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LIBRARY NETWORK IN SCIENCE AND TECHNOLOGY: BRAZILIAN EXPERIENCE IN STRATEGIC AREAS OF NATIONAL DEVELOPMENT

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Good Afternoon


- ▶ I'm Lillian Alvares, from Brazilian Science and Technology Information Institute (whose acronym is IBICT), research institute of the Ministry of Science Institute, Technology and Innovation of Brazil.
- ▶ Before we begin, I would acknowledge the presence the Director and the presence the Planning Coordinator of IBICT here, in this presentation. Thank you Dra. Cecilia Leite and Dr. Ricardo Rodrigues for all the support that I received in this initiative.
- ▶ I would also like to record my thanks to Annelie Janred, who organized with dedication this session.
- ▶ I will present the work "***Library Network in Science and Technology: Brazilian Experience in Strategic Areas of National Development***", result of research conducted by myself and **Silvia Castro Marcelino** (Chief Information and Documentation Service of the National Institute for Space Research); **Fabiane dos Reis Braga** (Head of the Nuclear Information Centre of the National Nuclear Energy Commission); **Bianca Amaro** (Coordinator of the Laboratory of Information Dissemination of and Treatment Methods of the IBICT) and **Tainá Batista de Assis** (Expert on the Portal of Open Book in Science, Technology and Innovation).
- ▶ I apologize for my English, is not good, but I will try to make the best possible.



RBP

- ▶ This work is about the **Library Network of Research Institutes of the Ministry of Science, Technology and Innovation of Brazil (RBP)**, created at the beginning of 2009 (two thousand and nine), is a pioneering initiative to increase efforts towards the access and dissemination of national scientific and technological knowledge.



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- ▶ The Library Network of Research (RBP) is composed by **15 (fifteen)** **libraries** of the research institutes of the Ministry of Science, Technology and Innovation.
 - ▶ Each of the **specialized libraries** primarily delivers their focus to the thematic area of the institute to which it belongs, and includes the effort to define the technologies and methodologies that facilitate access to research knowledge in order to give greater visibility to the results achieved across society.
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Sejam Bem-vindos!

ON

Observatório Nacional

MPEG

Museu Paraense
Emílio Goeldi

INT

Instituto
Nacional de Tecnologia

CBPF

Centro Brasileiro de
Pesquisas Físicas

INPA

Instituto Nacional de
Pesquisa da Amazônia

IBICT

Instituto Brasileiro de
Informação em
Ciência e Tecnologia

CNEM

Comissão Nacional de
Energia Nuclear

INPE

Instituto Nacional de
Pesquisas Espaciais

CETEM

Centro de
Tecnologia Mineral

LNCC

Laboratório Nacional de
Computação Científica

CTI

Centro de Tecnologia da
Informação Renato Archer

MAST

Museu de Astronomia e
Ciências Afins

LNA

Laboratório
Nacional de Astrofísica

INSA

Instituto
Nacional do Semiárido

CETENE

Centro de Tecnologias
Estratégicas do Nordeste


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- ▶ **Investment in Science and Technology** today reaches 1.64% (one point sixty-four percent) of Gross National Product (GNP), placing Brazil among the **twenty countries that invest most in Research and Development.**



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- ▶ And not only from the institutes of the Ministry of Science, Technology and Innovation, but also other development centers, such as:
 - ▶ **Petrobras**, with the discovery of technologies and exploitation of oil deposits in deep water and subsalt;
 - ▶ such as **Embrapa**, with intensive farming technologies and development of new cultivable species, making Brazil one of the two largest producers in the world grain;
 - ▶ like **Fiocruz**, with vaccines and drugs, performing invaluable work for the health of the population;
 - ▶ and **Embraer**, with the manufacture of aircraft, placing the country among the four largest producers.
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Specifically for the Library Network of Research (RBP), there follows a brief description of each of them and the contribution of their respective libraries, in chronological order of foundation.



