ICT indicators and statistics
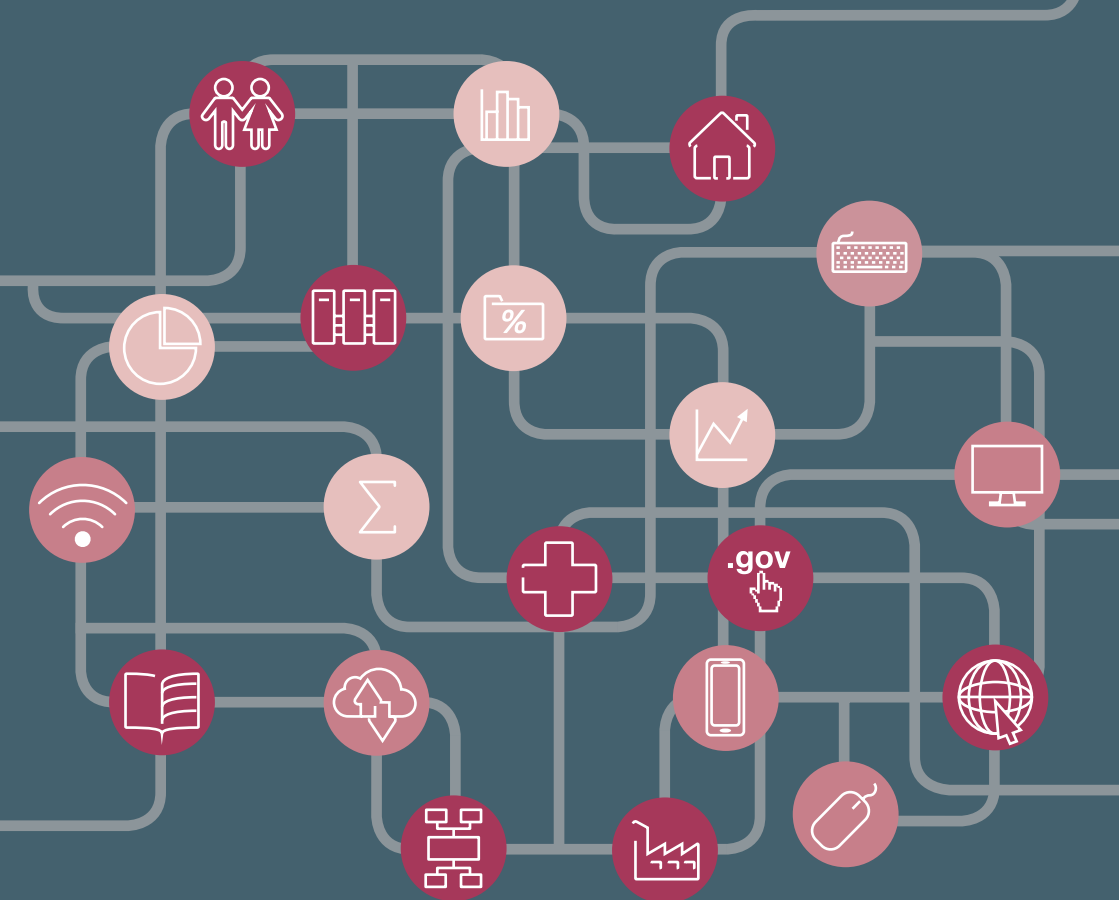# for development

Regional Center for Studies on the Development of the Information Society

Through the Regional Center for Studies on the Development of the Information Society (Cetic.br), the Brazilian Internet Steering Committee (CGI.br) and the Brazilian Network Information Center (NIC.br) provide basic inputs for public policy making and scientific and academic research.

Learn more about the main research projects being carried out by Cetic.br.

Introduction

INFORMATION AND COMMUNICATION TECHNOLOGIES are vital components of socioeconomic change today. The Internet is the epicenter through which innovation, positive restlessness, and new ideas flow in various fields. It is also a key pillar for building a knowledge society that includes everyone and ensures universal access to information and freedom of expression.

The Brazilian Internet Steering Committee (CGI.br) and the Brazilian Network Information Center (*Núcleo de Informação e Coordenação do Ponto BR - NIC.br*) are playing a major role in this debate. In 2005, CGI.br set up the Center for Studies on Information and Communication Technologies (Cetic.br) for the purpose of providing inputs to governments, academics, and other stakeholders for them to develop a broader understanding of this new society that is being built around access to information and knowledge.

