



United Nations
Educational, Scientific and
Cultural Organization

cetic.br

Regional Center for Studies on the
Development of the Information
Society under the auspices of UNESCO

2017

Annual Report Cetic.br

About CGI.br

The Brazilian Internet Steering Committee (CGI.br) was created with the purpose of coordinating and integrating all Internet service initiatives in Brazil, as well as promoting technical quality, innovation and the dissemination of the services available.

About NIC.br

The Brazilian Network Information Center (NIC.br) was created to implement the decisions and projects designed by the Brazilian Internet Steering Committee – CGI.br.

About Cetic.br

The Regional Center for Studies on the Development of the Information Society (Cetic.br) is the NIC.br department responsible for the production of indicators and statistics on the availability and use of the Internet in Brazil. In 2012 Cetic.br was nominated a Category II UNESCO Center with the mission of monitoring the development of knowledge and information societies in Latin America and the Portuguese-speaking countries of Africa.

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Presentation

In 2017, the Regional Center for Studies on the Development of the Information Society (Cetic.br) consolidated a track record of 12 years in the regular production and analysis of data on the access to and use of information and communication technologies (ICT) in Brazil. It did so by producing surveys and reports that address the socio-economic impacts of the Internet and ICT in different areas of society. The production of reliable and high-quality data is a growing demand on the part of society and contributes significantly to the design and monitoring of ICT public policies. Such data have also been increasingly used by the private sector, academia and society as a whole. Thus, Cetic.br's work not only contributes to the design of evidence-based public policies but also helps citizens to monitor Internet and other ICT-related themes of common interest among society.

In 2012, Cetic.br became a United Nations Educational, Scientific and Cultural Organization (UNESCO) Category II Center and, under this mandate, for the past six years, the Center has increasingly strengthened its cooperation with Latin America and Portuguese-speaking countries in Africa in actions to foster the development of inclusive information and knowledge societies. In recent years, Cetic.br has intensified its capacity-building programmes on survey

methodologies aimed at promoting the production of internationally comparable data. In the context of the United Nations' Sustainable Development Goals (SDGs) and the 2030 Agenda, Cetic.br has also been playing an important role in debating the definition of ICT indicators that can help to monitor the SDGs.

All projects and activities developed by Cetic.br are fully funded by the Brazilian Network Information Center (NIC.br) through resources derived from the registry of Internet domain names under the country code top-level domain (ccTLD) .br (Registro.br). In this way, NIC.br reinforces its support for the regular production of ICT data and statistics, with the highest technical rigour and in compliance with international methodological standards. NIC.br also renews its commitment to contributing, along with countries in Latin America and Portuguese-speaking Africa, to the debate on issues related to the role of ICT for promoting sustainable development and also the development of information and knowledge societies, as well as exchanging experiences and good practices in ICT data production.

This annual report presents a summary of the activities developed by Cetic.br under its main lines of action as a regional center for studies under the auspices of UNESCO.

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



Introduction

Promoting socio-economic development in the context of the United Nation's 2030 Agenda poses a challenge for many countries in the global south. It not only requires countries to create their political agenda and design evidence-based public policies to achieve the Sustainable Development Goals (SDGs), but also calls for the production of reliable and internationally comparable data to monitor the progress in attaining these goals.

The UN 2030 Agenda is intended to guide governments at a global level in mobilizing resources and efforts to put an end to all forms of poverty, fight inequality and combat climate change. Actions taken by government should promote social and economic prosperity, innovation, sustainable consumption, peace and justice, eliminating possible sources of structural disparities and ensuring that no one is left behind.

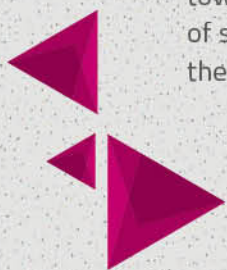
There is growing recognition by many international organizations that information and communication technologies (ICT) are crucial for achieving the SDGs since technologies are an important enabler in integrating and accelerating progress toward the foundations of sustainable development: economic growth, social inclusion and environmental sustainability. The trend towards digitalization in almost all areas of society is irreversible and will impact on the economy, government and society in

general. For the digital transformation to prevail and benefit society, public policies promoting an enabling environment based on access to and use of ICT are essential to accelerate development in areas such as education, health, social protection, labour and the environment.

Initiatives related to measurement and data production for monitoring the SDGs have gained importance worldwide. Producing data and statistics, which is essential for evidence-based policymaking, has also become crucial for tracking the progress towards the SDGs, but most countries in the global south still face major gaps in the production of reliable and timely data for monitoring the SDGs. Therefore, countries will be under increasing pressure to produce high-quality data in a timely manner for policy design and monitoring.

Throughout 2017, the projects carried out by Cetic.br were conducive to data needs in the context of the SDGs and workshops were focused on raising awareness and building the capacity to measure the SDGs among policymakers, international organizations, academic researchers, NGOs and the private sector.

Cetic.br has been conducting studies on the implications of the Internet in society and producing reliable data and statistics on ICT through specialized surveys for more than a decade. These surveys have served as a source of reliable and relevant





data for the design, implementation and monitoring of ICT public policies in various segments of Brazilian society. The experience acquired over these years has positioned Cetic.br as an important reference in international forums on the standardization of indicators and methodological definitions for the production of ICT statistics.

In 2017, Cetic.br published six books containing articles and data analysis on the following ICT Surveys: ICT Households, ICT in Education, ICT Kids Online Brazil and ICT in Health, produced annually; ICT in Culture and ICT Nonprofit Organizations, produced biennially.

The Center also launched a publication from the NIC.br Sectoral Studies series related to qualitative research on ICT in culture, entitled "Culture and technologies in Brazil: a study on the cultural practices of the population and the use of information and communication technologies". Also published were three editions of the Internet Sector Overview Report, focusing on the 2030 Agenda and the SDGs. The Center also made important contributions to the production and dissemination of UNESCO publications, by coordinating the production of two policy briefs on digital inclusion and ICT, education and social development in Latin America. Furthermore, two publications originally produced only in English were translated into Portuguese and Spanish: the Measuring ICT and Gender report by the United Nations Conference on Trade and Development (UNCTAD) and Keystones to Foster Inclusive Knowledge Societies: Access to Information and Knowledge, Freedom of Expression, Privacy and Ethics

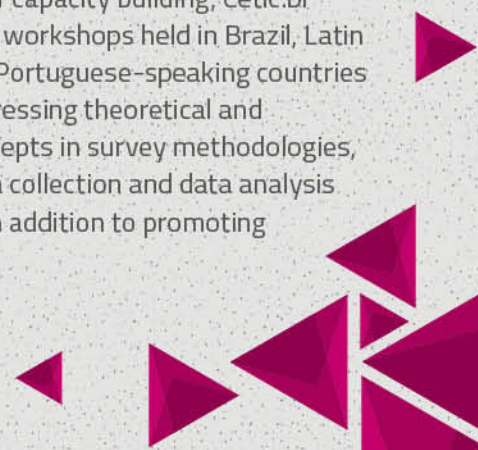
on a Global Internet by UNESCO.

Other relevant studies related to the 2030 Agenda were initiated or carried out in 2017, such as a project on the use of ICT by youngsters from a gender perspective, the use of big data to produce relevant statistics and studies related to smart cities.

During 2017, Cetic.br maintained its active participation in forums aimed at the discussion of ICT indicators such as those hosted by the International Telecommunications Union (ITU), the United Nations Economic Commission for Latin America and the Caribbean (ECLAC), the Organisation for Economic Co-operation and Development (OECD), and the United Nations Educational, Scientific and Cultural Organization (UNESCO).

Another achievement during 2017 was the online provision of access to microdata on the ICT household surveys, enabling all users to have access to these data in accordance with specific interests. This reinforces the Center's commitment to disseminating information and knowledge and further expanding the reach of the survey methodologies and their results. Cetic.br also provides access to the ICT indicator database through a data visualization portal on the Web (<http://data.cetic.br>), enabling interactive and dynamic browsing and facilitating access to statistical data from the surveys, also made available in open format.

In terms of capacity building, Cetic.br offers annual workshops held in Brazil, Latin America and Portuguese-speaking countries in Africa, addressing theoretical and practical concepts in survey methodologies, including data collection and data analysis techniques, in addition to promoting



discussion and the exchange of experiences among ICT data users and producers.

In 2017, Cetic.br organized capacity-building workshops in São Paulo and Costa Rica and supported the workshops conducted by ECLAC and the Data-Pop Alliance in Santiago, Barcelona and Mexico City. These capacity-building events play an important role in the dissemination of internationally agreed methodologies and ICT measurement practices, and serve to bring together data producers and users. Altogether, these workshops reached an audience of more than 230 participants, including policymakers, data producers, representatives of civil society and others.

In 2017, through a partnership agreement, Cetic.br along with the SDG Academy and UNESCO Montevideo started to produce a new massive open online course (MOOC): The Role of information and Communication Technologies in Achieving the SDGs. This course is aimed at discussing how ICT and notably the Internet, are critical in achieving most SDGs and how measurement is fundamental to following up the achievement of the 2030 Agenda.

