Open Data Readiness Assessment

GOVERNMENT OF THE REPUBLIC OF PARAGUAY

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Warning

This is a diagnostic and planning tool; it is not a measurement tool. It is intended to provide diagnostics and Recommendations for action based on existing good practice elsewhere, but it is not a prescription for Open Data, nor is it a formal evaluation exercise. The output of any diagnostic, even following the guidance in this tool, needs to be carefully and critically considered in the context of the particular circumstances in which it has been made.

Using the tool will not guarantee a successful and sustainable Open Data program on its own; implementation is crucial to ensure success. The purpose of the tool is to provide an action plan for an Open Data program, as well as initiating a robust dialogue among relevant stakeholders. In that sense, use of this tool is the beginning and not the end or result of a process. This tool is a 'living' document and will be subject to continuous updating and revision based on experience from actual practice. Other means of assessing readiness for Open Data are also available, and this tool is not necessarily the only, or always the most appropriate, in all particular circumstances.

Disclaimer

The preliminary analysis and Recommendations in this document are based on information and opinions collected from interviews undertaken and materials provided by the government and other local stakeholders during this study. This document is not based on a detailed legal audit and does not constitute legal advice. Accordingly, no inferences should be established as to the completeness, adequacy, accuracy or suitability of the underlying assessment, or Recommendations or any actions that might be undertaken resulting therefrom, regarding the enabling policy, legal or regulatory framework for Open Data in the country. Therefore, it is recommended that, before taking any legal action to address any legal assessment suggested in this document a formal legal audit should be performed by a locally qualified official legal counsel, preferably assisted by experts in international law with relevant experience and knowledge in these areas.


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This work has been led by Eva Clemente Miranda, World Bank Innovation and Entrepreneurship Specialist, and the main authors of this report are World Bank consultants Carlos de la Fuente and Nagore de los Ríos, Open Government and Open Data specialists. In addition, the World Bank team included Mario Larizza (Project Manager, Senior Public Sector Specialist, Eduardo Andrés Estrada (Governance Specialist), Daniela V. Felcman (Public Sector Specialist), Laura Aguirre (Research Analyst) and Alina Frederieke Koenig (Consultant, Public Sector Specialist). The World Bank team thanks the collaboration of Ruth González Llamas (Communications Officer).

The report included a number of in-depth interviews with a total of over 170 representatives from government and civil society organizations. A list of the persons and institutions interviewed is found in Annex 2.

The conclusions and interpretations expressed in this work do not necessarily reflect the views of The World Bank or the governments represented by the Bank.

Methodology

The "Open Data Readiness Assessment (ODRA)" was developed by the World Bank's Open Data Working Group in 2012 to help governments prioritize actions in an Open Data initiative. The ODRA is a methodological tool aimed at carrying out an action-oriented evaluation of the readiness of a national, sub-national or municipal government, or even an individual agency or sector, to evaluate, design, modernize and implement an Open Data initiative. As one of the resources of the Open Data Toolkit of the World Bank, it is available for free so that others can adapt it and use it.

For the World Bank, an Open Data initiative is not simply the design and launch of an Open Data Portal or the creation of a new Open Data service. Instead, an Open Data initiative should aim to promote the development of a dynamic Open Data ecosystem, rich both in the supply and in the reutilization of Open Data, feeding innovations by many types of actors. The experience of leading governments in the field has shown that Open Data initiatives are more sustainable and have greater impact when Open Data efforts use an "ecosystem" approach. This is when governments invest not only in the supply of data, but also address other critical dimensions both on the supply side and the demand side. Additionally, governments must play a multidimensional role in an Open Data ecosystem and create new alliances with a wide range of actors.

Background of the ODRA

In 2012, the concept of Open Data was relatively new in development circles. Governments wishing to adopt an Open Data initiative often had very little understanding of what such an initiative entailed and how to address it. To meet this challenge, the Open Data Working Group of the World Bank led the development of the ODRA. Several institutions participated in the design of the tool, starting with the definition of the main areas and the key questions that should be included. This was done during a co-creation workshop held during the second International Open Government Data Conference in Washington, DC.

Once the design was completed, a beta version was made available to the public worldwide to receive comments from the various international Open Data communities. These comments were incorporated in version 1, which was published at the end of 2012. After a year of using the methodology, new modifications and additions were suggested and incorporated in version 2. Version 3 of the methodology includes improvements in the evaluation framework, reflecting the comments received and the practical experience gained when applying previous versions. It also includes a user guide that captures the best practices in the application of the methodology. Version 3.1, which is used in this evaluation, is a minor update that includes additional guidance for the legal / policy section and corrects some minor errors, but does not include any methodological changes.

The original implementation model for the ODRA was an evaluation of the World Bank using its staff and international consultants. After having requested extensive external contributions in the design of the tool, the World Bank decided to "open the source" of the methodology and its user guide for others to use. The methodology has been successfully implemented by other development partners, such as the UN Development Program, independent consultants in Asia, as well as governments to conduct self-assessments (Kazakhstan).

The World Bank has received multiple requests for ODRA evaluations. As of June 2017, it had conducted or supported forty-five evaluations of this type. Twenty-seven of these had a national scope, eleven were carried out at the subnational level and seven at the municipal level. When an ODRA is carried out by the World Bank (and this is not always the case, since anyone can use the methodology), the resulting process, action plan and report are always a joint product of the World Bank and the government team.

The countries of Latin America and the Caribbean that have carried out an ODRA include Antigua and Barbuda, Colombia, the Dominican Republic, Haiti, Jamaica, Mexico, Peru, Saint Lucia and Trinidad and Tobago. Outside the region, evaluations have been carried out in countries as varied as Afghanistan, Ethiopia, Indonesia, Mauritania and Serbia. At the subnational level, evaluations have been carried out in states such as Jalisco, Mexico and Andhra Pradesh, India, and in regions such as Ulyanovsk Oblast, Russian Federation. At the municipal level, evaluations were conducted in Zapopan, Mexico; St. Petersburg, Russian Federation; Dar es Salaam, Tanzania; Mysore, India; Brasilia, Brazil; Nairobi, Kenya and Accra, Ghana.

Given that many governments that wish to adopt Open Data policies often require additional clarifications on the concept of Open Data and the value they could bring, awareness raising activities, such as workshops and individual conversations during interviews with the parties, became a essential aspect of the ODRA report and follow-up activities.

Sector-specific assessment tools

Some governments asked the World Bank to focus the evaluation on certain areas that were most relevant to them. For example, in Uganda, the focus was on budget transparency; in Tanzania, health, education and water data; and in the state of Jalisco, the reduction of poverty. Others were particularly interested in focusing on a specific characteristic of Open Data, for example an evaluation of the benefits of Open Data or certain types of data. In most cases, the ODRA methodology is flexible enough to accommodate these requirements.

In addition, the World Bank has developed supplementary ODRA methodologies specifically for the energy and transport sectors, and has created an Open Data for Business (OD4B) tool that helps assess the current and potential use of Open Data from government of the private sector. All these methodologies were tested in pilot evaluations in Ghana (Accra), Kenya (Nairobi), Russian Federation (St. Petersburg), Tanzania (Dar es Salaam), India (Mysore) and Sierra Leone and are publicly available in the Open Government Data Toolkit.[1]

1 - http://opendatatoolkit.worldbank.org

Application of the ODRA in Paraguay

This ODRA in the Republic of Paraguay has been prepared by the World Bank as an end product of the fieldwork in which the Government has participated actively and which also had the participation of other public officials, as well as different sectors of civil society, academia, the innovation and entrepreneurship ecosystem, and the private sector.

The goal of this ODRA is to assist the Government in the diagnosis and identification of priority actions to guide progress in the country's Open Data initiative. This analysis is part of the technical assistance provided by the World Bank for the Strengthening of Transparency Systems to Improve Accountability in Paraguay's Public Administration. A diagnostic of the implementation progress of the Access to Public Information Law in Paraguay has been conducted under this program simultaneously with this ODRA.

The assessment in Paraguay included a field mission in which the World Bank team together with the government counterpart (Transparency Working Group) conducted interviews with more than 160 actors in the national ecosystem, including government officials from more than 50 institutions and more than 20 organizations from civil society, academia, entrepreneurs, the private sector and the medium. In addition, during the field mission a launch workshop on the value of Open Data was organized, in which 80 public officials participated.

A second mission of results was carried out during which a technical working session was held with the Transparency Working Group to present the key findings of the diagnosis and Recommendations in detail. In addition, the mission had an extensive technical session to discuss the proposed action plan prepared by the Bank team. Likewise, a workshop was organized in which almost 100 people that participated in the interviews took part. This workshop included the dissemination of preliminary findings and a design thinking exercise on practical cases of the use of Open Data. On the occasion of the Fiscal Transparency event, the findings and Recommendations of the ODRA were presented to the National Transparency Team (ENT) and international experts.

ODRA dimensions

The assessment uses an ecosystem approach to Open Data; in other words, it is designed to look at various Open Data dimensions from both the supply and demand sides. On the “supply” side, it comprises issues such as policy and regulatory framework, existing government data, technological infrastructure (including standards) and coordination between government agencies; while on the "demand" side, it considers matters such as citizen participation mechanisms, current demand for government data and the existence of communities of potential data users (as developers, medium, universities and government agencies).

This assessment establishes measures for eight dimensions that are considered essential for a sustainable Open Data initiative:

1. **Senior leadership**
2. **Policy and legal framework**
3. **Institutional structures, responsibilities and capabilities within government**
4. **Government data management and availability**
5. **Demand for Open Data**
6. **Civic engagement and capabilities**
7. **Funding an Open Data initiative**
8. **Technological development and information society**

FOR EACH DIMENSION, the study provides evidence by answering a set of main questions, and for each piece of evidence it establishes whether it acts in favor of or against an optimal scenario to implement a complete Open Data initiative. The rating for each dimension is given using a color code:

A GREEN RATING
SHOWS A CLEAR EVIDENCE OF READINESS

A YELLOW RATING
SHOWS A LESS CLEAR EVIDENCE OF READINESS

A RED RATING INDICATES
A LACKING EVIDENCE OF READINESS

A GREY RATING INDICATES
THAT THERE IS INSUFFICIENT INFORMATION TO ASSESS READINESS

For each individual question,

+	-	0
EVIDENCE FAVORING READINESS HAS A "+" SIGN.	**WHILE EVIDENCE AGAINST READINESS HAS A "-" SIGN.**	**MIXED EVIDENCE OR EVIDENCE NEITHER FAVORING NOR WEIGHING AGAINST READINESS HAS AN "0" SIGN.**

Not all evidence has the same weight to determine the indicator color. Certain factors may carry more weight than others when rating the degree of readiness for Open Data. When each dimension is studied, it reflects the relative importance of each item, according to a qualitative scale from “medium” to “very high”. This methodology does not contemplate items considered of low or no importance.