In 2012, Cetic.br expanded its objectives and scope and became the Regional Center for Studies on the Development of the Information Society under the auspices of Unesco hosted by NIC.br, whose work will contribute significantly to creating metrics and indicators for evaluating the development of knowledge societies in Latin America and in Portuguese-speaking countries in Africa, naturally favoring South-South cooperation.

Demi Getschko
CEO of the Brazilian Network
Information Center (NIC.br)

ENSURING ACCESS TO NEW INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTs), particularly the Internet and mobile devices, is key for governments, organizations, and citizens to operate under the paradigm of the information and knowledge society. In this context, measuring the progress made in adopting these technologies using reliable statistical data is a strategic and crucial activity for developing and evaluating public policies.

According to CGI.br, specialized surveys carried out by Cetic.br in various sectors are important for monitoring changes in Brazil over time and they provide important contributions to the debate on the impact of ICTs on Brazilian society for different actors from the public, private and academic sectors.

The establishment of the Regional Center for Studies on the Development of the Information Society under the auspices of Unesco affords an opportunity for the knowledge gained by Cetic.br over time to be widely shared with Brazilian society and other countries.

Virgílio Augusto Fernandes Almeida
Coordinator of the Brazilian Internet Steering Committee (CGI.br) and Secretary for Information Policy of the Brazilian Ministry of Science, Technology and Innovation

BUILDING INCLUSIVE KNOWLEDGE SOCIETIES that are based on freedom of expression, universal access to information, quality education for all, and respect for cultural and linguistic diversity requires not only a coherent set of policies but also tools that facilitate the efficient and effective execution of these same policies. Quantitative and qualitative indicators that create a baseline for policy planning, facilitate monitoring of implementation and enable evaluation are necessary.

The Regional Center for Studies on the Development of the Information Society under the auspices of Unesco, based in São Paulo and managed by NIC.br, is a solid think tank focused on the design, implementation and analysis of those indicators. It works in two directions: the assessment of the state of development of knowledge societies through a set of specific indicators; and actions to promote this important know-how with several stakeholders in Latin America and in Portuguese-speaking countries in Africa.

Capacity-building, the generation of ideas and promotion of South-South cooperation, as well as the collection of best practices, are structural pillars of the Center´s work, rendering it so valuable.

Jānis Kārkliņš
Assistant Director-General for Communication and Information of the United Nations Educational, Scientific and Cultural Organization (Unesco)

Multi-stakeholder governance

In Brazil, the role of coordinating and integrating all Internet service initiatives rests with the *Brazilian Internet Steering Committee (CGI.br)*. Set up in May 1995, its main objective is that of promoting technical excellence and innovation and disseminating services provided on the Internet.

One of its main characteristics from the outset lies in its multi-representativeness. CGI.br is made up of 21 members from different segments of society: government, business sector, third sector, and the academic community. Thus, it applies in practice a governance model with society's participation in decisions involving the deployment, management, and use of the network. Since 2004, it has been electing representatives of civil society democratically to take part in deliberations and to discuss priorities for the Internet with government representatives.

The decisions of the CGI.br are based on the ten *Principles for Governance and Use of the Internet in Brazil* approved and published in 2009.

SOME OF THE RESPONSIBILITIES OF CGI.br

Proposing policies and procedures for regulating Internet activities

Setting guidelines for the development of the Internet in Brazil

Promoting studies on the safety of networks and services in Brazil

Coordinating address assignments (Internet Protocol, IP) and registering domain names using ".br"

Collecting, organizing, and disseminating information on Internet services, including indicators and statistics.

Domain names in Brazil

The Brazilian Network Information Center (NIC.br) is in charge of managing Internet domain names and allocations of IP (Internet Protocol) addresses in Brazil.

Created in December 2005 as the operating arm of CGI.br, NIC.br is the Brazilian registration authority for ".br". Through **Registro.br**, it provides all the necessary technical and administrative support for registering and operating domains safely. Over 3.3 million names have been registered already, as a result of which Brazil was ranked eighth in this area worldwide. Data for 2012 show that of all Brazilian companies with a website, 93% have a ".br" domain name.

One of the strategic activities carried out as part of the mission of CGI.br is that of monitoring the evolution of the presence of the Internet in society. This task is performed by the **Regional Center for Studies on the Development of the Information Society (Cetic.br)**, which is responsible for producing indicators and statistics on the availability of information and communication technologies (ICTs) in Brazil, in particular on access to and use of computers, the Internet, and mobile devices.