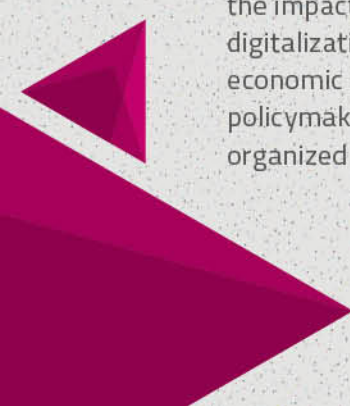
Cetic.br held five public debates during 2017 and discussed the themes of education, health, culture, the digital economy and child online protection, fostering meaningful dialogue among key stakeholders. Another important event organized by the Center was an inter-ministerial meeting for discussing the impacts and benefits of the digitalization process for social and economic development among Brazilian policymakers. In total, the public debates organized throughout the year reached

an audience of more than 520 experts, policymakers, educators, researchers and members of the general public.

All ICT surveys carried out by Cetic.br rely on the technical and methodological support of groups of renowned experts that contribute by validating indicators, methodology and the definition of guidelines for data analysis. This group's collaboration is instrumental in identifying new areas of investigation, improving methodological procedures and obtaining reliable data. During 2017, Cetic.br held ten expert group meetings in which more than 200 experts from different sectors of society participated. Such activities help Cetic.br to further bridge the gap between policymakers and data producers.

With reference to data dissemination and international ICT indicator forums, Cetic.br has actively participated in several international conferences, symposiums, seminars and technical forums debating methodology and indicators for measuring information and knowledge societies and the digital economy. During 2017, Cetic.br attended more than 50 national and international events, disseminating the work being done by the Center and contributing to the debate on measuring ICT for development.

This report presents a general overview of the most relevant accomplishments during 2017. It also reaffirms that all activities and projects carried out by Cetic.br are fully aligned with the Center's mission of contributing to building inclusive information and knowledge societies in Latin America and Portuguese-speaking countries in Africa.



Main lines of action of Cetic.br

Knowledge Center

This line of action aims to produce data through quantitative and qualitative research on ICT, as well as to disseminate information and knowledge, including survey methodologies, indicators, data analyses and thematic ICT publications that contribute to the building of inclusive information and knowledge societies.

Capacity-Building Programmes on Survey Methodologies

This line of action focuses on capacity-building programmes on survey methodologies for the production of ICT-related statistics and indicators. Such programmes are conducted with the goal of improving the availability and quality of ICT statistics and fostering the production of comparable data on access to and use of the Internet. The workshops are also intended to raise awareness among stakeholders on the role of data in evidence-based policymaking in the context of the development of information and knowledge societies.

2017 Activities

► Facts & Figures

1 NIC.BR SECTORAL STUDY:
"Culture and technologies in Brazil: a study on the cultural practices of the population and the use of information and communication technologies"

3 INTERNET SECTOR OVERVIEW REPORTS:

- UN 2030 Agenda
- Smart Cities
- e-Participation

6 ICT SURVEY PUBLICATIONS:
more than 430 indicators

4 CAPACITY BUILDING EVENTS:
more than 230 participants

Laboratory of Ideas

Cetic.br also serves as a multi-stakeholder platform aimed at sharing experiences and encouraging debate among key stakeholders on the challenges of measuring ICT and on emerging issues related to the development of information and knowledge societies. The Center promotes public debates, lectures and discussion panels with renowned experts from government, academia, international organizations and civil society organizations with a view to exploring the socio-economic impacts of ICT. The laboratory of ideas activities guarantee transparency and give legitimacy to all other lines of action conducted by the Center.

Culture and Ethics on the Internet

The social dimension of the Internet has drawn attention to topics such as culture and ethics in the online environment. Cetic.br's new ICT in Culture Survey is aimed at measuring the production and consumption of cultural goods mediated by ICT and shows the Center's commitment to studying the relationship between the Internet and culture. With regard to ethics on the Internet, privacy and online safety the Center engages in workshops and the production of guidelines to raise the awareness of parents, educators and users in general about ethical issues related to Internet use.

12 PUBLISHED PAPERS AND BOOK CHAPTERS

10 EXPERT MEETINGS:
more than 200 experts

5 PUBLIC DEBATES

&

1 INTER-MINISTERIAL MEETING:
more than 520 participants

PARTICIPATION OF CETIC.BR IN NATIONAL AND INTERNATIONAL EVENTS:

more than 50 events

CETIC.BR IN THE MEDIA:

64 interviews,
593 mentions

Public debates

Throughout 2017, the Center held numerous public debates on themes related to the development of information and knowledge societies, fostering meaningful dialogue with key stakeholders in order to better understand the socio-economic implications of information and communication technologies (ICT) in different segments of society. Such

public debate events mark the launch of new ICT survey publications and serve as a forum for discussing the importance of producing data for evidence-based policymaking. These activities are an effective mechanism to ensure the transparency and legitimacy of the projects being carried out by Cetic.br. In this regard, a special mention should be made of the five main events that took place in Brazil during 2017.

▶ Children in the Digital Era: Perspectives for Public Policies April 2017 – São Paulo (SP)

Policymakers, academic researchers and representatives of civil society organizations met in a public event held by Cetic.br/NIC.br to share experiences about data and knowledge production related to the presence of children in online environments and how public policies can use evidence derived from research and surveys conducted in this area. The seminar was organized by Cetic.br/NIC.br and the Brazilian Internet Steering Committee (CGI.br), along with the United Nations Children's Fund (UNICEF) and SaferNet, and with institutional support from the Alana Institute. The event featured the presence of Sonia Livingstone, a professor and researcher from the London School of Economics (LSE). She is one of the leaders of the international research project entitled "Global Kids Online", which seeks



to generate and support an evidence base on Internet use by children, and has created a global network of researchers and experts.

The absence of children in statistics and public policies was highlighted in Sonia Livingstone's presentation. Another important aspect discussed during the seminar was the role of the Internet in education and the protection of children's rights. Multiple stakeholders participated in the meeting, including representatives from the private sector, civil society, the federal government and international agencies.



▷ Inter-ministerial Meeting: Dialogue on Public Policies and ICT Indicators in Brazil May 2017 – Brasília (DF)

National and international experts participated in the third edition of the Inter-ministerial Meeting: Dialogue on Public Policies and ICT Indicators, hosted by the Brazilian Ministry of Science, Technology, Innovation and Communication (MCTIC), to discuss ICT public policies based on data and indicators produced by Cetic.br.

Besides collaborating in the conception, planning and conducting of this event, Cetic.br/NIC.br presented up-to-date national data on the access to and use of ICT to outline the Brazilian context in relation to the digital economy, health and education. These data served as important input for the debate that followed in thematic round tables during the event.

The event featured an opening lecture by Anne Carblanc from the Organisation for Economic Co-operation and Development (OECD), which addressed the "Benefits

The design of the Brazilian digital strategy is a priority, as well as a joint effort with other Ministries. The data produced by Cetic.br are essential inputs for the construction of this plan.

Maximiliano Martinhão, Secretary of Brazilian Ministry of Science, Technology, Innovation and Communication (MCTIC)

I am pleased to see that the data produced by the ICT surveys at Cetic.br are being effectively used by international and governmental organizations. We have 12 years of production of internationally comparable ICT statistics. In addition, we also conduct capacity-building workshops to qualify these studies.

Demi Getschko, CEO of NIC.br

of Digitalization for Social and Economic Development". In addition, the discussions on policies to promote health and education were preceded by the presentation of inspiring cases from neighbouring countries:

the panel on health featured the experience of Uruguay, represented at the event by the Agency for the Development of Government Electronic Management and Information and Knowledge Society (AGESIC), while the round table on education highlighted the case from Argentina, represented by the Ministry of Education and Sport. There was also a presentation delivered by Wilson Peres from the Economic Commission for Latin America and the Caribbean (ECLAC), which kicked off the discussions in the round table on the digital economy, innovation and productivity.



▷ Culture and Technologies in Brazil: Cultural Practices of the Population and ICT August 2017 – São Paulo (SP)

The launch event for Cetic.br's publication "Culture and technologies in Brazil: a study of the cultural practices of the population and the use of information and communication technologies" (see page 41, on NIC.br Sectoral Studies) featured a thematic debate on ICT and culture with experts. The event took place in São Paulo, in partnership with the Center for Research and Training of the Social Service of Commerce (SESC), and was moderated by Luciana Piazzon Barbosa

Lima (Cetic.br/NIC.br), with the participation of Isaura Botelho (SESC-SP) and Maria Carolina Vasconcelos Oliveira (Brazilian Center of Analysis and Planning – CEBRAP).

The discussion focused on how the Internet influences access to cultural goods and services as well as its role in increasing the diversity of content produced and disseminated. It also addressed the limitations of technology for promoting cultural diversity and strengthening the right to culture.

▷ Technology and Health: Innovation in Management and Clinical Care November 2017 – Gramado (RS)

The fourth edition of the ICT in Health Survey was released at the eighth Brazilian Congress of Telemedicine and Telehealth. The launch was followed

by a public debate, attended by Beatriz de Faria Leão (Brazilian Health Informatics Society), Luiz Ary Messina (Telemedicine University Network/National Research

and Educational Network) and Vladimir Pizzo (Sírio Libanês Hospital); the moderator was Heimar Marin (scientific coordinator of the ICT in Health Survey). The debate broached topics such as information security, electronic health records and services offered online, telehealth and the benefits of adopting ICT in the health sector.

▶ Education and Digital Culture: Advancements and Challenges for Public Policies

November 2017 – São Paulo (SP)

The launch of the ICT Households 2016, ICT in Education 2016 and ICT Kids Online Brazil 2016 Survey publications was marked by a public debate with national and international experts that discussed the advancements and challenges in the design of ICT policies in the field of education within the context of the digital culture. The debate focused on issues related to digital inclusion, inequalities, the development of digital skills and innovation.