National Observatory



► In Rio de Janeiro

National Observatory

- ▶ The country's first research institute, founded by Dom Pedro The First in 1827 (one thousand eight hundred twenty-seven).
- ▶ It played a key role in establishing the bases of astronomy, geophysics and metrology of time and frequency in the country.
- ▶ The recognition of their specialized activities, with an average annual publication 80 (eighty) articles in scientific journals, goes beyond national boundaries.
- ▶ ***The library is considered one of the best and most specialized of Brazil and has a specialized collection of inestimable value. There is a section of rare books dating back to the nineteenth century.***



Goeldi Museum



Goeldi Museum

- ▶ In 1866 (one thousand eight hundred sixty-six), Brazil inaugurated the Goeldi Museum, for the scientific study of natural and socio-cultural systems of the Amazon, as well as the dissemination of knowledge and collections related to the region.
- ▶ In 2014 (two thousand and fourteen), the scientific output was 346 (three hundred forty-six) publications, with 156 (one hundred fifty six) of those in scientific journals.
- ▶ ***The Museum's Coordination of Information and Documentation mission is to manage, preserve and disseminate information and documents on the areas of action of the Goeldi Museum and the Amazon. The Library's collection specializes in human and natural sciences and Amazonian affairs. The Special Collection, with editions since the sixteenth century, keeps a valuable collection of rare old and valuable books of great importance to the Amazon.***

National Institute of Technology



National Institute of Technology

- ▶ The first research unit created in the early years of the next century, in 1921 (one thousand nine hundred twenty-one).
- ▶ Its mission is to participate in the sustainable development of Brazil, specifically in the energy, health industrial complex, oil and gas, defense, renewable energy, green chemistry and social technologies.
- ▶ Over the past three years, INT authors published an average of 34 (thirty four) articles per year in specialized journals.
- ▶ ***Their library stores, preserves, disseminates and provides access to more than 49,000 (forty-nine thousand) items, contained in its collection, and disseminates information generated by the workforce and researchers of the Institute.***



Brazilian Center for Physics Research



Brazilian Center for Physics Research

- ▶ In 1949 (one thousand nine hundred forty-nine), whose mission is to develop activities in basic science, technology research, development of human resources and promotion of science to the general public.
- ▶ The scientific production of Institute is one of the largest in the country. With about 70 (seventy) researchers, the institution annually produces 300 (three hundred) scientific articles, on average, published in indexed journals of high impact.
- ▶ ***The library is a reference in the field of physics.***



National Institute for Amazon Research



National Institute for Amazon Research

- ▶ In 1952 (one thousand nine hundred fifty-two), was created to conduct scientific studies of the physical environment and living conditions of the Amazon region to promote human welfare and the regional socio-economic development
- ▶ Is a global reference in tropical biology. Their main challenge is to expand sustainable use of the natural resources of the Amazon. Most research has focused on topics of ecology, zoology and botany.
- ▶ ***The library, has an information collection based on the pure and applied sciences with emphasis on biological sciences and has one of the largest national bibliographies on the Amazon.***



National Nuclear Energy Commission



National Nuclear Energy Commission

- ▶ In 1956 (one thousand nine hundred fifty-six), the situation demanded the establishment of the National Nuclear Energy Commission, the body responsible for regulating, licensing and overseeing the use of nuclear energy in the country and at the same time, engaged in activities of development, research and application of nuclear technology to benefit society.
 - ▶ It operates in nuclear technology, energy and nuclear research, radiation protection and dosimetry.
 - ▶ ***Its Library Network is comprised of seven decentralized units. Consultation with specialized collections is integrated through a web system, improving the quality of services provided to users. The Network aims to provide the integrated operation of technical and administrative processes, management of bibliographic collections, expanding the scope of services to the scientific community.***
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National Institute for Space Research



National Institute for Space Research

- ▶ Founded in 1961 (one thousand nine hundred sixty-one) to fulfill the mission of producing science and technology in the space areas and the terrestrial environment and offer unique products and services for the benefit of Brazil.
 - ▶ In the last three years, the Institute published an annual average of 488 (four hundred eighty-eight) scientific articles in specialized journals.
 - ▶ ***The Library has one of the most important collections in the area of space science in Brazil and has considered drive for excellence by the importance of its collection, for services rendered, availability of products and services with high added value directed to technical and scientific community.***
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Mineral Technology Center