The order of the different dimensions is not significant; it does not indicate its relative importance. Both the importance and the amount of attention that should be given to each dimension should be determined in accordance with the objectives of a specific evaluation. Additionally, the eight dimensions are not designed to cover all possible elements for a successful Open Data initiative. Other issues may be important depending on local circumstances or in later stages of the initiative.

The implementation of an Open Data initiative is a long-term process that does not happen overnight. As such, it is expected that governments in the early stages of the evaluation, design and implementation of their Open Data initiatives will lack or show little evidence of preparedness in the various dimensions, as reflected in the color of the indicators (red or yellow). Meanwhile, governments that have made progress in the development of a vibrant Open Data ecosystem will show clear evidence of preparedness (green).

In the case of Paraguay, the evaluation of evidence has been carried out considering that the country already has an Open Data initiative. However, given the initial stage of this initiative, it is expected that the readiness for data opening varies according to the dimension. This "mixed image" is a standard result of the evaluation process and is the basis of evidence on which detailed action is developed. Therefore, the methodology has been applied considering the current level of maturity, the achievements and the opportunities to strengthen the Open Data service and to maximize its results. It was focused on the necessary steps to make Open Data in Paraguay into robust and sustainable program.

The ODRA is not an evaluation tool. It does not intend to compare Paraguay with other countries, nor does it intend to provide a formal evaluation of the performance of current or past public administrations in relation to the Open Data agenda. It is a diagnostic tool and an action-oriented process to assess the viability of a successful Open Data initiative and to develop Recommendations for key strategic actions that national actors should undertake to improve their readiness in the eight dimensions. Along with the collection of evidence and this qualitative rating system, some Recommendations and a proposed action plan are also presented. The Recommendations assume that an Open Data initiative will address the various aspects of an Open Data ecosystem and are based on the global best practices, while incorporating the needs and experiences of Paraguay to date. Likewise, the inclusive and rigorous consultation process through which the ODRA is implemented provides a credible space for constructive dialogue among national actors and for the joint identification of the key priorities of the action plan.

For more information about this methodology, suggested readings include the materials published by the World Bank on the tools and the Open Data Toolkit web site.

Definitions

A specific vocabulary related to this field of knowledge is used in this report. The following are some of the terms used:

DATASET:

A set of data that comprise a significant unit that can usually be provided with a file.

OPEN DATA:

Data in machine-readable format that is publicly available under an open license that ensures it can be freely used/reused/redistributed by anyone for any legal purpose.

DATA ECOSYSTEM:

An approach to Open Data that focuses not only on data but on the larger environment, including other key dimensions like leadership, legal framework, institutions, infrastructure and the state of user communities.

DATA MANAGEMENT:

The development, execution and supervision of plans, policies, programs and practices that control, protect, deliver and enhance the value of data and information assets.

OPEN GOVERNMENT:

A philosophy for government that focuses on how government works to be more transparent and accountable, with a more participatory) and collaborative citizenry.

INFOMEDIARY:

A person or entity that helps make data/information more easily understandable to the general public. For example, the medium are important infomediumries for sharing information with the public in a more understandable way.

OPEN DATA INITIATIVE:

A set of actions designed to introduce and manage Open Data by a government, agency, organization or company. The Assessment focuses on Open Data Programs developed by governments or individual public-sector agencies.

METADATA:

Metadata is "data about data" – meaning data that describe basic aspects of a dataset, for example when the dataset was created, which agency is responsible for the dataset, data format, etc.

OPEN DATA PORTAL:

A web platform designed to provide a single point of access to a catalog for the public to search and access Open Data available from a government, agency or organization.

Acronyms

AGA	*Alianza para el Gobierno Abierto* (Open Government Partnership, OGP)
AGPE	*Auditoría General del Poder Ejecutivo* (Office of the Auditor General for the Executive Branch)
ALETI	*Federación Iberoamericana de Entidades de Tecnologías de la Información y la Comunicación* (Ibero-American Federation of Information and Communication Technology Entities)
ANDE	*Administración Nacional de Electricidad* (National Electricity Administration)
ANDE	*Aspen Network of Development Entrepreneurs*
ANTSV	*Agencia Nacional de Tránsito y Seguridad Vial* (National Bureau of Traffic and Road Safety)
B2B	Business to Business
B2C	Business to Consumer
BCP	*Banco Central del Paraguay* (Central Bank of Paraguay)
BECAL	*Programa Nacional de Becas* (National Scholarship Program)
BID	*Banco Interamericano de Desarrollo* (Inter-American Development Bank, IADB)
CCIGE	*Comité de Coordinación e Interoperabilidad para el Gobierno Electrónico* (Coordination and Inter-Operability Committee for e-Government)
CEAMSO	*Centro de Estudios Ambientales y Sociales* (Environmental and Social Studies Center)
CERT-PY	*Centro de Respuestas ante Incidentes Cibernéticos* (Cyber Incident Response Center)
CIRD	*Centro de Información y Recursos para el Desarrollo* (Development Information and Resources Center)
CISOFT	*Cámara de la Industria del Software* (Software Industry Chamber)
CONACyT	*Consejo Nacional de Ciencia y Tecnología* (National Council of Science and Technology)
CONATEL	*Comisión Nacional de Telecomunicaciones* (National Telecommunications Commission)
CSJ	*Corte Suprema de Justicia* (Supreme Court of Justice)
DGEEC	*Dirección General de Estadística, Encuestas y Censos* (National Directorate of Statistics, Surveys and Censuses)
DGRP	*Dirección General de Registros Públicos* (General Directorate of Public Records)
DINAC	*Dirección Nacional de Aeronáutica Civil* (National Directorate of Civil Aeronautics)

DINATRAN	*Dirección Nacional de Transporte* (National Transportation Directorate)
DISERGEMIL	*Dirección del Servicio Geográfico Militar* (Military Geographic Service Directorate)
DNCP	*Dirección Nacional de Contrataciones Públicas* (National Directorate for Public Procurement)
ECE	*Encuesta Continua de Empleo* (Ongoing Employment Survey)
EEN	*Equipo Económico Nacional* (National Economic Team)
ENT	*Equipo Nacional de Transparencia* (National Transparency Team)
EPH	*Encuesta Permanente de Hogares* (Permanent Household Survey)
ETL	Extract, Transform and Load
FOMIN	*Fondo Multilateral de Inversiones* (Multilateral Investment Fund)
FONACIDE	*Fondo Nacional de Inversión Pública y Desarrollo* (National Fund for Public Investment and Development)
FOPEP	*Foro de Periodistas Paraguayos* (Paraguayan Journalists Forum)
GDL	*Gestión de Documentos en Línea* (Online Document Management)
GII	*Índice de Innovación Global* (Global Innovation Index)
I+D+i	*Investigación, Desarrollo e Innovación* (Research, Development and Innovation)
IAAS	*Infraestructura como Servicio* (Infrastructure as a Service)
IDBA	*Índice de Desarrollo de la Banda Ancha* (Broadband Development Index)
IDE	*Infraestructura de Datos Espaciales* (Spatial Data Infrastructure)
ILDA	*Iniciativa Latinoamericana de Datos Abiertos* (Latin-American Open Data Initiative)
INAM	*Instituto Nacional de Alimentación y Nutrición* (National Institute for Food and Nutrition)
INAPP	*Instituto de la Administración Pública del Paraguay* (Paraguay Public Administration Institute)
INCUPAR	*Asociación Paraguaya de Incubadoras de Empresas y Parques Tecnológicos* (Paraguayan Association of Business Incubators and Technology Parks)
INTAL	*Instituto para la Integración de América Latina* (Institute for the Integration of Latin America)
IODC	*Conferencia Internacional de Datos Abiertos* (International Conference on Open Data)

IPC	*Índice de Percepción de la Corrupción* (Corruption Perceptions Index)
IPC	*Índice de Precios al Consumo* (Consumer Price Index)
IPS	*Instituto de Previsión Social* (Social Security Institute)
LP	*Largo Plazo* (Long Term)
MEC	*Ministerio de Educación y Ciencias* (Ministry of Education and Sciences)
MEF	*Monitoreo de Ejecución Física* (Physical Execution Monitoring)
MIC	*Ministerio de Industria y Comercio* (Ministry of Industry and Trade)
MOU	*Memorándum de Entendimiento* (Memorandum of Understanding)
MRE	*Ministerio de Relaciones Exteriores* (Ministry of Foreign Affairs)
MSPBS	*Ministerio de Salud Pública y Bienestar Social* (Ministry of Public Health and Social Welfare)
OAIP	*Oficinas de Acceso a la Información Pública* (Public Information Access Offices)
OCDS	Open Contracting Data Standard
OCP	Open Contracting Partnership
OD4B	Open Data for Business
ODRA	Open Data Readiness Assessment
OEE	*Organismos y Entidades del Estado* (State Institutions and Entities)
OGC	Open Geospatial Consortium
OMPI	*Organización Mundial de Propiedad Intelectual* (World Intellectual Property Organization)
ONG	*Organización No Gubernamental* (ONG - Non-Governmental Organization)
PA	*Prioridad HIGH* (High Priority)
PAAS	*Plataforma como Servicio* (Platform as a Service)
PAGA	*Plan de Acción de Gobierno Abierto* (Open Government Action Plan)
PDG	*Programa de Democracia y Gobernabilidad* (Democracy and Governance Program)
PND	*Plan Nacional de Desarrollo* (National Development Plan)
PNT	*Plan Nacional de Telecomunicaciones* (National Telecommunications Plan)
POI	*Plan Operativo Institutional* (Institutional Operating Plan)
PTI	*Fundación Parque Tecnológico Itaipú* (Parque Tecnológico Itaipú Foundation)
QW	Quick Win
REPSE	*Registro de Prestadores de Servicios* (Service Providers Registry)
RIEL	*Registro Industrial* (Industrial Registry)
RMSP	*Red Metropolitana del Sector Público* (Public Sector Metropolitan Network)
ROI	*Retorno de la Inversión* (Return on Investment)
RUC	*Registro Único de Contribuyente* (Single Taxpayer Number)