The event featured a keynote speech by Professor Ignacio Jara from the Center for Comparative Policies in Education at Diego Portales University (Chile). It was followed by a debate moderated by Gabriela Mora, an official from UNICEF's Adolescent Development and Participation unit in Brazil, with the participation of Leila Iannone, scientific coordinator of the ICT in Education Survey, and Fernando José de Almeida, professor at the Pontifical Catholic University of São Paulo.



Capacity building and awareness raising

The capacity-building workshops and awareness-raising events held in 2017 all converge in addressing the challenges of measuring ICT, whether discussing new methodologies and data sources for development, such as big data, or in debating opportunities and challenges in monitoring the achievement of the United Nations Sustainable Development Goals (SDGs)¹.

Such workshops are aimed at providing opportunities for key stakeholders involved in the production, analysis and use of ICT indicators to exchange experiences. These include national statistics offices (NSOs), ministries,

regulatory agencies and international organizations – institutions with which Cetic.br has been strengthening its partnerships – in addition to professionals, policymakers, academic research centres, non-governmental organizations (NGOs), foundations, companies and universities. These meetings not only promote the exchange of technical knowledge for survey methodologies but also serve as a forum for debating the importance of ICT statistics for evidence-based policymaking, as well as discussing new possibilities for measurement in emerging themes, thereby strengthening the use of ICT in this process.

▷ NIC.br Annual Workshop on Survey Methodology

The seventh NIC.br Annual Workshop on Survey Methodology was held in June 2017, in São Paulo, and was attended by about 60 representatives from the academic sector, government, international organizations, civil society organizations and the private sector. The main theme of the seventh edition was the UN 2030 Agenda for Sustainable Development Goals and the challenges for measuring the

SDGs, which was discussed during the four days of the workshop.

The event, which traditionally promotes in-depth reflection on the importance of producing high-quality data for the design and monitoring of public policies, brought together participants from different sectors with a view to increasing their understanding of the SDGs, and examining the challenges in measuring them and how

¹ Developed in the context of the United Nations, the 2030 Agenda is composed of 17 Sustainable Development Goals (SDGs) and 169 targets in a set of programmes, actions and guidelines aimed at achieving the maintenance of human rights over the next 15 years. More information can be found on the SDG Strategy Coalition website. Retrieved on January 26, 2018, from <http://www.estrategiaods.org.br/>





information and communication technologies can contribute to their implementation, achievement and measurement.

As well as the discussion panels, the workshop activities included interventions and short courses, featuring the following speakers: Francesca Perucci (United Nations Statistics Division – UNSD), Roberto Olinto, President of the Brazilian Institute of Geography and Statistics (IBGE), Emmanuel Letouzé (Data-Pop Alliance), Mireia Fernandez-Ardèvol (Open University of Catalonia) and Bruno Cautrès (Centre de Recherches Politiques de Sciences Po – Paris).

The workshop also featured two panels: one panel addressed the relationship between ICT and the SDGs featured discussions with Haroldo Machado Filho (United Nations Development Programme) and Esperanza Magpantay (International Telecommunications Union – ITU); a second panel discussed ICT and socioeconomic inequalities, with the participation of Paulo Martino Jannuzzi (National School of Statistical Sciences), Marta Arretche (University of Sao Paulo) and Sergei Soares (Institute for Applied Economic Research – Ipea).

▶ Workshop on Measuring ICT in Health

The workshop “Strengthening capacities for measuring the level of maturity in the use of information and communication technologies (ICT) in the health sector” (see page 36 on American Network of Cooperation in Electronic Health) was held in June 2017, in São Paulo. The event was attended by 12

representatives of the Ministries of Health of Chile and Peru, the Ministry of ICT of Colombia, the Agency for the Development of Government Electronic Management and Information and Knowledge Society (AGESIC) of Uruguay and the Costa Rican Social Security Funds. The workshop was

The discussions promoted during the workshop and the technical cooperation between Cetic.br/NIC.br and RACSEL are expected to help participants to build the knowledge and skills required to design national measurement strategies for producing ICT statistics for the health sector, in accordance with available international standards.

Alexandre Barbosa, Head of Cetic.br

organized by Cetic.br in cooperation with AGESIC and RACSEL network (*Red Americana de Cooperación en Salud Electrónica* in Spanish) – with the support of the Inter-American Development Bank (IDB). The workshop was also institutionally supported by the Pan American Health Organization/World Health Organization (PAHO/WHO).



With a view to developing knowledge and skills for measuring the use of ICT health systems in Latin America, participants benefitted from the Brazilian and Uruguayan experiences of conducting national surveys based on the international methodologies developed by the OECD and ECLAC.

▷ Summer School on Digital Transformation in Latin America

The fourth edition of the Summer School, organized by ECLAC, the Development Bank of Latin America (CAF), the Barcelona Institute of International Studies (IBEI) and with the support of Cetic.br/NIC.br, was held in Barcelona in June. This edition focused on digital and regional integration in both Latin America and Europe and discussed the configuration of a digital regional market, among other relevant aspects. The event attracted participants from Latin America and Spain who are involved in the debate on digital



innovation and Industry 4.0, policies and digital integration experiences and themes related to ICT infrastructure and new regulatory models in the digital economy.

Cetic.br/NIC.br provided support by financing the participation of a representative from the Brazilian federal

government as well as two representatives and a speaker from the Center. The Center's presentation at the panel "Work 4.0: artificial and robotic intelligence" addressed the relevance of measuring the digital divide, the impact of ICT on industries and companies, and implications for public policies.

► Global Professional Training Programme on Big Data for Measuring the Digital Economy

In partnership with ECLAC and the Data-Pop Alliance, a non-profit think tank, Cetic.br/NIC.br ran a three-day training workshop in São Paulo in September on utilizing "Big Data for Measuring the Digital Economy". The workshop was aimed at providing representatives from different sectors in Brazil – government, the private sector, academia and civil society – with the skills and resources needed to navigate and leverage big data in and through their professional environments. Structured around four key dimensions – i) Contexts and Concepts; ii) Methods and Tools; iii) Design and Strategy; and iv) Ethics and Engagement – the workshop focused on big data and the digital economy in the Latin America and Caribbean region.

The workshop is part of a comprehensive programme designed to respond to major needs in the field of big data literacy and data science as well as data gaps in policymaking for development. The programme was launched in Santiago, Chile, in 2016, by ECLAC and the Data-Pop Alliance. NIC.br hosted the second edition of the programme in São Paulo, and a third



was held in Mexico City in October 2017, co-organized by ECLAC, the Coordination of the National Digital Strategy of the Mexican Federal Government and the Data-Pop Alliance. Representatives of Cetic.br/NIC.br actively participated in the sessions conducted in Chile, Brazil and Mexico, contributing with thematic discussions and also delivering presentations on the Center's experience in combining data sources to understand the digital economy and using Web scraping to produce ICT indicators for enterprises.

ICT FOR DEVELOPMENT

Recognizing that ICT cut across all sectors of society and economy and may play a key role in development and social transformation, Cetic.br/NIC.br actively participates in a variety of debates and discussions on measuring the development of information and knowledge societies. Cetic.br/NIC.br participates in national and international events, presenting national indicators on the access to and use of ICT in different sectors of society and discussing emerging

issues related to methodologies for measuring ICT.

In 2017, the Center participated in different debates on ICT for development related to themes such as education, health, gender and culture. During the year, the Center attended more than 50 forums, congresses, meetings, seminars and gatherings about emerging issues related to ICT, both at national and international levels. The following is a brief list of noteworthy events and activities in 2017.

▶ ICT and Education

Fourth International Conference on Education

This annual event (Colloque International en Éducation in French) was held in Montreal, Canada, in May, with the objective of promoting discussions on technology and education. The 2017 conference debated issues related to teachers and to the task of teaching, especially regarding the use of information and communication technologies in education. Within this context, Cetic.br/NIC.br delivered a

presentation that was based on the information it has gathered over the years from the ICT in Education Survey. The presentation provided an overview of the relationship between educators and ICT in Brazilian public schools with respect to the profile of teachers as technology users, the incorporation of ICT in educational activities and the particularities of training teachers.

Connected Education Innovation Policy

Instituted on November 23, 2017, the Connected Education Innovation Policy is the new public policy of the Brazilian Ministry of Education (MEC) for expanding and improving the dissemination of information and communication

technologies as a pedagogical tool in teaching and learning processes. Among the actions that MEC will implement, the policy seeks to improve and monitor the quality of the broadband connection in more than 20,000 public schools

across Brazil, serving more than 12 million students. This policy was designed with the technical support of the Innovation Center for Brazilian Education (Cieb) and with the participation of the Lemann Foundation and Cetic.br, along with other institutions. Specifically, NIC.br participates as a partner of MEC in the implementation of the measurement tool through the

supply of firmware from the Internet Traffic Measurement System (SIMET) and the creation of a data visualization portal for viewing the collected and processed data. This makes it possible to monitor the access to and use of technologies in schools over time, crossing such data with educational performance indicators, such as the Index of Basic Education Development (Ideb).