▶ Rio de Janeiro

Mineral Technology Center

- ▶ The began operations in 1978 (one thousand nine hundred seventy-eight) and its mission is the development of technology for the sustainable use of Brazilian mineral resources, focusing on technological innovation for the mining and metallurgical sector.
 - ▶ The research, development and innovation are focused mainly on mineralogical and technological characterization of industrial minerals and minerals processing, extractive metallurgical processes, etc.
 - ▶ ***The Centre has an extensive library designed to support all research activities at the institution. It is a reference library specializing in mineral technology, ore and metallurgical processes and environmental technology.***
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National Laboratory for Scientific Computing



National Laboratory for Scientific Computing

- ▶ Was created in 1980 (one thousand nine hundred and eighty) with the mission to carry out research, development and training of human resources in scientific computing, especially in the construction and application of models and mathematical and computational methods to solve scientific problems and technological and available computing environment for high-performance processing.
 - ▶ In the last three years, the Institute published an annual average of 75 (seventy five) scientific articles in specialized journals. It has the only supercomputer in the southern hemisphere
 - ▶ ***Its library has a specialized collection in the laboratory practice areas. It aims to provide bibliographic support necessary for the development of activities in LNCC as well as the spread of this collection for the technical-scientific community.***
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Center for Information Technology Renato Archer



Center for Information Technology Renato Archer

- ▶ Was established in 1982 (one thousand nine hundred eighty-two) and has since engaged in research and development in information technology.
- ▶ The intense interaction with academia and the industrial sector keep the CTI in the state of art with its main focuses of activity, such as: microelectronics, electronic components, systems, displays of information, software, IT applications, robotics, computer vision, 3D printing technologies for industry and medicine, and decision support software.
- ▶ ***The institution has made available a library with 6,100 (six thousand and one hundred) books and 280 (two hundred and eighty) journal titles.***



Museum of Astronomy and Related Sciences



Museum of Astronomy and Related Sciences

- ▶ The year 2015 (two thousand fifteen) celebrates 30 (thirty) years of the foundation, created in 1985 (one thousand nine hundred eighty-five).
- ▶ Its mission is to increase the company's access to scientific and technological knowledge through research, preservation of collections, distribution and history of science and technology in Brazil.
- ▶ ***The bibliographic collection in the custody of the library specializes in the history of science and technology, education and dissemination of science, preservation of collections, museology and cultural heritage.***