SAE	*Sistema de Ayuda a la Explotación* (Exploitation Assistance System)
SAS	*Secretaría de Acción Social* (Social Action Secretariat)
SAUCE	*Sistema Unificado de Apertura y Cierre de Empresas* (Unified Business Opening and Closing System)
SEAM	*Secretaria del Ambiente* (Environment Secretariat)
SEDECO	*Secretaría de Defensa del Consumidor* (Consumer Protection Secretariat)
SENAC	*Secretaría Nacional Anticorrupción* (National Anti-Corruption Secretariat)
SENATICs	*Secretaría Nacional de Tecnologías de la Información y Comunicación* (National Secretariat for Information and Communications Technologies)
SENAVITAT	*Secretaría Nacional de la Vivienda y el Hábitat* (National Secretariat for Housing and Habitat)
SFP	*Secretaría de la Función Pública* (Public Administration Secretariat)
SIAF	*Sistema Integrado de Administración Financiera* (Integrated Financial Administration System)
SICOM	*Secretaría de Información y Comunicación* (Information and Communication Secretariat)
SIG	*Sistema de Información Geográfica* (Geographic Information System)
SII	*Sistema de Intercambio de Información* (Information Exchange System)
SIL	*Sistema de Información Legislativa* (Legislative Information System)
SIP	*Sistema de Información Policial* (Police Information System)
SITE	*Sistema de Tesorería* (Treasury System)
SITT	*Sistema Integral de Tránsito y Transporte* (Integrated Traffic and Transportation System)
SNIP	*Sistema Nacional de Inversión Pública* (National System of Public Investments)
SPP	*Sindicato de Periodistas de Paraguay* (Paraguayan Journalists Union)
SPR	*Sistema de Planificación por Resultados* (Results-Based Planning Systems)
STP	*Secretaría Technical de Planificación del Desarrollo Económico y Social* (Technical Secretariat for Economic and Social Development Planning)
TCP	*Tablero de Control Presidencial* (Presidential Control Dashboard)
TSJE	*Tribunal Superior de Justicia Electoral* (Electoral Justice Higher Court)
UNE	*Universidad Nacional del Este* (National University of the East)
USAID	*Agencia de los Estados Unidos para el Desarrollo Internacional* (United States Agency for International Development)
UTA	*Unidades de Transparencia y Anticorrupción* (Transparency and Anti-Corruption Units)
VUE	*Ventanilla Única de Exportación* (Single Office for Exports)
WEF	*Foro Económico Mundial* (World Economic Forum)
WMS	*Servicios Web de Mapas* (Web Map Service)
WMS	*Servicios Web de Mapas*

Executive summary

Foreword

The "Open Data Readiness Assessment (ODRA)" was developed by the World Bank's Open Government Data Working Group in 2012 to help governments prioritize actions in an Open Data initiative. The ODRA is a methodological tool aimed at carrying out an action-oriented evaluation of the readiness of a national, sub-national or municipal government, or even an individual agency or sector, to evaluate, design, modernize and implement an Open Data initiative. As one of the resources of the Open Government Data Toolkit of the World Bank, it is available for free so that others can adapt it and use it.

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The goal of this ODRA is to assist the Government in the diagnosis and identification of priority actions to guide progress in the country's Open Data initiative. This analysis is part of the technical assistance provided by the World Bank for the Strengthening of Transparency Systems to Improve Accountability in Paraguay's Public Administration. A diagnostic of the implementation process of the Access to Public Information Law in Paraguay has been conducted under this program simultaneously with this ODRA.

Improving transparency in public administration continues to be one of the highest priorities in the current administration, as evidenced by the adoption of a new legal and institutional framework. The current administration has recognized the right of access to information, created laws that foster significant advancements in the area of transparency, implemented the first Open Data portals and cooperated with civil society, the private sector and the academia to encourage institutional commitment to Open Government.

In recent years, Paraguay has promoted policies towards enhancing transparency in the public sector, as reflected in the 2014-2030 National Development Plan (PND, for its acronym

in Spanish), which identifies "transparency and efficiency in public administration" and "Open Government and Transparency" as strategic development goals. The 2030 PND includes the creation and implementation of an Open Data policy and the promotion of capacity generation in civil society for its use.

The current Government has accepted the challenge of developing a policy for citizen's access to public information and government transparency with a view to ending traditional behaviors relating to information opacity and control. Today's political discourse prioritizes the need to explain the efficiency of public policy and the relevance of accountability.

Up until now, actions contributing to the availability of a public data catalogue and multiple areas in institutional websites publishing Open Data have been developed. This has been possible thanks to the will of certain state entities, which have been able to take advantage of the opportunities to fund these initiatives. To advance in the strengthening of the opening processes in Paraguay, however, there is the need to articulate a formal strategy guiding the global Open Data policy in Paraguay, which sets opening goals and defines a reuse ecosystem that will contribute to the country's social and economic development.

Even though there are a few, disjointed references in data reuse in Paraguay, their potential to become key partners in the promotion of Open Data is significant. In this sense, it is essential to generate a community that includes the private sector and revolves around the Open Data public policy, in close cooperation with the members of Government responsible for the development of the initiative.

Similarly, and without ignoring the country's digital divide, the massive use of smartphones and the increasing penetration of mobile Internet must be highlighted, for they promote the implementation of the Open Data initiative, foster the development of innovative services and allow taking advantage of the global trend in transformation and digital economies.

Main findings and recommendations

Paraguay has started the opening process with a strong emphasis on transparency, although it has not yet maximized the synergies resulting from bringing together active and passive transparency measures to promote the publication of Open Data. Paraguay is currently in an optimal position to articulate and implement an Open Data public policy that will direct the data opening processes and promote a data culture, both within the Government and the reuse sector, especially in the private sector.

The diagnosis of the Open Data initiative of Paraguay leads to the formulation of conclusions and key Recommendations, which are condensed in this Executive Summary.

The political discourse that recognizes the value of Open Data is key to strengthening the advancements of the data initiative in Paraguay.

The messages in favor of data opening from SENATICs must be supported by the leadership of the Ministry of Finance and the Technical Secretariat for Economic and Social Development Planning (STP, for its acronym in Spanish). This support is essential to bring together all institutions concerning the benefits of Open Data for the country.

The advancement of the Open Data initiative in Paraguay is facing two critical factors:

The absence of a strategy or a roadmap that is binding for public administration entities and the limited operating capacity of SENATICs, whose mission is to coordinate the Open Data initiative.

The Open Data public policy must respond to a strategic formulation that sets goals, plans and responsibilities.

A strategy that will sustain the data opening initiative must define, among others, the following aspects: political leadership and institutional accountability; organizational and governance model; scope of the Open Data service; sectoral planning with short- and medium-term goals, and the financing model that will ensure continuity over time.

Coordination of a governance model for Open Data must efficiently exploit the organizational and technical structures in place. Certain interinstitutional relations are currently governed by interaction mechanisms, such as the National Transparency Team (ENT, for its acronym in Spanish) and the Coordination and Inter-Operability Committee for e-Government (CCIGE, for its acronym in Spanish). These mechanisms may be used to effectively disseminate the data initiative with a view to achieving goals, funneling the technical support needed, transferring capacity and knowledge and fostering dialogue on reuse and value production.

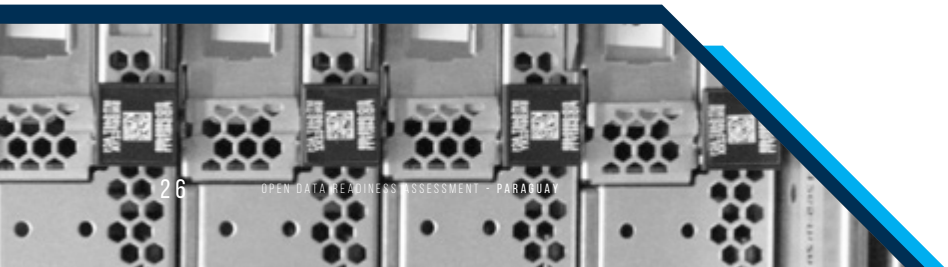
Convergence of active transparency and Open Data is achieved by using open formats in the publication of information in institutional transparency portals. The Law of Citizen Access to Public Information, implemented and institutionalized, is the first element available to activate the offer of Open Data in all institutions, since its articles make active publication compulsory. It is also the guideline to follow to respond to information requests made by the people.

The demand for data is still in its early stages incipient, in the same way that the data culture in Paraguay is not yet established. Infomediumries use public information mainly as a complaint mechanism, and the use of data is directed towards transparency. Although this facet is positive, it is indispensable to continue evolving towards the generation of economic and social value of data. This is why the data culture must be incorporated into the country's competitiveness agenda, so that Paraguayan businesses, especially small and medium-sized, and entrepreneurs, may benefit from and take advantage of the data.

Digital developers and entrepreneurs are significantly potential partners for innovation. There are also opportunities to collaborate with the private sector that is interested in data management systems as a priority issue in the development of innovative products and services. InnovandoPY is a talent retention and recruitment program that seeks to create tools that use Open Data. InnovandoPY organizes processes and events that serve to incentivize data reuse and generate communities and develop capacities. These types of mechanisms are essential to the development of the country's entrepreneurship and innovation ecosystem. However, the evolution of such ecosystem will make it necessary to advance in entrepreneurship support mechanisms.

Actions promoting demand for data must combine active listening, in order to get to know the needs of the reuse sector, and the communication of the institutional response as data opening. This strategy and the communications plan linked to its execution will require hyper-segmenting the multiple data reuser groups to get to know them better, therefore allowing them to act coordinately to cater to specific needs. Active listening and communication will thus serve to encourage the collaboration of the ecosystem supporting the implementation of Open Data policy.

Finally, it is important to estimate the cost of the Open Data initiative, taking into account the elements included in its management, maintenance and evolution. A rigorous calculation of the costs must be made in order to decrease the uncertainty associated to the sustainability of funding an Open Data initiative. Budget preparations must take into account the possibility of applying economies of scale taking advantage of the NUBE-PY (SENATICs Paraguay Cloud) service infrastructure. There is also the possibility of continuing external funding based on innovative high impact Open Data reuse project proposals. Once the funding scheme for Open Data has been defined, the return on the investment in terms of creation of social and economic value must be assessed in order to justify the economic investment in the initiative and help set attainable goals.



The following are a few of the key opportunities to systematically and rapidly advance concerning the Open Data initiative:

Leverage the best practices in Open Data in place in Paraguay.
The National Directorate for Public Procurement (DNCP, for its acronym in Spanish), the National Secretariat for Housing and Habitat (SENAVITAT, for its acronym in Spanish), the Ministry of Finance, Ministry of Education, Ministry of Health or the Supreme Court of Justice (CSJ, for its acronym in Spanish) are all examples of references to incentivize institutions that are not as involved in data opening.

