in relation to citizen perception, there is enough statistical evidence to conclude that the Colombian population represented by the sample considers that the ICT impacts their perception that the services offered by the public administration via Internet have improved their relationship with the public administration and in case of interaction with the Public Administration via Internet, they expect an excellent relationship.

Then, if the accomplishment of the proposed objectives and the citizen perception are measurements of the success, it is possible to conclude that the Connectivity Agenda Project at Colombia has been an electronic government initiative project success and can be used as a best practice to be applied at the Latin-American region countries.

## 6. REFERENCES

- Agenda de Conectividad. (2004) *Agenda de Conectividad, Informe de Avance 2003-2004* [Web Page]. URL <http://www.directiva02.gov.co/> [2004].
- Andesco. (2005) *Promoción de la Banda Ancha – Experiencias regulatorias exitosas* [Web Page]. URL <http://www.andesco.com/c4evento.php> [2005].
- Cardona, D. (2004). “Las tecnologías de la información y las comunicaciones - TIC”. En: *La relación administración pública-ciudadano La declaración electrónica de impuestos en una evaluación comparativa del caso colombiano y peruano*. ESADE - URL, 265.
- Duque, M. P. (Viceministra de Comunicaciones). (2005) *Política de gobierno electrónico del gobierno nacional* [Web Page]. URL <http://www.agenda.gov.co/documents/files/eGov%20-%20ViceMinistra%20VD.ppt> [2005, May].
- Forero, F. (Director Mercadeo ACOPI). (2004). *El perfil de la PYME colombiana*. (p. 123). Bogotá: ACOPI.
- ITU. (2003) *Perfiles por países - Colombia* [Web Page]. URL [http://www.itu.int/ITU-D/CDS/Country\\_Data.asp?Country=COL](http://www.itu.int/ITU-D/CDS/Country_Data.asp?Country=COL) [2003].
- López, A. (2004) *Lineamientos de gobierno digital* [Web Page]. URL <http://www.agenda.gov.co/eventos/articulos/97/> [2005, May].
- Mincomunicaciones. (2000). *Agenda para la conectividad - documento CONPES 3072*. (p. 23). Bogotá: Departamento Nacional de Planeación.
- Mincomunicaciones. (2003). *Decreto 3816/2003*. (p. 15). Bogotá: Congreso Nacional.

- Pinto, M. E. (Ministra de Comunicaciones). (2004) "Palabras de apertura", V Encuentro de Ciudades Digitales [Web Page]. URL [http://www.iberomunicipios.org/docs/col\\_06\\_04.pdf](http://www.iberomunicipios.org/docs/col_06_04.pdf) [2004].
- Utreras, F. (Secretario General). (2005) *Red CLARA* [Web Page]. URL <http://www.redclara.net/contenido.php?ncategoria1=101&ncategoria2=108&ncategoria3=126> [2005]. &