UNESCO International Forum on ICT and Education 2030

This forum, held by UNESCO in July 2017 in Qingdao, the People's Republic of China, focused on harnessing ICT to achieve Sustainable Development Goal 4² for Education in the 2030 Agenda. As a follow-up to the International Conference on ICT and Post-2015 Education, the forum sought to reaffirm the commitments expressed in the Qingdao Declaration and strengthen the intersectoral platform promoted at the Qingdao Conference 2015. With around 400 participants from more

than 80 countries, including high-level ministry officials from member states, senior representatives of UN agencies and international organizations, researchers and executives of ICT, the forum promoted North-South knowledge sharing through the presentation of experiences and action proposals. In this context, Cetic.br/NIC.br participated in the thematic discussions and contributed with a presentation entitled "ICT-related statistics: the role of measurement in policymaking".

Dujiangyan International Forum: Ensuring Quality Education and Lifelong Learning

The Dujiangyan International Forum took place in Dujiangyan, Chengdu, in July 2017 and was organized by the Chinese National Commissions for UNESCO, the UNESCO Institute for Information Technologies in Education (IITE) and Chengdu City Hall. It was attended by more than 200 participants, especially

policymakers and researchers from the field of education, as well as ministry officials, particularly from African countries. During the event, Cetic.br delivered a presentation on the Brazilian experience in relation to ICT and education statistics within the scope of SDG 4, on quality education, presenting data from the ICT in Education Survey.

² SDG 4 seeks to "[e]nsure inclusive and quality education for all and promote lifelong learning".



▶ ICT and Children

Global South-South Development Expo 2017

Launched in 2008, the Global South-South Development Expo (GSSD Expo) is an annual global event organized by the United Nations Office for South-South Cooperation. The GSSD Expo is designed to showcase successful evidence-based development solutions and initiatives created by institutions in countries in the global south to address development challenges. The GSSD 2017 was hosted by the Republic of Turkey and took place in Antalya in November 2017.

Cetic.br/NIC.br was part of the UNICEF delegation and presented the Global Kids Online project collaboration model and the results of the ICT Kids Online Brazil Survey. This experience sharing is especially relevant since the event serves as a platform for development by bringing together stakeholders from various backgrounds to present their development solutions, disseminate information, share knowledge and lessons learned, explore new avenues for collaboration and initiate new partnership efforts.

Challenges of a Digital Society Conference

This conference took place in Santiago, Chile, in April 2017. It was organized by the School of Journalism of the Pontifical Catholic University of Valparaíso, together with the Center for the Study of Educational Policies and Practices (CEPPE) of the Catholic University of Chile. The main objective of the conference was to launch the data from the Kids Online Chile Survey and discuss new projects of the Latin American Kids Online network for upcoming years (see page 37 on Latin America Kids Online LACKO Network).

During the conference, Cetic.br/NIC.br sought to participate in the discussion regarding the network's next steps and share experiences and lessons learned during the four years of collecting data for the ICT Kids Online Brazil Survey, highlighting the particularities of carrying out the survey in the Brazilian context. Cetic.br was able to address the challenges for future editions of the survey, given its annual frequency, in addition to new relevant issues for the research and public policy agenda in Brazil.

Global Kids Online: Knowledge Exchange and Impact Meeting

The Department of Media and Communications of the London School of Economics and Political Science (LSE) and the UNICEF Office of Research – Innocenti hosted in June a two-day knowledge exchange

and impact meeting of the Global Kids Online network. This event offered an opportunity for researchers from Africa, Asia, Europe and South America to discuss research dissemination challenges and share local experiences



of working effectively with stakeholders to maximize research impacts. The meeting took place in London and brought together over 30 academics, researchers and UNICEF staff from 12 different countries. Cetic.br/NIC.br presented the Brazilian experience in

regard to data collection, including the progress of the fieldwork and lessons learned, latest findings, dissemination efforts, gaps and challenges. Cetic.br/NIC.br also delivered a presentation on their strategies to engage stakeholders in the ICT Kids Online Brazil project.

Second Workshop on the Impacts of the Presence of Children on the Internet

In light of the importance of addressing the impacts of children's presence on the Internet, the Brazilian Internet Steering Committee (CGI.br) and NIC.br hosted this workshop, for the second year, which was attended by renowned professionals in this area. It also received the support of, and was jointly executed by, SaferNet Brasil. The event was held in São Paulo in

September, and featured presentations that addressed technical and legal issues related to children and the Internet. Cetic.br participated on the panel that provided data and information on Internet use by children in Brazil and the role of parents, presenting not only the results of the ICT Kids Online Survey, but also the methodology and its revised theoretical framework.

▷ ICT and Culture

SESC Cultural Practices Seminar

In April 2017, Cetic.br/NIC.br, in partnership with the Research and Training Center of SESC-SP, organized a seminar to discuss "Cultural practices and new technologies: challenges in producing indicators". The event brought together national and international researchers, experts and policymakers in the area of cultural consumption and promoted experience sharing and discussions on new measurement models. The debate looked toward the 2030 Agenda challenges and the challenges in measuring cultural practices in Latin America. The event also provided

important inputs for the ICT in Culture Survey project.

In addition to representatives from the IBGE, Ipea and the Brazilian Ministry of Culture, there were also representatives from the Ministries of Culture of Argentina and Chile, who shared their experiences with measuring cultural practices in their countries. A representative from the UNESCO Institute for Statistics (UIS) also attended the seminar and introduced concepts and definitions from the 2009 UNESCO Framework for Cultural Statistics, used for defining the cultural sector and harmonizing cultural variables among national surveys.



14th Meeting on Multidisciplinary Studies in Culture

As part of the Meeting on Multidisciplinary Studies in Culture (ENECULT) programme, a round table was held in September, entitled “Culture and technologies in Brazil: a study of the cultural practices of the population and the use of information and communication technologies”. This event served as a platform for presenting the results of the Sectoral Study on ICT in Culture (see page 41). The event featured the participation

of the researchers Isaura Botelho, Luciana Piazzon Lima (Cetic.br/NIC.br) and Maria Carolina Vasconcelos Oliveira (CEBRAP), and also the sociologists Alexandre Barbalho (Ceará State University) and Frederico Barbosa (Ipea), who discussed the interfaces between ICT use and emerging cultural practices. This gave rise to a debate on the potentials and limitations of digital tools in regard to the access to and production of digital content.

▶ ICT and Health

First Telemedicine and Telehealth Meeting of the Community of Portuguese Language Countries

In September 2017, Cape Verde hosted the first Telemedicine and Telehealth Meeting of the Community of Portuguese Language Countries (CPLP): Digital Health in the Portuguese Language. This group of countries was formed with the purpose of exchanging experiences and knowledge about technologies in the use of telemedicine and telehealth. It was attended by representatives from Cape Verde, Brazil, Mozambique, Angola, Guinea-Bissau, Portugal, Equatorial Guinea, East Timor and São Tomé and Príncipe, with the objective of ensuring that all CPLP members can implement

telemedicine and telehealth following common guidelines.

Cetic.br/NIC.br was invited to present the session on “The importance of measurement for ICT public policies in the health sector”, where the main indicators from the ICT Health Survey were presented, particularly the indicators on the use and availability of telehealth and telemedicine in public and private health-care facilities in Brazil. The Center offered to collaborate with countries by providing capacity-building and methodological support for those planning to conduct surveys on the use of ICT in health in their countries.



▶ ICT and Gender

In 2017, Cetic.br/NIC.br participated in several debates involving the topic of ICT and gender, a fundamental theme in SDG 5³ of the UN 2030 Agenda.

Given the relevance of this theme, an important activity throughout the year was the discussion and dissemination of the methodology and preliminary data from the qualitative research on Internet use by children aged between 10 and 17 from a gender perspective. The research addresses issues such as access to technologies, activities, opportunities, privacy, self-representation on social networking sites and gender-related violence. The project, which began in 2016, was developed in partnership with the Latin American School of Social Sciences (FLACSO) in Buenos Aires. During 2017, the Center carried out the analysis of the collected data, and the preliminary findings were validated by experts, followed by preparation of the publication, which will be launched in early 2018. The Center was also invited to participate in various events throughout 2017 to present the study's methodological framework and preliminary results.

In May 2017, Cetic.br was invited to participate on the panel "ICT use and access: deciphering the digital divide from a gender and territorial perspective" at Virtual Educa Chile 2017, an annual event that brings together educators, experts, citizens, families and students to learn about and reflect on tools that enable exploration and understanding of the digital world.

In September, the Center was invited, for the same purpose, to present the preliminary findings on the perceptions of children with regard to privacy on the Internet at the second Workshop on the Impacts of the Presence of Children on the Internet (see page 13).



In November 2017, the Municipal Department of Human Rights and Citizenship of São Paulo City Hall carried out the campaign "16 days of activism to end violence against women", at which time the Municipal Department of Innovation and Technology sponsored the debate "Women in technology and innovation". The Center was invited to be part of the panel "Gender violence in the digital environment", in order to present data regarding the dimension that explores the theme of gender-related violence.

In 2017, Cetic.br/NIC.br was invited to be part of the Research Group of EQUALS: the Global Partnership for Gender Equality in the Digital Age. This group was established to ensure an evidence-based approach to the activities of EQUALS, a partnership formed between the ITU and UN Women. The objective is to promote gender equality in ICT access, skills and leadership, track progress towards the initiative's targets, and generate and disseminate knowledge globally to address gender inequalities in science and technology. Given the Center's experience in collecting ICT indicators disaggregated by sex, in addition to its qualitative research with children, it was invited to participate in the first face-to-face meeting of the group, which was held in Macau, China, in December 2017. This meeting focused on mapping the next steps toward an inaugural report by the EQUALS research group, and presenting chapter proposals for the publication.