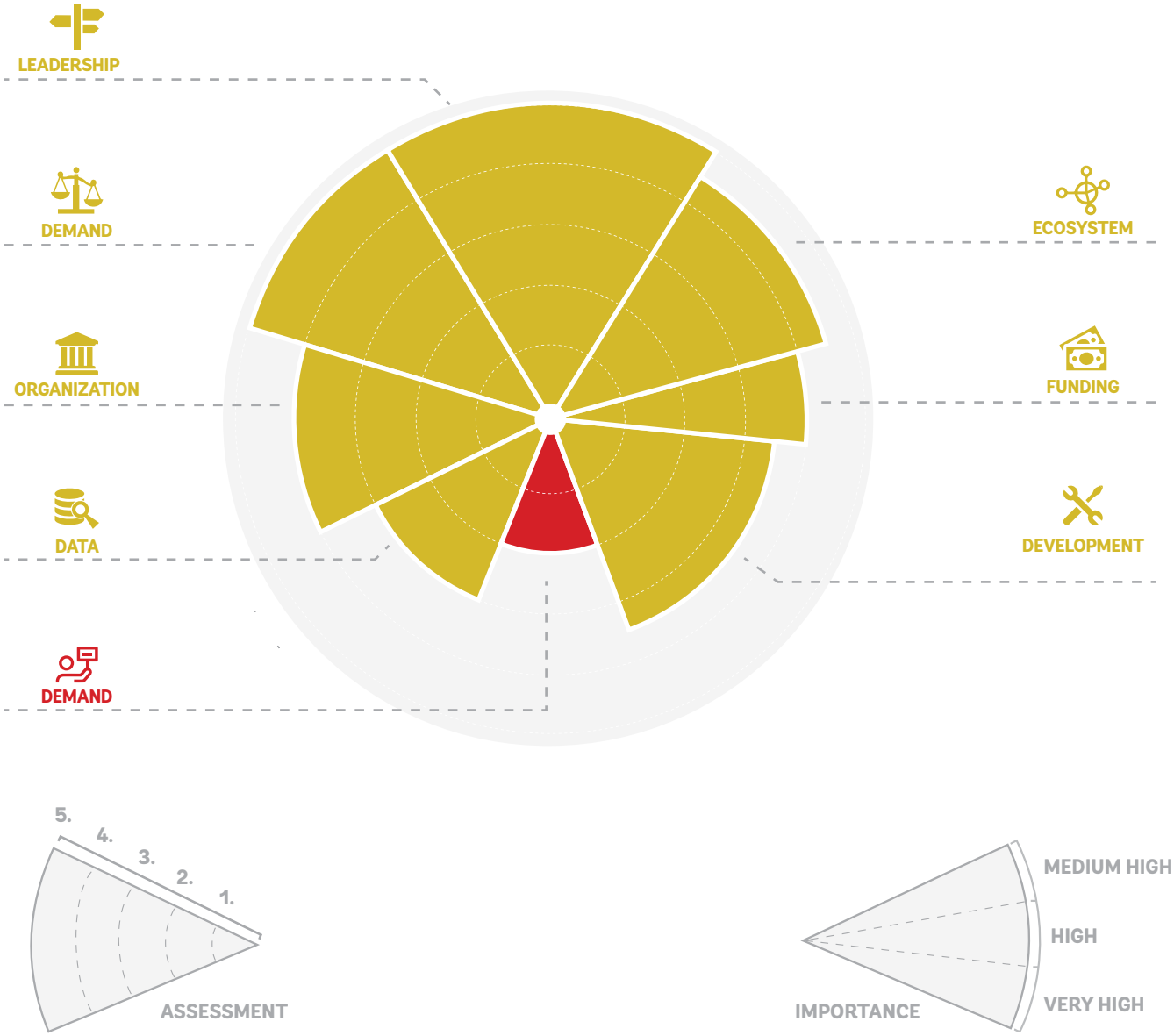
Set up Open Data opening and reuse sectoral plans. These plans must be designed and implemented within a context of consensus, which is why it would be helpful to organize multiple working forums in order to agree to an Open Data offer that can progressively meet all needs.

Apply the Open Data license in all online areas that allow downloading data to contribute to the legal certainty in the reuse of the published data.
The implementation of the use of an Open Data license, which was defined in Decree 4064/15, is significantly limited in public administration portals.

Broaden the national catalogue of Open Data by offering the public data scattered throughout Government websites. There are data that are already available and relevant to many business sectors, thanks to their strategic value in business development. However, they are not published in the national catalogue of Open Data. This is the case of data available on the geoportal of the Ministry of Agriculture (MAG, for its acronym in Spanish), the Housing data provided by SENAVITAT, public procurement data provided by DNCP, official statistics of the National Directorate of Statistics, Surveys and Censuses (DGEEC, for its acronym in Spanish) and all the information relating to public budgets and expenditures published by the Ministry of Finance. Other datasets relating to mobility or the environment, among others, may be organized in the short term to become a part of the Open Data catalogue.

Preparing an inventory of the sources of the information will allow accurately determining the potential of data opening and planning and prioritizing the availability to the public. This inventory must include the details corresponding to systems, applications, databases, SIGs, APIs, Web Services and any OEE operational data warehouse. Each element must include the following information, among others: physical location, upgradability, responsibilities and readiness needs.

Although the ODRA diagnosis provides a basically qualitative analysis, the results are presented with the summary graph below to help understand the extent of the country's readiness in each of the assessed dimensions. This graph does not substitute the qualitative information described in the report.



The results of the assessment of the 8 dimensions or areas are as follows:

ASSESSMENT AREAS		IMPORTANCE	ASSESSMENT
1.	Senior leadership	VERY HIGH	YELLOW
2.	Policy and legal framework	HIGH	YELLOW
3.	Institutional structures, responsibilities and capabilities within government	HIGH	YELLOW
4.	Government data management and availability	HIGH	YELLOW
5.	Demand for Open Data	HIGH	RED
6.	Civic engagement and capabilities	HIGH	YELLOW
7.	Funding an Open Data initiative	MEDIUM-HIGH	YELLOW
8.	Technological development and information society	HIGH	YELLOW

Analysis, assessment and recommendations

DIMENSION

1

Senior leadership

RELATIVE IMPORTANCE:

VERY HIGH

Context:

Open Data initiatives require the implementation of change - often including legal, institutional, technological and cultural changes - that may affect stakeholders both inside and outside government. A political leadership with an affinity to the Open Government ideas is therefore critical to help a government overcome resistance and inertia of all kinds, to incentivize actors to make the necessary changes in a timely and effective manner and to achieve the desired objectives and benefits.

EVIDENCE AND COMMENTS ON KEY QUESTIONS:

QUESTION 1.1

TO WHAT EXTENT IS THERE VISIBLE POLITICAL LEADERSHIP OF OPEN DATA/OPEN GOVERNMENT/ ACCESS TO INFORMATION?

RELATIVE IMPORTANCE: **VERY HIGH**

+	Improving transparency in public administration continues to be one of the highest priorities of the current administration, as evidenced by the adoption of a new legal and institutional framework. The current administration has recognized the right of access to information, created laws that foster significant advancements in the area of transparency, implemented the first Open Data portals and cooperated with the private sector, civil society and the academia to encourage institutional commitment to Open Government.
+	In recent years, Paraguay has promoted policies towards enhancing transparency in the public sector, as reflected in the 2014-2030 National Development Plan (PND, for its acronym in Spanish), which identifies "transparency and efficiency in public administration" and "Open Government and Transparency" as strategic development goals. The 2030 PND includes the creation and implementation[2] of an Open Data policy and the promotion of capacity generation in civil society for its use.
+	The administration that took office in August 2013 made public transparency one of the cornerstones of its Government program, which allowed the promote of major reforms throughout the public sector. Thanks to the actions implemented by the Executive Branch, for the first time all public entities, including the binational entities of Itaipú and Yacyretá, must disclose information on the use of public resources for the payment of salaries and additional compensations. Procedures enabling citizens to request public information have also been defined.
+	Among other actions relating to the growing importance of transparency: all state entities must publish on their websites a section on active transparency; multiple Open Data portals have been launched, including the national catalogue, which is the Open Data[3] portal managed by the National Secretariat for Information and Communication Technologies (SENATICs, for its acronym in Spanish), the unified portal to access public information[4] and the national website of public procurement[5].

2 - Strategy 2.2.- Competitiveness and Innovation of the 2030 PND: http://www.stp.gov.py/pnd/
3 - Open Data portal: https://www.datos.gov.py/
4 - Website for public information requests: http://informacionpublica.paraguay.gov.py/portal/
5 - Public procurement portal: https://www.contrataciones.gov.py/

+	The political leadership at the highest level in the public discourse continuously states its commitment to public transparency. Examples of this include official speeches in national and international forums, such as the World Economic Forum in Davos in January 2017, and the year-end message in December 2016 in which the institutional commitment of working to achieve greater transparency was highlighted.
+	The current Government's structure fosters the coexistence of public entities displaying leadership on specific transparency and anti-corruption issues, which have a positive impact on the Open Data initiative.
+	The statements of leaders accountable for public policies are in line with the Open Data initiative prove that transparency, the fight against corruption and open government, are part of the political discourse.
+	In the Ministry of Finance, there is also evidence of a leadership that highlights the fundamental nature of transparency to implement public policies, as evidenced by recent public interventions.[6]
+	The Ministry of Justice, the entity responsible for the coordination of Access to Public Information policies, organized the first Seminar Workshop on Open Government and Access to Public Information of the National Government held in the city of Encarnación. This seminar emphasized, for example, the importance of empowering citizens with the legal and technological tools so they may actively participate in controlling the State's management.
+	The Secretariat for Economic and Social Development Planning (STP, for its acronym in Spanish) represented Paraguay in an inter-ministry forum held at the Open Government Partnership (OGP) World Summit. From the top management of the STP stands out the agenda drawn up by the Open Government Partnership and the importance of generating trust in citizens[7].
+	Likewise, the National Anticorruption Secretariat (SENAC, for its acronym in Spanish) displays leadership in Transparency and Anticorruption. An example of this can be found in a panel discussion on Paraguay's commitment to an Open Government with an efficient and Transparent public management, held in the framework of the Inter-American Development Bank's (IADB) assembly.[8]