National Astrophysics Laboratory

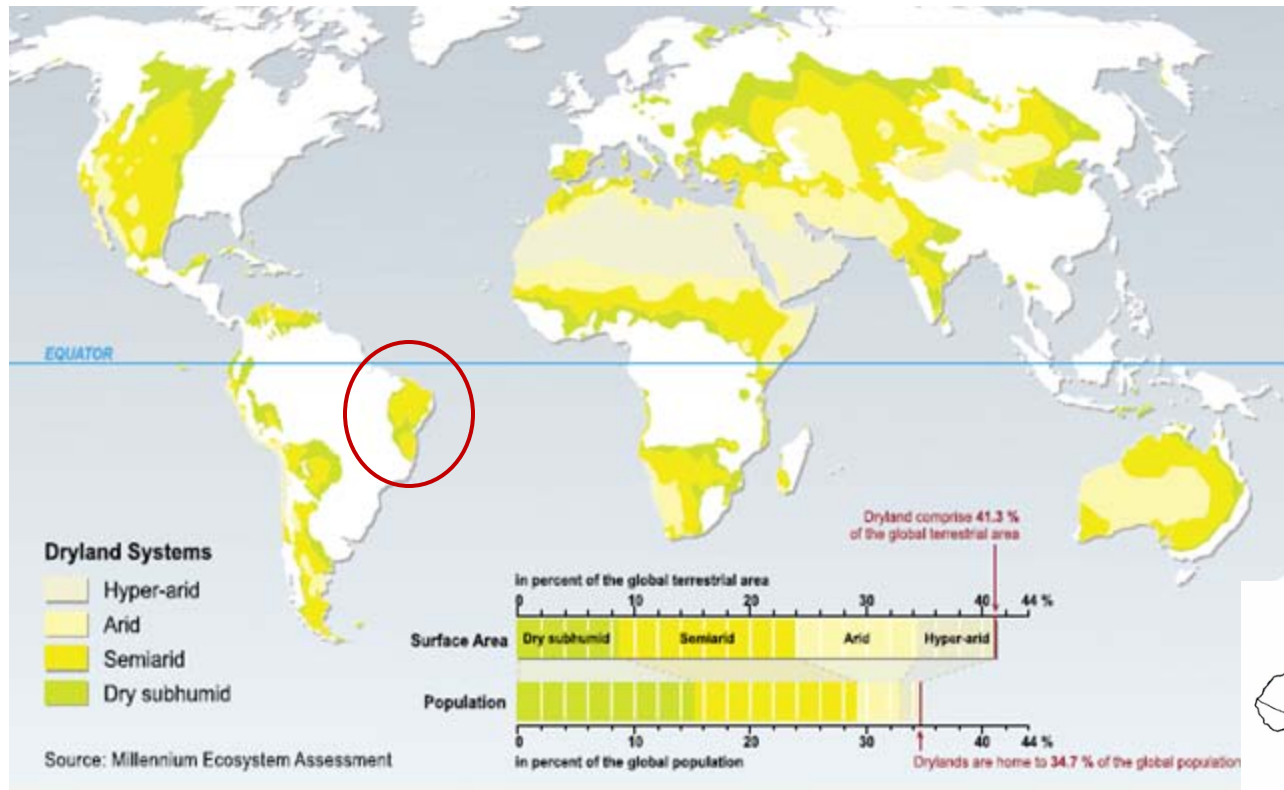


National Astrophysics Laboratory

- ▶ This year also celebrates 30 (thirty) years of the foundation, the was established as the first national laboratory implemented in Brazil whose mission is to plan, develop, provide, operate and coordinate the means and the infrastructure to foster, in a cooperative way, Brazilian observational astronomy.
- ▶ Over the past three years, LNA authors published an average of 16 (sixteen) articles per year in specialized journals.
- ▶ ***Since 2008 (two thousand and eight), the LNA publishes its own electronic magazine with news related to their relevant scientific areas and results obtained with telescopes data managed by the Laboratory.***



The National Institute for the Semi-arid



The National Institute for the Semiarid

- ▶ Was created in 2004 (two thousand four), whose mission is to facilitate inter-institutional solutions for conducting research, training, dissemination and policy for sustainable living in the Brazilian semiarid, from the socio-economic and environmental potential of the region.
- ▶ Its areas of research are: ecosystems, agriculture, water resources, biodiversity and social inclusion technologies. Its Office shall perform, propose and promote projects and scientific research programs, established for that, and any exchanges that may be necessary with regional, national and international institutions.



Strategic Technology Center of the Northeast



- ▶ The poorest region of Brazil

Strategic Technology Center of the Northeast

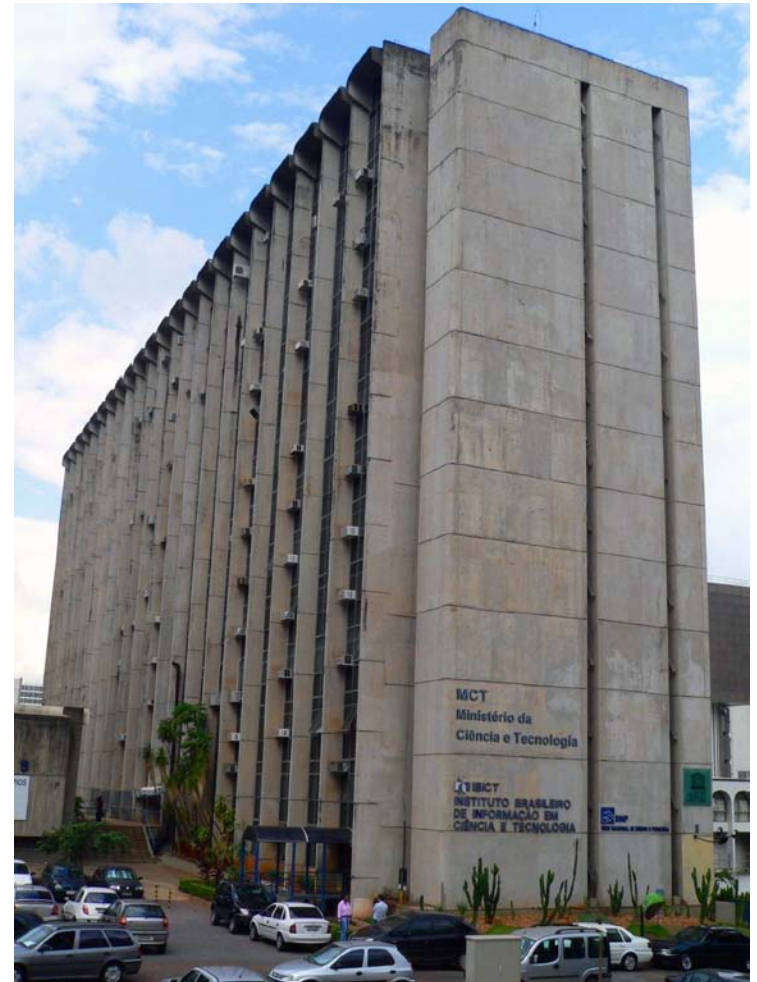
- ▶ The last to be created, was established in 2005 (two thousand and five) to support the technological development of Brazil's Northeast region promoting the integration between knowledge, development and society.
- ▶ Its mission is to develop, introduce and improve technological innovations that have strategic importance for economic and social development in the northeast, promoting cooperation based on knowledge networks and agents of the Northeastern economy.
- ▶ Given priority to meet the demands of society, the Centre acts to articulate scientific and technological knowledge and access to development, promoting, in this way, products of technology transfer and processes that contribute to the socioeconomic development of the northeast region.