³ SDG 5 seeks to "[a]chieve gender equality and empower all women and girls".

The UN 2030 Agenda and the Sustainable Development Goals

In light of the importance of ICT for achieving sustainable development, the UN 2030 Agenda served as an important guideline for the actions and partnerships of Cetic.br/NIC.br in 2017. ICT can not only contribute to the attainment of many of the Sustainable Development Goals but are also essential for measuring the progress countries are making to achieve them. In this context, the Center participated in national and international events,

organized training sessions and workshops (see page 18 on capacity building), and prepared publications covering topics related to the SDGs. Two other initiatives that began in 2017 and will continue into 2018 are participation in an international group from the UN to discuss SDG-related ICT indicators, and the launch of a massive open online course (MOOC) about ICT and the SDGs. These initiatives are described in this section.

▶ Internet Sector Overview Report: Focus on SDG

Reinforcing the relevance of the UN 2030 Agenda for the activities carried out by the Center in 2017, the three editions of the Internet Sector Overview Report, a periodic publication of Cetic.br/NIC.br, were dedicated to the topic “Sustainable Development Goals”. The first publication approached the topic in a more introductory way, presenting an overview of the SDGs, including the transition from the Millennium Development Goals (MDGs) to SDGs, and highlighted the relationship between ICT and the SDGs, and challenges in terms of measurement. The second and third editions of the publication were theme-oriented, addressing topics that are the subject of particular SDGs: smart cities and e-Participation. The second edition addressed the concept of smart

cities and indicated new challenges and opportunities, seeking to illustrate how the use of ICT can contribute to the sustainable development of cities (SDG 11). The third edition discussed some of the main benefits and challenges of digital participation in enhancing democracies, and explored how digital mechanisms of political participation can contribute to achieving more effective and inclusive institutions, which is the focus of SDG 16. Through these thematic editions, Cetic.br/NIC.br endeavoured to promote a broader discussion on the importance and challenges of measuring SDGs in their relationship with ICT – a theme that requires the engagement and participation of multiple stakeholders from different sectors of society.

▶ International Conference on Big Data for Official Statistics

The Cape Town Global Action Plan for Sustainable Development Data, launched at the first UN Data Forum, emphasizes the importance of innovation and the modernization of national statistical systems. In this context, the fourth UN Conference on Big Data, organized by the UN Global Working Group in collaboration with the National Administrative Department of the Office of Colombia (DANE) and the Colombian Ministry for ICT, took place in Bogotá in November 2017.

Alexandre Barbosa, head of Cetic.br, was the keynote speaker for the event and addressed the theme of innovation and modernization of national statistics systems through “trusted data collaboratives”. Data collaboratives are a new challenge and opportunity in the context of the production of official statistics – in relation not only

to big data but also to the SDGs, and the sharing of data, services, technologies and know-how. By sharing some insights from the Brazilian experience in building partnerships for the production of statistics, and highlighting the importance of ICT for achieving the SDGs, Barbosa stressed that the so-called “data revolution” offers many opportunities, while imposing the need to improve statistical system capacity so as to better respond to new requirements for measuring the SDGs. Cetic.br/NIC.br also participated in two other sessions: “Multi-source data for official statistics”, which presented a pilot project for using Web scraping to produce ICT indicators for enterprises, and “Data collaboratives for monitoring SDGs”, which provided an overview of the importance of ICT indicators for the SDGs.

▶ Task Group on ICT for SDGs

Recognizing that ICT is a key development enabler and plays an important role in achieving the SDGs, it is fundamental that all areas impacted by ICT be measured and monitored. In this context, the Task Group on ICT for SDGs, co-led by the United Nations Department of Economic and Social Affairs (UN DESA) and the ITU, was officially launched at the WSIS Forum (see page 31, on World Summit on the Information Society Forum 2017). The initiative is open to all members of the Partnership for Measuring ICT for Development and other interested agencies and stakeholders, such as Cetic.br/NIC.br. The main objective of the task group is to

propose a thematic list of ICT indicators for measuring ICT availability and use in sectors relevant to the SDGs that are not covered in the SDG indicator framework. The task group will also aim to improve the availability of disaggregated data, in addition to the ICT indicators already included in the SDG measurement framework. The task group collaborates through audio conferences, and online and face-to-face meetings. Cetic.br/NIC.br contributes actively by regularly participating in group discussions and by sharing its experience in collecting internationally comparable ICT-related indicators for development.

▶ Massive Open Online Course: The Role of information and Communication Technologies in Achieving the SDGs

In light of the cross-sectoral influence of ICT on economies and societies, Cetic.br/NIC.br, the SDG Academy and UNESCO Montevideo came together in 2017 to produce a new massive open online course (MOOC) to discuss how ICT and, notably, the Internet are critical for achieving most SDGs and how measurement is fundamental in following up the achievement of the 2030 Agenda.

The course is targeted at researchers on sustainable development and ICT, policymakers, businesses and the general population worldwide. It will allow students to engage in a global conversation on the role of ICT and data in promoting sustainable development.

While highlighting the rapid and dynamic growth of the Internet, data, mobile phone use and other recent technological trends, the course will

also explore the opportunities and implications of information asymmetry, empowerment, access to services, and income and wealth creation for the bottom quintiles encompassed in the relationship between ICT and the SDGs. The MOOC will provide case studies on the role of ICT in achieving health, education, governance, infrastructure and financial goals related to the SDGs, and provide an in-depth probe into artificial intelligence. It will review data needs, principles, sources, institutional arrangements for producing data on the achievement of the SDGs, opportunities and challenges, and will also provide an overview of some of the most critical discussions as we cross the next frontiers of ICT, including privacy, ethical issues, data rights, cybersecurity and e-waste. The MOOC will be launched in 2018 and will be made available in all official UN languages.

▶ UN World Data Forum

In order to connect data users and data producers in the context of the official statistics required to monitor and assess the SDGs, the first United Nations World Data Forum took place in South Africa in January 2017 and was hosted by Statistics South Africa. The event attracted about 2,000 participants who work in the production of official statistics and the construction of specific tools and methods for dealing with new data sources, such as big data, and sought to discuss the

indicators proposed in the 2030 Agenda.

Cetic.br/NIC.br participated in the round table "Academy-centred partnerships for data production and sharing" and presented the Center's experience in promoting multi-stakeholder dialogue for the production of ICT statistics, broaching issues such as the importance of producing data for evidence-based policymaking in the ICT sector, measuring ICT for SDGs and building multi-stakeholder partnerships.

▶ World Summit on the Information Society Forum 2017: Information and Knowledge Societies for SDGs

The World Summit on the Information Society (WSIS) Forum is the largest annual meeting on the theme “ICT for development”, and is co-organized by the ITU, UNESCO, the United Nations Development Programme (UNDP) and the United Nations Conference on Trade and Development (UNCTAD).

In addition to serving as a multi-stakeholder platform for discussing the implementation of the WSIS action lines for sustainable development, the forum provides a stage for important discussions on the role of ICT in the implementation of the SDGs in the context of the UN 2030 Agenda.

The event was held in Geneva in June 2017 at the headquarters of the ITU. It brought

together more than 2,500 participants from around the world and promoted extensive sharing of knowledge and experiences on “Information and Knowledge Societies for SDGs”, focusing on priority areas of the UN 2030 Agenda. Cetic.br/NIC.br contributed with presentations in two sessions: “Measurement of Progress Towards the SDGs Through ICT Indicators”, organized by the Partnership for Measuring ICT for Development, which launched the initiative “Task group on ICT for SDGs” (see page 29), and “Defining Internet Universality Indicators and Access Policies to Support the Implementation of the 2030 Sustainable Development Agenda”, organized by UNESCO.

▶ Global Alliance Workshop on Reporting Progress toward Peaceful, Just and Inclusive Societies

This alliance brings together member states, civil society and the private sector to support effective and meaningful reporting on progress toward the achievement of peaceful, just and inclusive societies, while recognizing the need to form new partnerships and taking into account different national realities, capacities and levels of development, and respecting national policies and priorities. The first edition, organized by the Global Alliance, was held in Buenos Aires in June 2017. It sought to promote, among different sectors from over 14 countries in the region, efficient and collaborative ways to contribute to the 2030 Agenda and reports on

the Sustainable Development Goals, especially SDG 16⁴ – on peace, justice and strong institutions – and related goals.

Cetic.br/NIC.br demonstrated the relevance of ICT access and use for achieving various SDGs, as well as the role of ICT in the measurement of multiple goals from the 2030 Agenda. It participated in a panel in which it presented the relationship between ICT and the SDGs in general and SDG 16 in particular, and, together with representatives from other Brazilian institutions, outlined a methodology to be used by Brazil to measure and report on SDG 16.

⁴ _SDG 16 seeks to “[p]romote just, peaceful and inclusive societies”.

Debating methodologies and ICT indicators

Cetic.br/NIC.br is dedicated to the systematic production of indicators and statistics on the access to and use of information and communication technologies in Brazil in various sectors of society. It follows methodological guidelines established by international organizations that set down standards for measuring ICT statistics, thereby enabling international comparability of its indicators.