6 - Position of the Finance Minister on transparency and control: http://www.lanacion.com.py/negocios_edicion_impresa/2017/05/05/pena-hablo-sobre-ventajas-de-invertir-en-paraguay/
7 - Position of the STP regarding Open Government's achievements before the OECD: http://www.stp.gov.py/v1/ministro-molinas-explico-los-logros-de-gobierno-abierto-ante-la-ocde/
8 - Position of the SENAC Minister on transparency and anticorruption: http://www.senac.gov.py/noticia/415-ministra-destaca-los-avances-de-la-transparencia.html#.WRQ8DROLRTZ

+	From the Central Bank of Paraguay (BCP), leadership is also exercised on issues of transparency in the country. In the World Economic Forum (WEF) in Latin America, a presentation was made on the structural reform in governmental transparency and citizen control.[9]
-	Even though the transparency and anticorruption discourse has been led by the political leaders of the current administration in Paraguay, and it has become a part of many statements, this is not the case with Open Data.
+	The Open Data message relies mainly on the responsibility of the SENATICs leadership.
-	Furthermore, the leadership clearly focused on transparency and anticorruption observed in senior political positions shows no evidence of having incorporated other benefits relating to the opening. The opening vision, especially that of Open Data as an input for innovation, entrepreneurship, competitiveness, efficiency in or improvement of public services, has yet to match the importance of, and has been eclipsed by transparency.
+	From the SENATICs, visible leadership is excercised in the defense of the value of Open Data as an element that promotes transparency and enables the economic development of the country. This has been made clear in his different public interventions and during the opening speech given at the Open Data workshop held on April 17, 2017 upon the presentation of the fieldwork of the World Bank's ODRA's mission in Paraguay.
+	In the Government, there are other ministries that have shown their leadership in transparency and opening data. A few examples include the Ministry of Education and Sciences (MEC, for its acronym in Spanish)[10]; the Ministry of Public Health and Social Welfare (MSPBS, for its acronym in Spanish)[11]; the Public Administration Secretariat (SFP, for its acronym in Spanish)[12]; and the Secretariat for Housing and Habitat (SENAVITAT, for its acronym in Spanish)[13], from where the value of transparency is invoked as a principle and where statements are supported with public data opening actions through the different Open Data portals on the websites of each entity.
+	The SENATICs, SENAVITAT and the National Directorate for Public Procurement (DNCP, for its acronym in Spanish) have shown the best practices related to the data opening and readiness process, cooperation with the reusing sector and commitment to the Paraguay Open Data initiative.
+	The management of SENATICs has displayed high degree of commitment to leading the Open Data initiative. With the support of ministries of institutional influence, such as Finance and the STP, it can promote a public policy that incorporates the use and reuse of Open Data to foster actions supporting transparency and economic development.

9 - Position of the BCP on transparency and innovation: http://www.lanacion.com.py/2016/06/15/paraguay-presentara-avances-en-transparencia-e-innovacion/
10 - MEC created its Transparency and Anticorruption Directorate: http://www.senac.gov.py/noticia/351-el-mec-crea-su-direccion-de-transparencia-y-anticorrupcion.html#.WRRKfROLRTa
11 - MSPBS points out transparency as one of the cornerstones of public health: http://www.mspbs.gov.py/transparencia-uno-de-los-pilares-que-sostiene-a-la-salud-publica/
12 - SFP highlights the importance of transparency as a state policy: https://www.sfp.gov.py/sfp/noticia/13679-es-muy-importante-que-la-transparencia-en-la-administracion-publica-sea-una-politica-de-estado.html#.WTZogxPyiRs
13 - SENAVITAT receives accountability transparency award: http://www.economiavirtual.com.py/pagina-general.php?codigo=9663

QUESTION
1.2

TO WHAT EXTENT IS THERE AN ESTABLISHED POLITICAL LEADERSHIP AND GOVERNANCE MODEL FOR PROGRAM POLICY AND IMPLEMENTATION ACROSS MULTIPLE INSTITUTIONS OR ACROSS GOVERNMENT AS A WHOLE?

RELATIVE IMPORTANCE:
HIGH

0	Paraguay's 2030 PND is a strategic document that seeks to enable coordinating actions in sectoral departments of the Executive Branch, as well as with multiple government levels, civil society, private sector and eventually the Legislative and Judicial Branches.
0	The way to implement the governance of cross-cutting government programs is to define interinstitutional coordination mechanisms resulting from a law or a decree. In absence thereof, it is the will of the institution that will encourage compliance with the guidelines or Recommendations.
+	Because the policies of the Ministry of Finance and the STP are cross-cutting, these institutions have the institutional strength and sufficient capacity to support the coordination of an Open Data policy complementing the SENATICs technical and operational capacity.
+	There are currently two interinstitutional coordination mechanisms that influence the implementation of the Open Data initiative, due to their area of interest: The National Transparency Team (ENT, for its acronym in Spanish) and the Coordination and Inter-Operability Committee for e-Government (CCIGE, for its acronym in Spanish).
0	The ENT is made up of institutions part of the National Economic Team (EEN, for its acronym in Spanish)[14] and the SENAC[15] -in charge of technical coordination. The ENT is a mechanism supporting the public policies relating to transparency and the fight against corruption. Its main goal is to implement plans to improve the position of Paraguay in the corruption perceptions index.
0	The CCIGE, which is made up of ICT specialized units, is a consultation and dissemination entity of SENATICs plans, programs, and projects. The goal of the ICT specialized units is to implement the ICTs in each institution.

14 - EEN is made up of the Ministry of Finance, who serves as Chair; the Ministry of Industry and Trade; the Ministry of Agriculture and Livestock Breeding; the Ministry of Public Works and Communications; the Ministry of Foreign Affairs; the Central Bank of Paraguay; the Technical Secretariat for Social and Economic Development Planning (executive coordinator of the ENT) and the General Secretariat of the Office of the President of the Republic.
15 - SENAC is the institution leading public policies on Transparency, Integrity, Good Governance and Fight Against Corruption: http://www.senac.gov.py/

-	Although mainstreaming in these entities may help the coordinated implementation of the Open Data initiative, it has not been exploited yet as a means to channel the technical and organizational guidelines that will expedite the Open Data institutionalization process in the country.
+	An example of interinstitutional coordination and convergence is the creation of the single government porta[16], which provides information and services for citizens regarding public Paraguayan institutions.
+	Another example is related to the formulation of Open Government commitments and the execution of its associated programs, which are implemented in action plans that are being executed in cooperation with the institutions representing each thematic sector.
+	To ensure participation in the design and implementation of the Open Government Action Plans, the STP coordinates the Open Government joint forum[17]. During 2014-2016, representatives of 14 government institutions and 11 civil society organizations participated in this forum.
-	An Open Data public policy that has been formalized, agreed on and accepted by the public powers, which may bring about a set of planned actions focused on opening data and promoting its reuse in the framework a long-term strategy, does not yet exist.
+	However, guides such as the "Guidelines of the Paraguay Portal and Online Processes"[18] have been issued which, among other things, set the minimum indications to be adopted by all institutions regarding the use of Open Data. These guidelines state the following: • Institutions must be present on the government Open Data portal by publishing at least one dataset of public interest. • The publication of the datasets must follow the technical guidelines issued by the SENATICs, indicating the associated categories, periodicity of updates, data formats of the published resource and the adoption of an open license for the use of information and public Open Data owned by the State of Paraguay. • The responses generated for each citizen request for public information made using the single portal, as long as technically applicable, must be registered or classified in Open Data format as a dataset on the www.datos.gov.py portal, in the categories associated to the scope of its competence.

16 - Single portal of Paraguay: https://www.paraguay.gov.py/
17 - Members of the joint forum on open government: http://www.gobiernoabierto.gov.py/gobierno-abierto
18 - Guidelines of Portal Paraguay and Online Processes: https://www.paraguay.gov.py/lineamientos

+	Through recent circular letter PR/GC/2017/2272 issued in March 2017 by the SENATICs and addressed to Ministries, National Secretaries, Executive Secretaries, Heads of Public Institutions, Presidents of Autonomous, Independent and Decentralized State Entities and Institutions, Public and Bi-national Directors, Prosecutor General and Military Authorities, compliance with the guidelines of the "Portal Paraguay" single portal for citizen information and services is requested.[19]
+	There are some isolated actions, such as the existence of an Open Data central catalogue that depends on SENATICs, in addition to other portals in which other institutions publish Open Data, the implementation of guidelines to Open Data and the provision of periodic training to OEE technicians. There have also been data co-creation actions to promote demand.
+	The same circular letter indicated that SENATICs would provide advice, training and technology to the institutions as required to implement the guidelines.
-	However, a data opening operational plan that actively engages the institutions in an ongoing and sustainable opening process has not been defined, nor has there been an ongoing dialogue with an Open Data ecosystem with a view to guiding opening plans and coordinating institutional efforts. Up to now, it has not been a matter of responding to a global and specific work plan, but more that the will to Open Data of certain institutions has prevailed.

19 - Circular letter PR/GC/2017/2272: https://www.paraguay.gov.py/documents/10179/0/CIRCULAR+PR-GC-2017-2272

QUESTION
1.3

WHAT EXISTING POLITICAL ACTIVITIES OR PLANS ARE RELEVANT TO OPEN DATA?

RELATIVE IMPORTANCE:
MEDIUM

+	The Open Data initiative has been internally discussed and promoted at an institutional level by way of the participation process carried out to define the third Open Government Action Plan.
+	The first and second Open Government Action Plan (PAGA, for its acronym in Spanish), resulted in the creation of multiple Open Data thematic catalogues, which was possible thanks to the engagements assumed by each institution participating in the corresponding action plan.
+	The involvement of the different state entities participating in the formulation and development of the different action plans was the result of the coordination effort of the STP Open Government General Directorate.
-	However, this effort has yet to be consolidated, since most institutions who have committed to the Open Data initiative lack specific opening plans guiding the publication of new datasets.
-	Although there are technical conditions that enable the availability of datasets, the publication of the data in an open format depends on the decision made at the highest level within each institution. This means that the open culture has yet to become a part of the entities' regular operation. The interviewees stated that when it comes to the decision to open the data, the persons responsible in the entities usually seek the advice of legal counsel, who, unaware of the benefits of an Open Data policy and fearful that it may constitute a misuse of the institution's official policies, tend to adopt a conservative position.
-	Apart from circular letter PR/GC/2017/2272, the internal communications and awareness raising processes regarding the value of Open Data at the highest political leadership level (ministers or directors general) have shown that there is confusion about the concepts of transparency, open government and Open Data.
-	At the subnational level, specific initiatives regarding Open Data have yet to be implemented, although the municipality of Asunción is currently working on an Open Data portal.