Coordination of the Network is by the Brazilian Institute for Information in Science and Technology (IBICT), whose mission is to promote professionalism and the development of information resources in science and technology to meet the knowledge demands and new scientific and technological challenges posed by society.



Brazilian Institute for Information in Science and Technology (IBICT)



Brazilian Institute for Information in Science and Technology (IBICT)

- ▶ In 1954 (thousand nine hundred fifty-four), the Brazilian Institute for Information in Science and Technology comes in on UNESCO recommendation meant to create a national center of bibliography.
 - ▶ ***Since then, its mission has been to promote the development of the information sector by proposing policies, research implementation and dissemination of innovative ways to contribute to the advancement of science and competitiveness of Brazilian technology.***
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- ▶ As IBICT **turns 60** (sixty) (in 2014 two thousand and fourteen), it celebrates significant achievements throughout its history. From the academic perspective, the Institute introduced the **first graduate program in Information Science in the country, master's courses** (since 1970 thousand nine hundred and seventy), **doctoral** (since 1994 thousand and nine hundred ninety-four) and **postdoctoral** (since 2013 two thousand thirteen), graduating high-level research professionals committed to the advancement of knowledge in the area.



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- ▶ Research and disciplines of the Graduate Program are structured with a focus on; **"Information and Social and Technological Mediations for Knowledge"**, organized in two research lines: **"Communication, Organization and Information Management and Knowledge"** and **"Socio-cultural settings, Political and Economic Information"**.
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▶ In the early years
foreign teachers of the
**highest international
recognition**
participated in its
faculty, including:

- ▶ Tefko Saracevic
- ▶ Wilfrid Lancaster
- ▶ LaVahn Marie Overmyer
- ▶ Bert Roy Boyce
- ▶ Jack Mills
- ▶ Derek Langridge
- ▶ John Joseph Eyre
- ▶ Engetraut Dahlberg
- ▶ Suman Datta
- ▶ Derek de Solla Price



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- ▶ From the perspective of the first products, and scientific and technological information services produced in cooperation, we highlight the creation of the **National Collective Catalog of Scientific Journals**, the **Bibliodata Network** and the **Bibliographic Commuting Program**, all intended for bibliographic exchange in Brazil in the 1950s (thousand nine hundred and fifty), a milestone that today is noted in libraries and general information units.
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- ▶ From the 1990s (nineteen ninety), IBICT initiated a most successful cooperative initiative by way of, the **Brazilian Digital Library of Theses and Dissertations**.
 - ▶ Brazilian universities and research centers took part in the initiative, adding over **370,000** (three hundred and seventy thousand) theses and dissertations now stored for consultation on open access to the entire international community.
 - ▶ In this network, educational and research institutions act as data providers and the IBICT **operates as aggregator**, collecting theses and dissertations of metadata providers by providing information services on this metadata and **exposing them to be accessed by other service providers**, particularly the Networked Digital Library of Theses and Dissertation.
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http://bdtd.ibict.br/vufind/