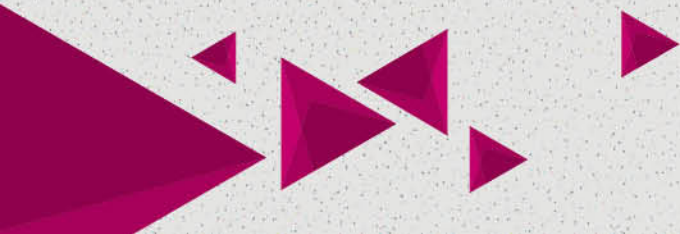
Every ICT survey project conducted by Cetic.br is supported by a group

of experts who meet periodically to validate the indicators and methodologies used for data collection and to discuss guidelines for data analysis. The collaboration of these groups is essential for identifying new fields of research, improving methodological procedures, and producing robust and reliable data. In 2017, Cetic.br/NIC.br held 10 expert meetings to discuss and improve the following surveys:

- ▶ **ICT Households**
- ▶ **ICT Kids Online Brazil**
- ▶ **ICT in Health**
- ▶ **ICT in Education**
- ▶ **ICT Enterprises**
- ▶ **ICT Nonprofit Organizations**
- ▶ **ICT in Culture**
- ▶ **ICT Providers**
- ▶ **ICT Electronic Government**

These expert meetings promote important exchanges between representatives from governmental agencies, national and international research centres and universities, civil society and international organizations.

In 2017, Cetic.br/NIC.br also actively participated in national and international forums to discuss ICT methodologies and indicators, contributing to their review and definition. The following are some of the events.



▶ 5th School of Sampling and Research Methodology

The School of Sampling and Research Methodology (ESAMP) is a scientific meeting that takes place in Brazil every two years, in order to share knowledge and experiences in relation to methodological aspects in the planning and analysis of data from sampling surveys.

The fifth ESAMP was held in Cuiabá (Mato Grosso, Brazil) in October 2017 and hosted by the Brazilian Association of Statistics and the Department of Statistics of the Federal University of Mato Grosso. It brought together statisticians and researchers from universities in order to share knowledge and discuss their experiences in relation to the

most recent methodological developments in the planning and analysis of data from sampling surveys. Cetic.br/NIC.br was invited to participate in two round tables and addressed topics such as: sampling in the era of big data, presenting its pilot experience in using Web scraping for producing ICT indicators for companies; sampling in educational research, presenting the methodology of the ICT in Education Survey in urban and rural schools; and estimation of indicators for states in Brazil using small-area techniques applied to data from the ICT in Education Survey and ICT Households Survey.

▶ ISI World Statistics Congress

The biennial World Statistics Congress (WSC) is the flagship conference of the International Statistical Institute (ISI) and its seven associations. It brings together eminent statisticians and members of the statistical community from five continents to present, discuss, promote and disseminate research and best practices in every field of statistics and its applications. The 61st

congress held in Marrakech, Morocco, in July 2017, saw Cetic.br participate in two sessions on survey statistics: the first presented the TabuladorBeta, a system developed by Cetic.br/NIC.br to transform raw data into planned survey data tables, and the second presented a case study on estimation indicators in the context of the ICT in Education Survey.

▶ Expert Group on ICT Household Indicators

The mission of the Expert Group on ICT Household Indicators (EGH), led by the ITU, is to bring together representatives from various countries to discuss indicators for measuring ICT in households. Moderated by Alexandre Barbosa, head of Cetic.br, the

expert group has provided contributions and exchanged experiences with ICT indicators on a permanent online platform since 2012 and meets regularly once a year to consolidate the results of the received contributions in the online forum.





The fifth face-to-face meeting took place in September 2017 in Geneva, back to back with the eighth meeting of ITU experts in telecommunications/ICT indicators. Ninety-four representatives from national statistics offices, ministries, regulatory agencies, international

agencies and the private sector attended the meeting. Discussions included the revision of indicators related to ICT skills, e-commerce and Internet use on mobile phones. Cetic.br also delivered a presentation on ICT indicators for monitoring the SDGs.

▶ 15th World Telecommunication/ ICT Indicators Symposium

The city of Hammamet in Tunisia hosted the 15th World Telecommunication/ ICT Indicators Symposium (WTIS-17) in November 2017. It was attended by government ministers, business leaders, regulators, national statisticians, academics and ICT data producers and users from around the world who discussed issues related to measuring the information society.

The central theme of WTIS-17 was “Transforming emerging technologies

into economic opportunities with better data”, which addressed topics such as smart sustainable cities, cybersecurity and the digital economy. Cetic.br/NIC.br’s contributions to the event included the moderation of the tutorial “Data visualization and big data analysis tools” and its input to the panels “New data needs for the digital economy” and “Transforming emerging technologies into economic opportunities with better data”.

▶ Working Party on Measurement and Analysis of the Digital Economy

Since 2010, Cetic.br/NIC.br has consistently participated in the Working Party on Measurement and Economic Analysis (WPMAD) of the Committee on Digital Economy Policy (CDEP) at the Organisation for Economic Co-operation and Development

(OECD). The mandate of this working party is to develop statistical methodologies, discuss ICT indicators and tools to measure the digital economy and analyse the contribution of digital economy policies to economic performance and social outcomes. This

has also been an important forum for sharing experiences about tools and methodologies for producing data related to the access to and effective use of digital technologies by individuals, firms and governments.

A relevant debate on the measurement and analysis of the implications of digital transformation and the digital economy took place in two meetings of the WPMAD

during 2017. Important highlights included: i) the OECD's Going Digital project, including jobs and skills; productivity and competition; and measurement; ii) the survey on digital incidents and risk management practices in businesses; iii) ICT investments; iv) the impact of automation, robotics and the Internet of Things; and v) cross-border e-commerce.

▶ Meeting of Experts on Defining Open Educational Resource Indicators

In order to define a list of indicators for measuring the adoption and impact of open educational resources (OER) at the national level, the Division for Policies and Lifelong Learning Systems, the ICT in Education Unit of the Sector of Education of UNESCO, formed a group of experts that contributed to methodological discussions on this topic throughout 2016 and 2017. In 2017, the objective of the group was to validate the preliminary list of key indicators, identify survey questions that could be tested in selected countries and present a methodological framework at the second UNESCO World OER

Congress. Cetic.br/NIC.br contributed actively to the discussion on the definition of the indicators and on the questionnaire proposed for measuring them.

Cetic.br/NIC.br also attended the congress, which took place in September in Ljubljana, Slovenia, and participated in the debate sessions, contributing to the discussions that resulted in the Ljubljana action plan and the ministerial declaration signed by various countries. The declaration reaffirms the global commitment to disseminating the use of OER and the event is in line with Goal 4 of the SDGs.

▶ Preparatory Meeting for the Sixth Ministerial Conference on the Information Society in Latin America and the Caribbean

In August 2017, the preparatory meeting for the sixth Ministerial Conference on the Information Society in Latin America and the Caribbean took place at the headquarters of ECLAC in Santiago, Chile. The meeting was organized as part of the agreements adopted during the fifth Ministerial Conference held in Mexico, in 2015. The purpose of the preparatory meeting was to take stock of the commitments established in the Digital Agenda for Latin

America and the Caribbean (eLAC 2018) in light of the sixth Ministerial Conference to be held in Colombia in 2018. Cetic.br/NIC.br was invited to participate in the panel about data-based innovation. There were also other panels on the regional digital market, industrial Internet and the role of digital technologies in achieving the SDGs, in which institutions from the public and private sector, the technical community and civil society participated.



Cooperation networks

At the regional level, Cetic.br/NIC.br strengthened its collaboration with cooperation networks in 2017, and promoted the sharing of knowledge and common methodological frameworks

for the collection of data that enable comparative analyses. Among the activities it engaged in over the year, the Center actively participated in three regional thematic networks in Latin America.

▶ American Network of Cooperation in Electronic Health (RACSEL)

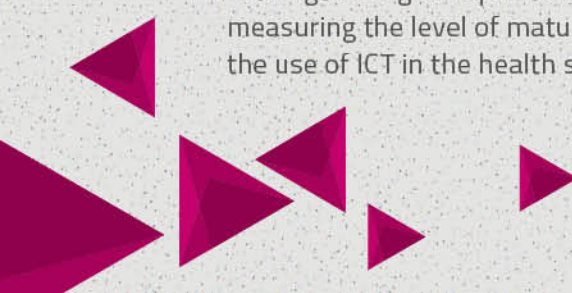
This is a network for collaboration, dialogue, and sharing of knowledge and experiences with a view to developing e-health. Member countries include Uruguay, Chile, Colombia, Peru and Costa Rica. The network operates within the context of the Regional Public Goods Project for the Advancement of Electronic Medical Records in Latin America and the Caribbean of the Inter-American Development Bank.

In 2017, Cetic.br/NIC.br tightened its collaboration with RACSEL through technical cooperation for the development of national projects to measure the use of ICT in health, materialized in a work plan drawn up by the institutions.

To mark the start of the partnership, NIC.br hosted a workshop in July 2017 in São Paulo, “Strengthening of capacities for measuring the level of maturity in the use of ICT in the health sector of

RACSEL member countries”. It was conducted by Cetic.br and targeted the Ministries of Health and other organizations in Chile, Colombia, Costa Rica, Peru and Uruguay. During the workshop, each country drafted a national project to measure ICT in the health sector, which was later improved and completed in greater detail through the technical contributions of Cetic.br/NIC.br.

Cetic.br also held two supplementary workshops and technical meetings on methodologies for measuring ICT for development in Costa Rica and Chile, in November and December respectively, focusing on the implementation of national surveys to collect ICT data in the health sector. For the other countries that are part of the RACSEL network, there were videoconferences to monitor and support the development of the work.