QUESTION
1.4

HOW DOES THE WIDER POLITICAL CONTEXT OF PARAGUAY HELP OR HINDER OPEN DATA?

RELATIVE IMPORTANCE:
HIGH

0	The 2030 PND provides guidance to the Government's actions in the short, medium and long term.
0	It is built on three strategic axes (poverty reduction and social development; inclusive economic growth; insertion of Paraguay into the world) and four cross-cutting lines (equal opportunities; transparent and efficient public management; territorial planning and development; environmental sustainability) around which the government policies and actions are coordinated.
+	The 2030 PND is a strategic framework in which government policies and actions are coordinated, and it is in consonance with the Open Data enabling elements: transparency and accountability, economic growth, inclusion and empowering, improvement of public services and government efficiency.
-	The Corruption Perceptions Index (IPC) 2016[20] published by the Non-Governmental Organization (NGO) Transparency International, ranked Paraguay 123 among the 176 countries of the international ranking, and 16 among the 20 Latin American countries.
+	However, the trend shows an increase in the index in recent years, meaning that the perception of Paraguayans concerning corruption in their country's public sector has improved. Paraguay moved up seven places compared to their ranking in the 2015 index.
+	In June 2016, Paraguay became the 134th country member of the Global Forum on Transparency and Exchange of Information for Tax Purposes of the OECD, a multilateral institution that is a worldwide leader in transparency and tax information exchange. Becoming a member of this group entails applying the organization's stringent standards in fiscal cooperation matters.
+	In March 2017, Paraguay became the 52nd member of the Development Centre of the Organisation for Economic Co-operation and Development (OECD). Membership to the OECD is the result of the request made by the President in December 2016. The OECD's Development Centre's Directive Council unanimously accepted the request of the Paraguayan government. From the OECD Deputy General Secretariat, the importance of the goals set by the Government has been as "part of the national development strategy to get rid of corruption".

20 - IPC 2016 Paraguay: https://www.transparency.org/country/PRY

0	Furthermore, and considering the political context, it is relevant to point out that the better part of this administration has ended. The general election in Paraguay, in which the President and Vice-President of the Republic will be elected, along with senators and representatives and local authorities such as Governors and members of Departmental Boards, will take place on April 22, 2018. This could have an impact on the time left to gain political support and advance in the implementation of actions, and ultimately, to make progress on the data initiative of this administration.
+	The general opinion of the interviewees is that the risk of setbacks in structural policies and in the permanent advancement of Open Data is limited.
+	The interviewees also state that there are no foreseeable changes on the part of the new administration that may affect the current mission of the SENATICs as the institution formulating and enforcing the ICT policies for the public sector and the people.
+	Transparency and accountability is the cross-cutting policy that clearly benefits the most from data opening. Proof of these direct benefits is the operation of the Results-Based Planning System (SPR, for its acronym in Spanish) and the Presidential Control Dashboard (TCP, for its acronym in Spanish).

QUESTION 1.5

WHAT IS THE COUNTRY'S POSITION IN RELATION TO THE OPEN GOVERNMENT PARTNERSHIP?

RELATIVE IMPORTANCE: **HIGH**

+	Paraguay has been a member of the AGA since 2011, when it was founded. To date, three administrations with three different political views have upheld their commitment with the initiative.
0	STP is the public institution in charge of representing Paraguay before the AGA, and of promoting the Open Government principles throughout the nation.
+	The II PAGA 2014-2016, achieved the completion of all the acquired commitments, according to the self-assessment conducted by the STP. 10 out of the 28 commitments were related to Open Data.[21]

21 - Self-assessment on achievement of engagements II PAGA: http://www.gobiernoabierto.gov.py/avances

+	During the II PAGA two major commitments were defined, the first being the enactment and implementation of the "Citizen's Free Access to Public Information and Government Transparency Law", Law N° 5282, in September 2014; the second commitment, which was both assumed and achieved, was the creation or strengthening of 50 Municipal Development Councils to actively participate in and oversee local plans through public hearing summons.
+	In December 2016, the Republic of Paraguay sent a numerous, high-level delegation to the OGP Summit held in Paris, made up of the ministers of Foreign Affairs, Finance, Education, Social Affairs, Housing, Supreme Court of Justice and the Chief of Cabinet.
+	Paraguay is currently implementing its third Action plan 2016 – 2018. The main goal concerning Open Data (commitment 2 of 10), is to place the largest amount of relevant data of the catalogue at the disposal of the people, prioritized by public consultation, and promote its use by way of dissemination activities and *hackathons.*
+	As for the type of data proposed for increased availability in the opening process, the plan proposes datasets to empower society concerning the use of Open Data to improve access to citizen rights.
-	During the co-creation process of the AGA action plan, the representation of civil society organizations is greater than that of private sector entities. This means that the weight of the engagements under the plan related to the opening of data for the country's economic development is reduced.
+	Paraguay submitted its candidacy to become a member of the AGA 2017-2010 Executive Committee. It achieved sixth position in the election from among the 12 participating countries.
+	In order to define the commitments of the third action plan eight groups were set up, each one focusing on a single issue to address in collaborative work. The following were the groups: poverty reduction and social development; education; health; environment and natural resources; citizen safety and oversight; access to public information, Open Data and transparency; continuity of action plans; and inclusion of new participants.
+	Finally, it must be pointed out that Paraguay is one of the countries committed to the use of national action plans to adopt commitments that will serve as effective tools to promote the transparent and accountable implementation of the 2030 sustainable development agenda.

Ratings and conclusions

	ITEMS	IMPORTANCE	ASSESSMENT	COMMENT
1.1	Visible political leadership on Open Data / open government / access to information	VERY HIGH	Yellow	Open Data must latch on to the policies that are on their way to consolidation, such as transparency and accountability, while exploiting new opportunities as well. This requires a political leadership that must be reinforced in order to enhance cross-cutting influencing capacity.
1.2	Political leadership and governance model for the execution of program	HIGH	Yellow	The Open Data initiative's weak political leadership slows down the implementation of a public policy with a global scope. Effective mechanisms fostering the cross-cutting coordination for channeling organizational and technical guidelines are yet to be articulated.
1.3	Existing activities or political plans relevant to the Open Data	MEDIUM	Yellow	To date, only isolated data opening processes have been carried out, which lack continuity plans. The data opening initiative lacks a solid institutional backing from a few institutions and is based on the will to take on openness.
1.4	Broader political context of Paraguay	HIGH	Yellow	The electoral context and possible changes that may result from it may affect the Open Data initiative. This is why it is essential to achieve early short-term breakthroughs, which will foster an ongoing Open Data policy that will be sustainable over time.
1.5	Country´s position in relation to the Open Government Partnership	HIGH	Green	There is a solid commitment with AGA, which has been materialized into a third action plan that will increase the availability of Open Data.
	OVERALL	MEDIUM HIGH	Yellow	**Senior leadership concerning Open Data must be strengthened. The interinstitutional mechanisms allowing to channel the guidelines must be activated. The action plans for data opening and reuse must be articulated by way of a public policy that reinforces the execution of the government priorities stated in the PND.**

Recommendations

❖	Leadership focused on transparency, anti-corruption and open government are assets to articulate an Open Data policy. The political discourse on transparency and anti-corruption has permeated the public administration, which has started to assume active transparency and citizen oversight as a matter of course. However, the path followed up to now by the Open Data initiative has failed to take advantage of the penetration of these messages in the institutions. Including the need for Open Data to support transparency actions and explaining the outcome of public policies to the people is highly recommended.[22]
❖	The institutional strength of certain ministries, such as Finance, Justice and the STP, which due to their mission and high cross-cutting characteristics allow them to articulate guidelines for the institutions, are key allies in the channeling of binding guidelines regarding Open Data. The governance model will be strengthened if these ministries assume an active role in the Open Data public policy agenda, in which the SENATICs would be the promoting agent and the political leader of the initiative.
❖	The Open Data public policy must define a set of actions focused on opening data, fostering its reuse and forging a consistent bond with other public policies: economic development, innovation, environment, mobility and public transportation, culture, etc. These public policies must start incorporating data opening as a matter of course. Specific Open Data opening and reuse plans by sector must be coordinated in cooperation with other institution, thus enabling the construction of a public services whose main purpose is to provide data for its reuse.
❖	It is important to use the coordination mechanisms already in place, in which state entities already have a solid standing in order to channel technical and organizational guidelines, convey messages and provide feedback to the policy based on the opinion of those involved. Two active coordination elements we recommend using are the ENT and CCIGE. ENT is important towards steering the organizational model, and the CCIGE will allow guiding the technical issues.
❖	Finally, it is important to involve the private sector in priorities for data opening with a view to balancing the purpose of data reuse for improved accountability, towards generating economic and social value. The co-creation process of the AGA action plan has become a turning point regarding the opportunities stemming from the multiplicity of visions in participative design processes. This experience has also showed positive results in the definition of the 2030 PND. It is recommended, in relation with the preparation of sectoral data opening plans, creating work forums in order to determine an Open Data offer that will progressively meet all requirements.

22 - World Bank's Open Data Toolkit publishes multiple examples on how Open Data initiatives have positively influenced the development of other public policies. http://opendatatoolkit.worldbank.org/en/essentials.html#uses

DIMENSION

2

Policy and legal framework

RELATIVE IMPORTANCE:

HIGH

Context:

The long-term success and sustainability of an Open Data Initiative depends greatly on the enabling policy and legal framework. Open Data requires that a range of policy and legal issues be addressed – for example, with respect to licensing the reuse of data, personal data privacy and protection must be ensured. It is important to identify at an early stage the existing policies, laws and regulations with respect to a core set of issues, and to identify actual or perceived obstacles in order that policy or legal change can be initiated early.

Disclaimer:

The preliminary analysis and Recommendations in this document are based on information and opinions collected from interviews undertaken and materials provided by the government and other local stakeholders during this study. This document is not based on a detailed legal audit and does not constitute legal advice. Accordingly, no inferences should be established as to the completeness, adequacy, accuracy or suitability of the underlying assessment, or Recommendations or any actions that might be undertaken resulting therefrom, regarding the enabling policy, legal or regulatory framework for Open Data in the country. Therefore, it is recommended that, before taking any legal action to address any legal assessment suggested in this document a formal legal audit should be performed by a locally qualified official legal counsel, preferably assisted by experts in international law with relevant experience and knowledge in these areas.