The data produced by Cetic.br is fundamental for monitoring and evaluating the socioeconomic impact of ICTs and for comparing the Brazilian reality with that of other countries. Regular production of data for this purpose has become key for preparing and monitoring public ICT policies and a major input for academic research.

Focus on the information and knowledge society

In 2012, the Brazilian government signed a pioneering agreement with the United Nations Educational, Scientific and Cultural Organization (Unesco). Through that agreement, the *Regional Center for Studies on the Development of the Information Society* was set up in Brazil under the auspices of Unesco and hosted by NIC.br. It is Unesco's first center of studies on the information society.

Among the five sectoral areas covered by Unesco, the Center is linked to the Information and Communication sector and it contributes to the institution's strategic objectives by strengthening its efforts to monitor the building of information and knowledge societies. Its regional work covers Latin America and Portuguese-speaking countries in Africa.

The Center's lines of action comprise activities designed to contribute to a more informed debate on the importance of ICT measurement for public policy making and exchange of experiences among key actors engaged

"Knowledge societies have always existed and will always exist. Nevertheless, the idea of 'knowledge societies' is new as a concept for guiding domestic and international public policies. And because this is a recent debate, there is much to be reflected on, built, detailed, and redefined. The Regional Center for Studies on the Development of the Information Society set up under the auspices of Unesco has managed to put itself at the forefront of this discussion and to contribute in a pioneering way to building indicators on the relationship between two cornerstones of knowledge societies: ICTs and a set of key issues for the development of those societies."

*Guilherme Canela,
Unesco Regional Adviser in Communication and Information for MERCOSUR and Chile*

in investigating the intersection between society and technology topics and their implications for building knowledge societies.
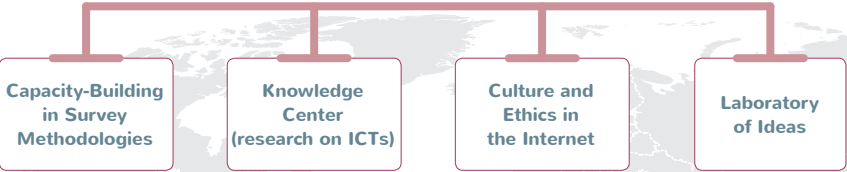
THE FOUR AREAS IN WHICH THE UNESCO CENTER IS ACTIVE

Capacity-building in survey methodologies for using statistics in public policy making and evaluation and academic research.

Investigation of the intersection between culture, ethics and the Internet and studies on the ethical dimensions of using the Internet and its social implications.

Knowledge Center

Capacity-Building in Survey Methodologies

Laboratory of Ideas

Culture and Ethics on the Internet

Dissemination of information and knowledge, including survey methodologies, indicators, analyses and thematic publications.

Debates, lectures and discussion panels with experts to explore emerging topics related to the social impacts of ICTs.

UNESCO'S SECTORAL AREAS

- Education
- Culture
- **Communication and Information**
- Natural Sciences
- Human and Social Sciences

UNESCO | cetic.br

ACTION LINES – UNESCO CENTER

- Capacity-Building in Survey Methodologies
- Knowledge Center (research on ICTs)
- Culture and Ethics in the Internet
- Laboratory of Ideas

REGIONAL SCOPE OF ACTION

The role of ICTs for development

According to Unesco, a knowledge society is one capable of producing, processing, and disseminating information in such a way as to use this knowledge to promote human development – a process that becomes more intense as information and communication technologies (ICTs) are disseminated. A knowledge society is thus one based on civic empowerment and on the assurance of human rights and fundamental freedoms and that is pluralistic, participatory, inclusive, supportive and capable of turning people into active and empowered citizens in the realm of new technologies and digital media.

However, ICTs are not a value in themselves. For them to truly change things for the better, they must be focused on promoting sustainable economic and social development. This is the concept behind the term *ICT4D*, or *ICTs for development*, which guide the work carried out by Cetic.br.

Resources such as mobile technology and broadband connections, for example, have facilitated the development of nations, as reported in the latest editions of the Information Economy Report published by the United Nations Conference on Trade and Development (UNCTAD).

In the context of the information and knowledge society, designing public policies that effectively support sustainable economic and social development requires the adoption of sound and disseminated metrics. Many organizations around the world have been drawing attention to the importance of these parameters. In Brazil, CGI.br has been playing a major role in this discussion through Cetic.br.