▶ Latin America Kids Online - LACKO Network

The LACKO network was established in June 2015 with the aim of exchanging experiences and establishing better ways to measure Internet use among children in Latin American countries. It works in partnership with Global Kids Online and the EU Kids Online network and seeks to enhance knowledge of Latin American children's online access, opportunities, risks and safety. It uses multiple methods to map children's and parents' experience of the Internet, in dialogue with national and Latin American policy stakeholders.

The network currently includes Brazil, Argentina, Chile, Uruguay and Costa Rica, and meets periodically to discuss methodological

aspects and promote cross-national data analyses. In addition to pioneering the adoption of the Kids Online methodological framework in Latin America, the marked presence of Cetic.br/NIC.br in various regional and international seminars on the topic has resulted in wide dissemination of the survey methodology and, in turn, generated multiple inquiries from countries potentially interested in implementing it.

In 2017, the first cooperation agreement of the network, between NIC.br and the Catholic University of Uruguay, was signed, formalizing the partnership between the institutions and strengthening the technical cooperation for implementing the Kids Online survey in Uruguay.

▶ Electronic Government in Latin America and the Caribbean Leadership Network – Red GEALC

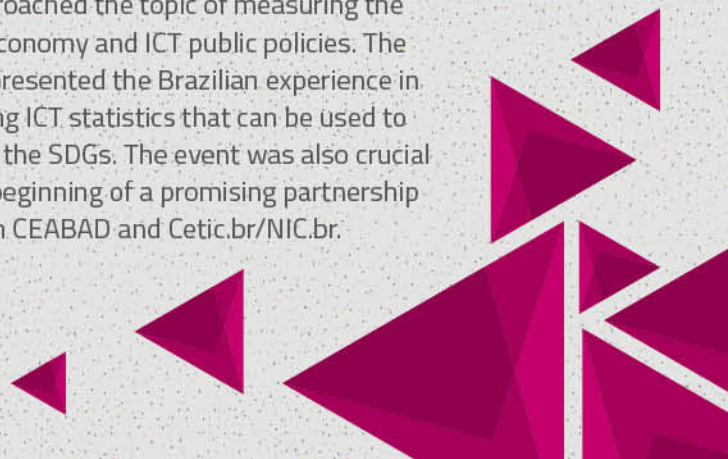
This network brings together electronic government authorities from countries in the region. Its objective is to support e-government policies that place citizens and, in particular, more vulnerable populations at the centre of public policies.

In 2017, Cetic.br/NIC.br was invited to join a working group to help the GEALC Network to define a methodological framework and a set of core e-government indicators for the region. Representatives from Brazil, Colombia, Mexico, Paraguay, the Dominican Republic, Uruguay and Venezuela participate in this working group.

▶ Sixth "Digital Economy" Regional Forum of the Center for Advanced Broadband Studies for Development

The Center for Advanced Broadband Studies for Development (CEABAD) is responsible for periodically organizing forums that focus on topics of regional interest involving ICT trends. Along these lines, CEABAD held the sixth Digital Economy Regional Forum at its headquarters in Managua, Nicaragua, in July 2017. Cetic.br

contributed to the ICT indicators session, which broached the topic of measuring the digital economy and ICT public policies. The Center presented the Brazilian experience in producing ICT statistics that can be used to monitor the SDGs. The event was also crucial for the beginning of a promising partnership between CEABAD and Cetic.br/NIC.br.



Knowledge production and dissemination

In view of the large number of ICT indicators and publications produced annually by Cetic.br/NIC.br, as well as the variety of themes addressed by the Center, different strategies are used to disseminate its material and reach its stakeholders.

New ICT data are released by Cetic.br/NIC.br through press conferences, both physically and through real-time Internet broadcasting, thereby enabling the participation of a larger audience nationwide. In 2017, Cetic.br also prepared and disseminated short videos with the key findings of the ICT Households 2016, ICT Kids Online Brazil 2016 and ICT in Education 2016 Surveys. At the same time, to enable more people to use and analyse the available survey data, Cetic.br/NIC.br has made the microdata and documentation from the ICT Households 2015 and ICT Kids Online Brazil 2016 Surveys available for download on its website. Cetic.br is also committed to the production of academic papers, articles, book chapters and presentations at congresses for further discussion on ICT indicators, digital exclusion and related topics.

Public debates are also part of the data dissemination strategy.

Apart from its role in producing ICT survey publications, Cetic.br/NIC.br also fosters discussions on important topics related to the information and knowledge societies among African Portuguese-speaking countries and Latin America. In 2017, the Center coordinated the production and translation of two policy briefs used in the Regional Conference on Social Development in Latin America and the Caribbean. The Center also translated the following publications into Portuguese and Spanish: "Measuring ICT and gender: an assessment", by UNCTAD, and "Keystones to foster inclusive knowledge societies: access to information and knowledge, freedom of expression, privacy and ethics on a global Internet", by UNESCO. The translation of these documents into Portuguese and Spanish reinforces Cetic.br's commitment to helping build inclusive information and knowledge societies in Latin America and African Portuguese-speaking countries. All the publications are available for download in electronic format (.pdf) on Cetic.br's website.

▷ UNESCO Policy Briefs

The policy briefs “ICT, education and social development in Latin America and the Caribbean” and “Digital society: gaps and challenges for digital inclusion in Latin America and the Caribbean” were produced under the technical coordination and editorship of Cetic.br/NIC.br, which was also responsible for their translation into English and Portuguese. The documents were commissioned by the Regional Science Office of UNESCO Montevideo for the Regional Conference on

Social Development in Latin America and the Caribbean, organized by ECLAC, the Ministry of Social Development of Uruguay and the UNDP.

To move forward in the public debate on key issues in the fight against inequalities and poverty, and to strengthen social inclusion in the region, the documents were made available to the ministers and officials attending the ministerial meeting and were also presented at the panel “Public policies for economic and social inclusion”.



ICT, Education and Social Development in Latin America and the Caribbean

Written by Enrique Hinostroza, director of the Institute of Educational Informatics of the University of La Frontera in Chile, this policy brief provides input for discussions on the formulation of policies regarding the access to and use of ICT in education in the sphere of social policies. It outlines the challenges in reducing the digital divide in terms of computer and Internet access in countries from the region, in order to ensure that students and teachers have access to computers connected to the Internet and can benefit from

the digital culture. The document also points out that there is unequal participation in the digital culture and that opportunities are not distributed equally in terms of access and skills in regard to using and benefitting from these new technologies. The author argues that educational systems can help overcome these challenges by providing schools with computers and a good-quality Internet connection and developing programmes that enable school communities to acquire the necessary skills to reap the benefits of the digital culture.



Digital Society: Gaps and Challenges Regarding Digital Inclusion in Latin America and the Caribbean

Written by Hernán Galperin, associate professor at the University of Southern California, this document seeks to provide evidence and recommendations for policies on how to confront the challenge of connecting more than 200 million Latin Americans who are still offline. To achieve the inclusion of the excluded, the document recommends public policies to address three priority areas: connectivity of educational establishments associated

with curricular reforms and other initiatives for introducing ICT in schools; the development of applications and online content to meet the needs of low-connectivity groups, especially adults, people with disabilities and speakers of indigenous languages; and finally, investment in human capital through connectivity subsidies for low-income households with school-age children, provided educational requirements are met.



Measuring ICT and Gender: An Assessment

Originally published by UNCTAD, this document presents an updated report on sex-disaggregated ICT indicators established by the Partnership for Measuring ICT for Development and identifies others for improving the coverage of reliable and intentionally comparable data on gender and ICT. These data are essential for informing national policies and establishing international

objectives – necessary requirements for achieving globally equitable information and knowledge societies.

Cetic.br/NIC.br translated the publication into Portuguese and Spanish in order to broaden the debate on ICT measurement from a gender perspective and to disseminate this content within Portuguese- and Spanish-speaking countries.



Keystones to Foster Inclusive Knowledge Societies: Access to Information and Knowledge, Freedom of Expression, Privacy and Ethics on a Global Internet

The UNESCO publication “Keystones to Foster Inclusive Knowledge Societies: Access to Information and Knowledge, Freedom of Expression, Privacy and Ethics on a Global Internet” is now available in Portuguese and Spanish; the translations were conducted by Cetic.br/NIC.br. By providing insights into the concept of Internet Universality, the study defends the “R-O-A-M principles”, i.e. rights, openness, accessibility and

multi-stakeholder participation. The report features key Internet-related issues for knowledge societies and serves as the basis for UNESCO’s new project to define Internet Universality indicators.

The translated publications were launched during the multi-stakeholder session that was attended by the Brazilian ambassador, Benedicto Fonseca, at the Internet Governance Forum (IGF) held in Geneva in December 2017.



The Internet Sector Overview Report explores themes related to technology use and access in various sectors of society and uses the data produced by Cetic.br's surveys as input for the discussion of emerging issues.

Collaborators

Agenda 2030

Francesca Perucci (*UNSD*)
Haroldo de Oliveira Machado-Filho (*UNDP Brazil*)
Henrique Villa (*Secretary of the Presidency of the Republic of Brazil*)
Susan Teltscher (*ITU*)

Smart cities

Maria Alexandra Cunha (*Getulio Vargas Foundation*)
Maria Cristina Buetti (*ITU*)
Thomaz Ramalho (*Regional UN Habitat Office for Africa*)

In 2017, three editions were published, all related to the SDGs. The first presents an overview of the 2030 Agenda and the SDGs, the second deals with the topic of smart cities and the third focuses on e-Participation.