EVIDENCE AND COMMENTS ON KEY QUESTIONS:

QUESTION 2.1	WHAT IS THE LEGAL AND REGULATORY FRAMEWORK FOR THE PROTECTION OF PERSONAL INFORMATION?	RELATIVE IMPORTANCE: VERY HIGH

-	Even though the Constitution recognizes protection rights on the treatment of personal data, a specific Law protecting personal data that specifies how data that requires special protection and the rights of the people concerning access, correction, cancellation or objection to treatment, does not exist.
+	The need is evident and work is being made on promoting a personal data Protection Law, but it will not be available for another two years.
+	Article 33 of the Constitution of the Republic of Paraguay of 1992 recognizes the right to protect the intimacy, dignity and image of the people.
0	Law 1682/01 and Law 1969/02, which broadens and repeals several articles of the previous law, regulates personal information for strictly private use. Said Law did not define the existence of a data protection agency.
0	Law 1969/02 states that public sources of information are free for all.
+	The Law also emphasizes the need to make personal data anonymous, since Article 3 states that “the collection, storage, processing and publication of personal data or characteristics with scientific, statistical, public opinion surveys or market research purposes is legal, as long as the publication does not focus on the people or entities researched.”
-	However, the Law is unclear regarding the need to avoid the separation of personal data: it does not require the publisher to use personal data anonymization techniques prior to publication.
+	In practice, personal data anonymization techniques are known and applied in several entities handling sensitive information, such as the National Directorate of Statistics, Surveys and Censuses (DGEEC, for its acronym in Spanish) or the MSPBS.
-	No state entity or agency has been entrusted with the mission of protecting privacy. The guarantee is linked to the existence of a penalty system (Article 10).

+	Article 4 of the said Law expressly prohibits “publicizing or disseminating sensitive personal data that is explicitly individualized or subject to individualization” based on official publications (archives, records, databases, or any other technical media for the treatment of public or private data) used for reporting.
0	On the other hand, Article 9 of the said Law demands that companies or entities providing information on property, financial solvency and compliance with commercial and financial commitments, must implement computer mechanisms that will automatically eliminate from their system non-publishable data, as a series of deadlines set in said article terms.
+	In a certain manner, Article 9 recognizes the right to forget, in the sense that once the set deadlines have lapsed, it is mandatory to erase any trace of the reasons that led to the registration in the first place.
-	There is no state registry in which the existence of archives and personal data treatment can be registered.
-	In practice, it is impossible to verify the level of compliance with the obligation of eliminating personal information once the deadlines set by the Law have lapsed.
+	In general, great awareness regarding the treatment of personal data is perceived, and there was no evidence of blatant infringements to the rights of the people.

QUESTION
2.2

IS THE RIGHT TO ACCESS INFORMATION EXERCISED?

RELATIVE IMPORTANCE:
VERY HIGH

+	Article 28 of the National Constitution recognizes the rights of the people to receive accurate, responsible and impartial information, while guaranteeing free access to public sources of information.
+	During this administration, Law 5282/14, the Law of Free Citizen Access to Public Information and Government Transparency, and Decree 4064/15, which regulates it, were both enacted.
0	The entity responsible for guaranteeing the right to information and government transparency is the Judicial Branch.

+	On the other hand, Law 5189/14 amended through Law 5747/16, states that it is mandatory to provide information in the use of public resources concerning compensations and other payments allocated to the public sector.
+	It is an active transparency Law, which forces all public sources of information to publish on websites all information relating to the entity and its administrative and human resources.
-	However, this Law does not establish the way in which the information must be published, that is, it does not establish the use of open formats.
-	Furthermore, said Law expressly prohibits the use, for commercial purposes, of data contained in documents that must be published, which clashes with the principle of free data reuse, and therefore may not be deemed available in an open, unrestricted license scheme.
+	Law 5282/14 has a broad scope of application, since it includes not only the three public power branches – legislative, executive and judicial – as information sources, but also the army, state financial entities, state universities, among other public entities.
+	It is also compatible with the non-discrimination principle of Open Data, for it considers that any person, without any type of discrimination, may access the public information free of charge without needing to justify the request.
+	The Law prioritizes disclosure of the information in the event of reasonable doubt, as to whether the information requested is protected by the disclosure principle or is covered by an exception *"in dubio pro acceso".*
+	The Law encompasses the minimum active disclosure scope (Articles 8 to 11) that each one of the three public power branches – legislative, executive and judicial – must keep up to date and available to the public in computerized means.
+	Furthermore, Law 5282/14 requires that all public sources have websites to guarantee access and the proper disclosure and dissemination of the public information.
0	The entities competent for implementing Law 5282/14 are the Public Information Access Offices (OAI, for its acronym in Spanish) which every entity within the scope of application of the Law must have. The OAIs are coordinated by the Ministry of Justice.
0	Other functions of the information access offices include managing the portal and the electronic systems developed to provide access to the information.

+	A unified portal for submitting requests to access public information[23] has been set up (Articles 8 and 9 of Decree 4064/15). Use of the portal is mandatory for all public sources.
+	The portal's operation must allow access to all public information made available by the public sources, as well as information access requests being processed.
-	However, the portal does not allow access to public information made available by state entities.
+	According to the Institutional Operating Plan (POI, for its acronym in Spanish) of the SENATICs for 2017, between April and June the active transparency module will be activated within the unified portal (SENAC is in charge of developing said module).
-	On the other hand, the POI only gathers information access requests concerning the participating institutions, which is currently 97 of the 408[24] state entities.
+	Regarding the type of document and the default format for delivering the information, Article 26 of Decree 4064/15 states that if the petitioner fails to indicate a preferred format or type of document, it will be understood that the format will be Open Data, whenever possible, and the type of document will be digital.
-	Specifying the preferred type of document or format does not constitute an obligation to deliver it as requested.
-	Although the Information Access Law orders the entities to permanently train, maintain and teach the officials in charge of the OAI to progressively optimize the application of the Law, no specific training action relating to Open Data has been ordered.
-	In general terms, the OAIs do not possess the capacity to respond to the demand for information using data.
-	Likewise, indicators on information requests are not being taken into account to prioritize the publication of Open Data.
-	Based on specific requests for information, there is no evidence of the release of new datasets as Open Data.

23 - Public information portal: http://informacionpublica.paraguay.gov.py/portal/
24 - OEE list published by the SFP: http://datos.sfp.gov.py/data/oee

QUESTION
2.3

WHAT IS THE LEGAL AND REGULATORY FRAMEWORK FOR DATA SECURITY, DATA ARCHIVING AND DIGITAL PRESERVATION?

RELATIVE IMPORTANCE:
HIGH

+	The Government of Paraguay is aware of the increasing importance of ICTs for the economy and society, and is therefore taking important measures conducive to the safety of digital information.
0	The competencies in this area are divided between two state entities: SENATICs and the General Directorate of Digital Signatures and E-Commerce attached to the Ministry of Industry and Trade (MIC).
0	SENATICs is the institution of the executive branch responsible for implementing the principles and purposes of ICTs in the public sector (Art. 7 of Law 4989/13).
0	The duties of SENATICs include defining and managing personal and government information protection policies and disseminating knowledge of the information safety industry.
+	On April 24, 2017 the National Cybersecurity Plan proposed by SENATICs, was approved. This plan was developed in coordination with the Ministry of Foreign Affairs (MRE, for its acronym in Spanish) and following a participative methodology with extensive representation of both the public and private sectors. This plan is the public policy of reference concerning cybersecurity and it defines the lines of action to be adopted in Paraguay to reinforce the security of its critical assets.
+	SENATICs manages the Cyber Emergency Response Team (CERT-PY), which is the entity responsible for addressing security issues pertaining to computer systems in which the country's networks or infrastructure are involved. Among the services provided, it publishes several documents and best practice guidelines relating to information security.
+	On the other hand, Law 4439/11 amends and broadens several articles of the Penal Code to include the scope and penalty regime of aspects linked to data security. It regulates, among others: undue data access (art. 146b), data interception (art. 146c), planning undue data access and interception (art. 146d), undue access to computer systems (art. 174b), sabotaging computer systems (art. 175), fraud using computer systems (art. 188).

+	Concerning data storage and conservation, it has published multiple guides on electronic documents and files, digitization of documents and electronic document management system. (MIC, Resolutions: 1436, 1437, 1438 and 1439/2015).
0	The General Directorate for Digital Signatures and E-Commerce is the entity in charge of advising public and private institutions in the implementation of the guidelines.

QUESTION 2.4

WHAT IS THE POLICY ON THE OWNERSHIP AND LICENSING OF GOVERNMENT DATA?

RELATIVE IMPORTANCE: **VERY HIGH**

-	Although the laws in force state that public information sources are free for all, the different state entities believe themselves proprietors of the information.
+	Attachment II of Decree 4064/15 mentions a license[25] on the use of information and public Open Data owned by the Paraguayan state, that is similar to the CC-BY licensing scheme.
+	All public information that is not protected by an exception provided by Law, will be included in the definitive license indicated in Decree 4064.
+	The license grants the free, perpetual and non-exclusive authorization to the use and/or transformation of the public information and Open Data owned by the Paraguayan State to any individual or company using them.
+	The license does not expressly mention the authorization to reuse the data with the purpose of making profits, even though it implicitly authorizes it, for it allows any legal use in any modality and in any format.
-	Only websites[26] that are new and those under the technical guidance of SENATICs are applying the terms and conditions of use of the portals, which are in line with the Open Data license.
+	SENATICs is reviewing the user policies of all portals in order provide cohesion to the terms of use, since there are websites without any references, and others with all rights reserved or under CC-BY-SA schemes.
-	Outsourcing contracts do not expressly contemplate that the data resulting from the provision of an external service by a third party can be publicly reused without constraint.

25 - Licencia de uso de la información pública: http://informacionpublica.paraguay.gov.py/portal/#!/license
26 - Listado de sitios web que siguen la guía estándar: https://www.paraguay.gov.py/guia-estandar

QUESTION
2.5

TO WHAT EXTENT DO AGENCIES CHARGE FOR PUBLIC DATA?