Data and analyses
for decision-making

Producing data to be used in designing public policies in Brazil, making it possible for public decision-makers to take evidence-based actions, is one of the objectives of the surveys carried out by Cetic.br. The studies conducted by the Center have supported the definition of government strategies for digital inclusion, universal access to broadband, e-government, and knowledge society development.

To make sure that its studies fulfill this role, since 2005 Cetic.br has relied on a multi-sectoral group of experts that includes representatives of government, international organizations, academia, and nonprofit organizations. Thus, the research work carried out by Cetic.br is structured in such a way as to promote cooperation and take advantage of the analyses of this group of specialists known for their competence and expertise in different areas of knowledge.

In addition to ensuring accuracy and transparency in its methodological and statistical procedures, this process lends legitimacy to critical data production stages: planning of samples, data collection in the field, processing and analysis.

Besides validating methodologies, questionnaires, and indicators and setting guidelines for data analysis, this group also contributes to identifying new areas for studies and improvement of methodological procedures that ensure the production of reliable data. Altogether, more than 200 experts are taking part in the project as volunteers, particularly in the planning and analysis stages.

LEARN ABOUT THE SURVEYS CARRIED OUT BY CETIC.br

ICT Households
Access to and use of ICTs in households and by individuals

ICT Kids Online Brazil
Online risks and opportunities for children and adolescents

ICT Enterprises
Adoption of ICTs by Brazilian companies

ICT Education
Access to ICTs in schools and their use for teaching purposes

ICT Health
Availability and adoption of ICTs by health care institutions and professionals

ICT E-Government
Public electronic services in Brazil

ICT Nonprofit Organizations
Adoption of ICTs by civil society organizations

ICT Providers
Infrastructure for Internet access in Brazil

ICT Public Access Centers
Digital inclusion through telecenters and internet cafes

ICT Households

Brazilians stand out internationally for their use of the Internet and social media, but Brazil's social and regional inequalities are still obstacles for ICTs to provide opportunities for all. The *ICT Households* survey allows for government and society to keep track of the rapid changes taking place in this scenario and to identify challenges for the future of the Internet in Brazil.

Held annually since 2005 by Cetic.br, this survey covers households in urban and rural areas and interviews individuals from the age of 10. In 2013, children in the 5-9 age bracket were included in this survey, meaning that it incorporated the target audience of the ICT Kids survey.

In addition to mapping out the infrastructure available in households – such as the availability of a computer, a cell phone, and types of internet connection – this survey makes it possible to measure how individuals are using these technologies, their activities on the Web, and barriers for accessing and using computers and the Internet, among other aspects.

The ICT Households *survey made it possible for the goals of the National Broadband Plan, launched in 2010, to be effectively designed. We keep track of the survey as a way to analyze results achieved. Today, it is the most comprehensive ICT survey carried out in Brazil.*

Artur Coimbra, director of the Broadband Department of the Brazilian Ministry of Communications

The ICT Households *survey opened a new horizon for academic research. It is the most important source of information for one to understand the development of Internet use by people in Brazil.*

Nicolau Reinhard, Professor, University of São Paulo (USP) and project coordinator of the Management Institute Foundation (Fundação Instituto de Administração/FIA)

ICT Kids Online Brazil

The Internet affords a broad range of socialization and education opportunities for children and adolescents, but at the same time it generates risks that must be mitigated. This is the focus of the *ICT Kids Online Brazil* survey, which began to be carried out in 2012 and is based on the methodological framework of the EU Kids Online network led by the London School of Economics.

The survey interviews children and adolescents aged from 9 to 17 who are Internet users, in addition to collecting comments from their parents or guardians. It was designed to determine the frequency with which this audience uses the Internet, access locations, activities carried out on the Web, and skills for using ICTs safely – involving topics such as social networking, security, and privacy.

It is institutionally supported by the Ministry of Justice, Unesco, and UNICEF and also by researchers linked to universities in Brazil, Portugal, and England.