Biblioteca Digital Brasileira de Teses e Dissertações

Conhecimento e Reconhecimento
Pesquisa Científica do Brasil

Todos os campos

Busca Avançada

Buscar

101 Instituições 371,421 Documentos 132,993 Teses 238,428 Dissertações

Saiba mais



Assista o vídeo sobre a BDTD



Conheça o TEDE

Saiba mais sobre o sistema



Como fazer parte?

Saiba mais como fazer

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- ▶ On the technological information scene is the **Brazilian System for Technical Answers**, which invested in systems and networks to disseminate information to micro and small business. The database developed for **Industrial Product Life Cycle Assessment** is contributing to sustainability and environmental preservation policies. Investment in information services such as translating of scientific texts into accessible language is aimed at popularizing science through the **Science Channel**.
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http://sbirt.ibict.br/

http://www.canalciencia.ibict.br/

http://acv.ibict.br/

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- ▶ From the point of view of social inclusion, it took on the challenge of facing the historical liabilities of the country with marginalized populations and implemented several initiatives in the digital inclusion area through **Digital Runner** which is designed to include segments of the population whose socioeconomic status makes access to the benefits of new technologies of communication and information difficult.
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**This work will specifically address the Open Book Portal
in Science, Technology and Innovation, which aims to
collect, disseminate and preserve official publications in
science, technology and innovation from Library Network
of Research Institutes (RBP)**



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- ▶ Dissemination of the results of scientific research is an essential part of the generation of future research cycles.
 - ▶ Once the researcher has access to the results of a previous research they will have informational input for the development of new studies. However, access to these scientific results are not always presented as a simple process, since some barriers are identified along the way.



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- ▶ The advent of new information technologies and communication also impacted on the processes related to the generation and dissemination of scientific production. Thus, the use of the Internet was seen as a potential mechanism for scientific communication and dissemination of research results.



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- ▶ Against this backdrop was the reaction of researchers towards the difficulties, and information and communications technology has mobilized and created the Open Access Movement for Scientific Information.
 - ▶ The basis of this movement were drawn by the Budapest Open Access Initiative (BOAI 2002), defined two strategies for action and guided the development in order to follow interoperability standards systems: the publication in open access journals (golden road) and the self-archiving of scientific production in institutional open access repositories (green road).



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- ▶ In particular, among the ongoing initiatives, it highlights the Open Book Portal in Science, Technology and Innovation.
 - ▶ Open access is intrinsically focused on the dissemination of results of scientific research through the Internet, free of monetary cost and access barriers. However, with arising technologies for enabling interoperability between systems and the availability of full texts of research results, other systems also began to be developed in order to give visibility to other document types.
 - ▶ These document types, although they are not themselves scientific informational sources are important for building new knowledge. In this context, official publications also offer these informational sources.



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- ▶ Following the precepts of the Open Archives Initiative and the philosophy of the Open Access Movement, the portal provides official publications in full text, free from barriers to entry, except those sheltered by copyright.



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- ▶ The Portal was developed through free software DSpace, is the most widely used software for creating institutional repositories.
 - ▶ The choice of software is primarily due to its technological characteristics, enabling interoperability with other open access information systems, and also for its ability to internal management.
 - ▶ The latter is related to the fact that the DSpace enable a decentralized power, with different possibilities for assigning profiles. Each process within the system, as deposit, review and approval of content, can be performed by different profiles.



Informações

- Sobre o Portal
- Documentos úteis
- Equipe
- Ajuda
- Sobre o DSpace

Entrar em:

- Meu espaço

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CONCLUSION

- ▶ The pioneering initiative of the Network of Libraries of the Ministry of Science Research Units, Technology and Innovation of Brazil is gradually being consolidated in the research and national development scenario. The effort, begun in 2009, can already present some optimistic results in the use of open access technologies.



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- ▶ In this way, through the Open Book Portal in Science, Technology and Innovation, IBICT expects to contribute a larger organization and dissemination of valuable information, not always known by researchers and society.





They are not all ...

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