Citizen participation in the digital era: e-Participation

Francisco Paulo Jamil Marques (*Federal University of Paraná*)
Marco Konopacki (*Institute for Technology and Society of Rio de Janeiro*)
Saionara König-Reis (*UNDP*)



NIC.br Sectoral Studies

The NIC.br Sectoral Studies series was launched in 2016 to discuss emerging topics at the interface between information and communication technologies and society. In 2017, the publication "Culture and technologies in Brazil: a study on the cultural practices of the population and the use of information and communication technologies" was launched. The publication is based on a qualitative research conducted with groups of Brazilians of different ages and

socio-economic profiles, residing in the country's five geographic regions. Among the issues that permeate the study is the potential dissemination and use of ICT for broadening access to cultural goods and services and promoting the diversity of what is produced and culturally disseminated throughout Brazil. The study also sought to identify whether there are limitations to the promotion of cultural diversity and expansion of cultural rights through the use of technology.

▶ ICT Survey Publications



The ICT in Culture Survey investigates the existence of an information and communication technology infrastructure and the use of these technologies in Brazilian cultural facilities, focusing on internal management, contact with the public and digitalization of collections. It also provides information on IT management

Articles published in ICT in Culture 2016

Possibilities and challenges for the use of cultural indicators and open data in the democratization of cultural management
José Carlos Vaz

Horizontalized production of cultural indicators on collaborative digital platforms
Anahi Rocha Silva & Maria José Vicentini Jorente

Memory as practices in digital culture
Dalton Martins & José Murilo Costa Carvalho Junior

in these institutions as well as the perceived contributions and barriers related to computer and Internet use.

When it was first carried out in 2016, interviews were conducted in 2,389 cultural facilities, including archives, heritage sites, libraries, cinemas, museums, culture points and theatres

The potential of information and communication technologies for the dissemination and preservation of Brazilian concert music
Sylvia Leticia Guida Lima

Youth culture and digital resistance: Paris, Medellin and São Paulo
Juan C. Mansilla & Gilson Schwartz



The fifth ICT Kids Online Brazil Survey interviewed 2,999 Internet users, aged 9 to 17, and their parents or legal guardians throughout Brazil. The objective of the survey is to understand how this public uses the Internet and how it deals with the risks and opportunities arising from its use. ICT Kids Online Brazil

Articles published in ICT Kids Online Brazil 2016

Strategies for the full protection of children in the digital world
Heloiza Egas

Advertising aimed at children on the internet: illegalities on young youtuber channels
Livia Cattaruzzi Gerasimczuk & Ekaterine Karageorgiadis

Social networking websites as a field for study of childhood and the case of young youtubers
Renata Tomaz

is aligned with the methodological framework of the European network EU Kids Online, developed by the London School of Economics.

This year, for the first time, tables of the results of this survey edition, including total proportions and error margins, were made available online.

"Sending nudes": opportunities and risks related to the sexual rights of children on the Internet
Juliana Cunha & Rodrigo Nejm

Mediation of children's access to market communication
Inês Sílvia Vitorino Sampaio & Andréa Pinheiro Paiva Cavalcante



Conducted annually since 2010, the ICT in Education Survey has the objective of investigating access to, and the use and appropriation of, information and communication technologies in Brazilian public and private elementary and secondary schools located in urban areas.

ICT in Education 2016 encompassed 1,106 public and private schools with classes from the fifth or ninth year of elementary education and second year of secondary education located in urban areas. Interviews were conducted with 935 principals, 922 directors of studies, 1,854 Portuguese and mathematics or

multidisciplinary teachers, and 11,069 students from the fifth and ninth year of elementary education and second year of secondary education.

In its seventh consecutive edition of the survey, Cetic.br conducted a pilot project to measure the incorporation of ICT in schools located in rural areas, which was presented as a supplement to the analysis of results in the present publication. Through this effort, it will also be possible to incorporate profiles of rural schools in future editions, thereby ensuring a complete overview of the sector.

Articles published in ICT in Education 2016

Innovation and technology in education: the edutec guide – a diagnostic and planning tool for educational technology policies
Lucia Dellagnelo

The connected project: enabling the construction of digital culture in public schools in Paraná
Mary Ângela Teixeira Brandalise

Social and formative appropriations of digital technologies by adolescents and their relationship with school education
Analígia Miranda Da Silva & Claudia Maria De Lima

The national common curriculum and the use of ICT in education
Deise De Lacerda Paiva



Conducted since 2013, the ICT in Health Survey seeks to investigate the penetration of information and communication technologies in health-care facilities and their appropriation by health professionals

(physicians and nurses).

In its fourth edition, 2,298 managers of health-care facilities across Brazil were interviewed. In addition, 1,359 physicians and 2,197 nurses linked to these facilities were interviewed.

Articles published in ICT in Health 2016


eHealth policies and initiatives for strengthening health information systems in Peru
Walter H. Curioso & Elizabeth Espinoza-Portilla

Telemedicine projects: development of a methodological guide in Mexico
Teresita De Jesús Cortés Hernández & Adrián Pacheco Lopez

Innovation in information and communication technologies in health
Heimar De Fátima Marin & Cesar Biselli Ferreira

Initiatives of the Brazilian health informatics association (SBIS) for health informatics in Brazil
Beatriz De Faria Leão & Lincoln De Assis Moura Junior

Information security: practice and regulation in health
Luis Gustavo Gasparini Kiatake, Ricardo Da Silva Santoro & Vladimir Ribeiro Pinto Pizzo



The ICT Households Survey has been conducted annually since 2005 with the objective of measuring the use of information and communication technologies in households, individual

access to computers and the Internet, and activities carried out on the Internet, among other indicators. In 2016, the study conducted interviews in more than 23,000 households across Brazil.

Articles published in ICT Households 2016

Digital divide, Internet access, and sociodemographic conditions

Flávio Perazzo Barbosa Mota

Freedom of expression and the Brazilian civil rights framework for the Internet

Carlos Affonso Souza & Chiara Spadaccini De Teffé

The digital ecosystem: digital inclusion as a factor in socioeconomic transformation

Paulo Kuester Neto

Digitally unheard: Internet use in deaf and hard of hearing population


Matías Dodel, Inés Mendez, Florencia Fascioli & Silvia Da Rosa

New digital information and communication technologies and their relationship with literacy levels

Roberto Catelli Júnior, Ana Lúcia D'império Lima & Luis Felipe Soares Serrao

The new battle around personal data protection in Brazil: what do different players defend?

Rafael Zanatta



The ICT Nonprofit Organizations Survey investigates the existence of an information and communication technology infrastructure and the use of these technologies in Brazilian nonprofit organizations. It also maps the ICT capacities and skills contained within these organizations.

In 2016, 4,001 organizations from various segments were interviewed, including employer and professional associations, trade unions and organizations linked to the areas of health, social services, education and research, religion, and the development and defence of rights.

Articles published in ICT Nonprofit Organizations 2016

The impact of new technologies on the third sector: barriers and opportunities

Debora Bobsin & Marlei Pozzebon

Social activism on the Internet: broadening the arena of social struggle

Maurília De Souza Gomes

The economic sustainability of civil society organizations: an overview based on the ICT Nonprofit Organizations survey

Iara Rolnik & Mariana Levy Piza Fontes

Brazilian donors and their relationship with technology: some data and reflections

Fernando Do Amaral Nogueira, Paula Jancso Fabiani & Andréa Victor Wolfenbüttel

ICT STATISTICS: ACCESS TO MICRODATA

Through the publication of microdata from the ICT Households 2015 and ICT Kids Online 2016 Surveys on its website, in 2017 Cetic.br/NIC.br initiated the process of online provision of the microdata bases of its household surveys, enabling all users to have access to these data for further cross-referencing, analyses and studies, according to their specific interests. This initiative strengthens the Center's commitment to disseminating its data more extensively, making it possible for more data users to have access to the microdata bases and documents related to the surveys.

As a result of a collaborative project undertaken with Ceweb.br (Web Technologies Study Center), which is also a department of NIC.br, Cetic.br followed the World Wide Web Consortium (W3C) "Data on the Web Best Practices (DWBP)" recommendation in order to publish on its website the metadata, microdata and other relevant documents from its household surveys, such as the methodological report, questionnaire and data dictionary.

It is important to mention that, following the DWBP, all the information made available online is human and

machine readable and, whenever possible, the documents are provided in more than one format – preferably open.

Following these best practices yields benefits for both data publishers and consumers, such as: improving understanding of the structure and meaning of the data; facilitating the discovery of data sets on the Web; increasing the chances of reuse of data by different groups of consumers and reliability in relation to the data provided; enabling machines or software agents to process and handle data automatically; making it possible to create connections between data sets and data items; accessing updated data in different ways; and reaching a consensus between publishers and consumers through interoperability.

The web page created for making Cetic.br's microdata available has served as an example of implementation of the DWBP. For this reason, Cetic.br, together with Ceweb.br, has participated in a number of events (see below) aimed at raising awareness among data producers as to the importance and feasibility of applying the DWBP in the provision of databases:

Web.br Conference
São Paulo, Brazil,
October 2017.

**Course on Transparency
and the Brazilian Access
to Information Law in
São Paulo City Hall**
São Paulo, Brazil,
November 2017.

**2nd National Open
Government Meeting**
São Paulo, Brazil,
November 2017.

**Data on the Web
Best Practices
Workshop**
São Paulo, Brazil,
December 2017.

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