Comparing children's internet use in Brazil and Europe reveals similarities and differences. Through the ICT Kids Online *survey, we see similarities in what children enjoy doing online – especially peer-to-peer communication using social media – but in Brazil the challenge of digital inclusion is much greater.*

Sonia Livingstone, professor of the Master's Program in Media and Communication at the London School of Economics and director of the EU Kids Online network

We use the ICT Kids Online *survey to set parameters to guide parents, teachers, and educators in relation to the safe use of technologies by children and adolescents and to analyze how they can take advantage of ICTs to promote their development.*

Mario Volpi, Project Official of the United Nations Children's Fund (UNICEF)

ICT Enterprises

Access to computers and the Internet in enterprises is now virtually universal, but challenges remain for their technology to be strategically incorporated into their operations to generate innovation in their processes and activities.

This is what the **ICT Enterprises** survey, which has been held annually since 2005, reveals. Following the international methodology proposed by UNCTAD, this survey measures the presence of ICTs in companies with 10 or more employees.

The survey provides information on items such as access to computers and the Internet, use of e-government, e-commerce, presence on the Web through websites and social media, ICT skills, use of software in companies, and main obstacles to incorporate them into their operations.

It investigates access to infrastructure, as well as use and ownership of new technologies by the private sector, mapping out the perception of benefits generated for its activities, such as value added to the business chain and improvements in their performance as a result of innovation.

I use the ICT Enterprises *survey in my undergraduate business administration classes at the Getulio Vargas Foundation and I teach students how to use its data in IT research projects. Understanding and knowing the surveys carried out by Cetic.br is part of their training.*

Eduardo Diniz, professor at the School of Business Administration of São Paulo of the Getulio Vargas Foundation (FGV)

ICT Education

The vast majority of Brazilian schools already have access to computers and to the Internet in one way or another, but the challenge remains to incorporate these resources into their teaching routines.

Since 2010, the *ICT Education* survey has been investigating the use of ICTs by public and private schools in urban areas in all regions of Brazil. Teachers, students, principals, and directors of studies are interviewed with the aim of knowing the existing infrastructure in schools and how they use ICTs in their educational activities.

The survey is institutionally supported by the Ministry of Education, Unesco, the National Council of Education Secretaries (CONSED), the National Union of Municipal Education Managers (UNDIME), and by experts in the field linked to non-governmental organizations and major academic centers.

We are experiencing a cultural revolution that is bringing about major changes in school culture. The results of the ICT Education *survey have been supporting our research activities significantly.*

Léa Fagundes, coordinator of the Laboratory for Cognitive Studies of the Psychology Institute of the Federal University of Rio Grande do Sul (UFRGS)

The ICT Education *survey is a starting point for deepening our knowledge of how schools are using ICTs for teaching-learning purposes. If not based on actual reality, interventions are likely to produce limited results.*

Maria Inês Bastos, independent consultant in Education

The potential of ICTs to help improve education in meaningful ways is undeniable, but how can we separate the hope from the hype? Cetic.br's annual survey of ICT use in Brazilian schools provides valuable information and insights. It should be used as a model for many other countries.

Michael Trucano, senior ICT and Education Specialist, Human Development Network, The World Bank

ICT Health

ICTs are increasingly becoming indispensable elements for health care – with the potential to improve its quality and contribute to a more efficient management of health care systems. With the aim of analyzing this scenario, Cetic.br launched the *ICT Health* survey in 2013.

The survey is intended to investigate the availability of ICTs and information systems in health care facilities. It also investigates how doctors and nurses use these tools in their work and major barriers to adopting them.

The survey relies on institutional support from international organizations such as OECD, ECLAC and Unesco, the Brazilian Ministry of Health through the IT Department of the Unified Health System - SUS (DATA-SUS), the National Supplementary Health Agency (ANS), as well as from other representatives of government and civil society and from experts linked to major universities.

> *The ICT Health survey is an unprecedented initiative for measuring ICT adoption indicators in the health care area and it has become a major source of fundamental information to support public policies in this sector.*
>
> Augusto Gadelha Vieira, director of the IT Department of SUS (DATASUS)

> *Cetic.br was one of the first centers to use the OECD Guide to Measuring ICTs in the health sector and it is internationally recognized as a center of excellence providing the international community with necessary information to help foster a modern and sustainable information society.*
>
> Elettra Ronchi, senior analyst of the Information, Computer and Communications Policy Division of the Organisation for Economic Cooperation and Development (OECD)

ICT E-Government

Government agencies in Brazil have been using the Internet more and more as a tool for improving service delivery and for promoting access to public information and citizen participation. Cetic.br has been keeping track of these changes through the **ICT E-Government** survey.

Since 2013, the *ICT E-Government* survey has been investigating the supply side of e-government as a means to identify the use of ICTs in the Brazilian public sector.

The survey interviews public officials in charge of ICT and those responsible for digital content of government agencies at federal, state and municipal level and of the Executive, Legislative and Judicial branches, in addition to the Federal Prosecutor's Office.

The study is institutionally supported by the Ministry of Planning, Budget and Management, through the Logistics and Information Technology Secretariat (SLTI), and by the Office of the Comptroller General (CGU), through its Corruption Prevention and Strategic Information Secretariat (SPCI), as well as by other government agencies and experts linked to major universities.

The surveys carried out by Cetic.br provide excellent inputs for making and implementing public policies. They are also characterized as a monitoring tool for checking whether certain purposes of public policies are being effectively addressed or not.

João Batista Ferri de Oliveira, E-Government director of the Brazilian Ministry of Planning, Budget and Management

Studying the use of technology by governments makes it possible to understand if what is being offered actually meets the needs of society. Cetic.br provides high-quality and robust data. This is a crucial input for academic research.

Maria Alexandra Cunha, professor at the Business Administration School of the Getulio Vargas Foundation (FGV)

.gov

ICT Nonprofit Organizations

How do ICTs contribute for nonprofit organizations to make more progress in their areas of activity and to develop better relations with the communities in which they operate? This is a key aspect of the *ICT Nonprofit Organizations* survey, which was carried out for the first time in 2012.

This survey maps out ICT infrastructure items, use, capabilities, and adoption among nonprofit organizations, including NGOs, foundations, associations, unions, and religious organizations.

The survey relies on the collaboration of a group of experts made up of members of the Brazilian Association of Non-Governmental Organizations (ABONG), the Group of Institutes, Foundations and Companies (GIFE), the Brazilian Institute for Geography and Statistics (IBGE), the Institute for Applied Economic Research (IPEA), and researchers from several universities.

We live in a context where non-profit organizations have an important role to play in promoting social advances. The work developed by Cetic.br provides me with invaluable data and results that are enriching my research and practice on social innovation issues.

Marlei Pozzebon, full professor at HEC Montreal (Canada)

ICT Providers

Expanding and upgrading the access infrastructure is fundamental for ensuring digital inclusion effectively. And Internet providers are key actors in this process. This is the starting point of the *ICT Providers* survey.

Held since 2011, the survey is intended to develop a comprehensive listing of Internet service providers (ISP) with the aim of building a National Register of Providers.

Supported by the main ISP associations in Brazil, the survey provides information such as speed of access, coverage, and type of technology used.

ICT Public Access Centers

Creating conditions for each person to have a computer and Internet access is still a major challenge. For this reason, free-of-charge or paid public access centers, such as telecenters or internet cafes, are alternatives for promoting digital inclusion.

In 2010, Cetic.br launched the pioneering *ICT Lanhouse* survey. In 2013, the *ICT Public Access Centers* survey was carried out, which also included telecenters linked to federal programs. The survey is institutionally supported by the Ministry of Communications and by Institute for Applied Economic Research (IPEA), as well as by invited academic experts.

Methods and international comparability

The methodologies developed by Cetic.br are based on methodological guidelines and parameters set by several international organizations, including the International Telecommunication Union (ITU), the United Nations Conference on Trade and Development (UNCTAD), the Organisation for Economic Co-operation and Development (OECD); the United Nations Educational, Scientific and Cultural Organization (Unesco), the Statistical Office of the European Commission (Eurostat), and the Economic Commission for Latin America and the Caribbean (ECLAC).

After targets were set by the World Summit on the Information Society (WSIS), Cetic.br also started to follow the benchmarks set by the multi-stakeholder Partnership on Measuring ICT for Development initiative.

"When it comes to information society measurement, Cetic.br has done exemplary work. By regularly carrying out ICT surveys and disseminating the resulting data in a transparent and comprehensive way, Cetic.br has contributed substantially towards a better understanding of ICT developments in Brazil. In all of its work, Cetic.br has been following closely the recommendations and standards developed by the international community, such as the Partnership on Measuring ICT for Development. This has allowed the ICT data produced in Brazil to be comparable with those from other countries from both the developed and developing world."

*Susan Teltscher,
head of the ICT Data and Statistics Division of the International Telecommunications Union (ITU)*

All the ICT surveys are available for download at www.cetic.br.

cetic.br

www.cetic.br

nic.br

www.nic.br

cgi.br

www.cgi.br