RELATIVE IMPORTANCE:
HIGH

+	Concerning the cost-free status, Decree 4064, which regulates Law 5282/14, indicates that: "public sources may not charge any sum or fee for providing public information to those who request it. Whoever requests certificates or reports from the Public Records Office or in this case, authenticated copies of public documents from any other public source, will pay the fees or duties as defined by Law. Without prejudice to the foregoing, the Public Records Office must comply with all the provisions of Law 5282/2014 and the Decree hereunder."
-	However, there are public entities such as the National Directorate of Civil Aeronautics (DINAC for its acronym in Spanish) which, using Decree 8701/12, has set and updated fees and rates for providing meteorological services[27] to the public, among others.
-	The data subject to payment is the historical meteorological data, which is essential to making accurate forecasts.
0	An entity of the non-financial public sector has three main funding sources: Source 10 – treasury resources; Source 20 – Public Credit Resources; Source 30 – Institutional resources that include revenue resulting from the production of goods or the provision of services of certain public entities authorized to do so.
0	DINAC's main source of funds is Source 30. 70% of the users who pay for the services are public infrastructure companies (engineering or construction companies, among others) and 30% are from the agricultural sector. The preparation and distribution of 290.000 weather reports has been forecasted for 2017, entailing the generation of PYG 16 billion in revenues for the sale of these reports as funding for DINAC.
-	DINAC may deliver the data to the subscriber via telephone, fax, internet and in person. If via the internet, the regular delivery format is PDF.
-	The request for historical meteorological data via a public information request is systematically denied, for it is subject to the payment of a fee.
0	On the other hand, the Meteorology and Hydrology Directorate is currently transitioning towards becoming the National Meteorology Institute, in addition to the DINAC.

27 - Weather service for the public: http://www.meteorologia.gov.py/serviciopublico.php

-	Another institution that makes an income from the sale of public data is the Military Geographic Service Directorate (DISERGEMIL, for its acronym in Spanish) for it produces the national basic cartography. In this case, approximately 95% of the funding comes from source 30.
-	It occurs that 85% of the funding from the provision of services (source 30) comes from other public institutions and the other 15% from the private sector, which means that the public funding is concealed through the sale of services.
0	Finally, public records (companies, properties, ships, airplanes, etc.) may charge marginal fees based on the cost of production or distribution (copies) of entries in the records.
0	The laws in force prevent public registries from publicly sharing its data.

QUESTION
2.6

WHAT OTHER POLICIES/LAWS EXIST THAT MAY HAVE A SIGNIFICANT IMPACT ON OPEN DATA?

RELATIVE IMPORTANCE:
HIGH

+	The greatest impact on the Open Data policy is that of Law 5282/14, because it forces the active publication of public sources and the option of using Open Data formats.
-	However, the use of Open Data is not a requirement for active transparency nor for delivering the requested information, therefore, it is up to the source of the public information to construe the Law on Open Data as the preferred format for handling public information.
-	The definition of rules forcing state entities to give preferential use of Open Data in the treatment, disclosure and delivery of public information has not been planned.
0	There is no national law on statistics or a National Statistics Bureau. The competency to set up, plan, develop and execute the national plans or policies concerning statistics, surveys and censuses in the Republic of Paraguay under national laws and international agreements is the task of the DGEEC.
+	There is no evidence of the existence of exclusive agreements for the delivery of public data or information to individuals or companies prior to their general publication.

Ratings and conclusions

	ITEMS	IMPORTANCE	ASSESSMENT	COMMENT
2.1	Legal and regulatory framework for the protection of personal information	VERY HIGH	Yellow	The protection of privacy is defined in the Constitution and governed by a law that regulates personal information. However, its implementation is weak, since there isn't an independent organ that may also define the specific guidelines matching privacy and the public reuse of data.
2.2	Existence of right of access to information	VERY HIGH	Yellow	The right to access information is regulated, even though considering the reuse of information, there are weaknesses as to the way in which active transparency is being handled.
2.3	Legal and regulatory framework for data security, data archiving and digital storage	HIGH	Green	Important steps are being taken concerning data security, storage and conservation. There are regulations and guides for their implementation.
2.4	Policy on ownership and licensing for government data	VERY HIGH	Yellow	A scheme for licensing the use of information and Open Data has been developed and has yet to be discussed and applied institutionally. It is usual to find institutional portals without any terms and conditions of use.
2.5	Rate charged for the delivery of public data by institutions	HIGH	Yellow	Despite recognizing the cost-free nature of public data stated in Law 5282/14, a few public entities have set rates for the delivery of public information, based on specific decrees.
2.6	Other policies/laws that may have a significant impact on Open Data	HIGH	Yellow	The publication of information using Open Data is subject to the criteria of the public entities, in the absence of a requirement in this sense.
	OVERALL	HIGH	Yellow	**Although there are no regulations hindering the data opening process, the absence of regulatory requirements on the use of Open Data does not contribute to the advancement of the initiative. There is an opportunity to eliminate incompatibilities with the Open Data principles.**

Recommendations

❖	The protection of privacy is defined in the Constitution and governed by a law that regulates personal information strictly for personal use. However, in the absence of a personal data protection Law to regulate the treatment and rights inherent thereto, and of an independent entity responsible for ensuring its compliance, it is important to harmonize privacy and the reuse of public information by using guidelines that balance out the opportunities offered by opening public data, while minimizing the risks it may entail for the people. These guidelines are linked to the generalized use of personal data anonymization techniques, the implementation of application procedures and the assessment of re-identification risks.[28]
❖	It is important to make progress in active transparency. The law is concrete relating to the mandatory publication and it is only necessary to articulate the guidelines for the systematic use of Open Data in said publication, along with the visualization of said data, facilitating its interpretation by the people, thus significantly increasing the value of government accountability.
❖	The design and inclusion of a rule for OAIs that will increase the active disclosure of public information using Open Data based on repeated requests for information, is recommended.
❖	In addition, the design of an active transparency module for the unified public information portal must take into account the option of adding content, in order to maintain the consistency of the information that has been published in the transparency section of each institutional portal, and that of the unified portal.
❖	It is recommended that all official websites contain text stating the terms and conditions of use of the contents of institutional portals. It is important to point out that the data that are published and may be downloaded from the portal are subject to the conditions stated in the license for the use of information and the Open Data defined in Decree 4064/15.
❖	A review of the different outsourcing contracts subscribed by state entities is recommended in order to verify that the data resulting from the exploitation of external services is indeed subject to public reuse.
❖	In order to rethink the regulations authorizing the collection of fees for the delivery of public information in certain entities, we recommend conducting a study that details the specific revenues from the sale of raw data, that is, the data that have not been processed by the institution as a provided service, in order to analyze the feasibility and opportunity of making the opening free of charge.

28 - Open Data Toolkit del Banco Mundial publica diversos recursos relacionados con la implementación de Technicals de anonimización de datos personales. http://opendatatoolkit.worldbank.org/en/supply.html#anonymization

DIMENSION

3

Institutional structures, responsibilities and capabilities

RELATIVE IMPORTANCE:

HIGH

Context:

As well as political leadership, middle management level skills and leadership are important to success: creating an Open Data Initiative requires agencies to manage their data assets with a transparent process for data gathering, security, quality control and release. To effectively carry out these responsibilities, agencies need to have clear business processes for data management as well as staff with adequate ICT skills and technical understanding of data (e.g., formats, metadata, APIs, databases). Engagement among agencies and at all levels of government to set common standards and remove impediments to data interoperability and exchange is also vital, and requires mechanisms for inter-agency collaboration. In addition to handling the "supply side" of creating an Open Data Initiative, agencies need the structures and capabilities to engage with communities that reuse Open Data — including developers, companies, universities, non-governmental organizations, other agencies and individual citizens.

EVIDENCE AND COMMENTS ON KEY QUESTIONS:

QUESTION 3.1	WHICH AGENCY OR AGENCIES HAVE RELEVANT CAPABILITIES, MANDATES, PROJECT MANAGEMENT EXPERIENCE AND TECHNICAL SKILLS TO BE A SUITABLE LEAD INSTITUTION IN THE PLANNING AND IMPLEMENTATION OF AN OPEN DATA PROGRAM?	RELATIVE IMPORTANCE: HIGH

+	Among the entities with greater cross-cutting capabilities within the Government, there are two categories of relevant and complementary capacities for boosting the Open Data initiative: the operational and technical capacity of SENATICs, on the one hand, and then there is the capacity to coordinate and bring into alignment the different institutions that are under the Ministry of Finance, the Ministry of Justice and the STP.
0	SENATICs is the institution part of the Executive Branch in charge of implementing the principles and purposes of ICTs in the public sector. It was created in 2013 after merging previous institutions responsible for the institutional modernization of the public administration.
+	According to the 2017 POI of SENATICs, one of the main institutional goals for the period 2015-2018 is to have a public information access program, which must be approved and implemented by 2018.
+	On the other hand, its competencies include managing the Open Data institutional portal of Paraguay, activity for which the E-Government Directorate is responsible.
+	The Digital Inclusion and Education ICT Directorate at the SENATICs is in charge of providing support to small ICT-based businesses by expediting technological ventures, along with the execution of ICT training programs for government officials and on digital inclusion for civil society.
+	Therefore, SENATICs gathers a series of technical and operational competencies that are essential to the development of an Open Data policy, such as supporting the technological infrastructure of the supply and the execution of actions to incentivize Demand for Open Data.
-	However, because it is one of the smaller secretariats, SENATICs action capabilities are restricted, in general, due to its limited funding, and as a result, so is the personnel assigned to the Open Data initiative. Currently, only 2 staff are partially assigned to the initiative and the coordinator has other responsibilities in addition to the initiative.

-	As a result of this situation, SENATICs has taken on a passive focus concerning its approach to other entities to guide them towards data opening. This means that there is a tendency to work with the entities which have requested the technical support of SENATICs, instead of conducting an active search of entities, which may lead to a greater impact in data opening.
+	On the other hand, the Open Government General Directorate, which is attached to the STP, has the following main purpose: direct, plan, organize and control processes, procedures and activities relating to the promotion and implementation of the Open Government Third Action plan. It is also accountable for fostering and coordinating Open Government activities and initiatives of the STP and other public agencies.
+	Another relevant agency is SENAC, the leading entity in the following public policies: Transparency, Integrity, Good Governance and the Fight against Corruption. Among other duties, SENAC is responsible for overseeing active transparency.
+	Other major institutional actors are the internal departments inherent to each state entity related to the treatment of public information: • **OAIPs,** coordinated by the Ministry of Justice, whose mission is to channel public information requests and responses. • **Transparency and Anticorruption Units** (UTA, for its acronym in Spanish), coordinated by SENAC, whose duties include, among others, carrying out actions that will lead to greater transparency in institutional management and facilitate access to public information. It is also responsible for overseeing compliance with active transparency obligations. • **ICT specialized units within the institutions** (created in Decree 1840/14), whose main mission is to implement the application and use of ICTs in public management.
+	Finally, there is the Environmental and Social Studies Center (CEAMSO, for its acronym in Spanish), an NGO which, through the USAID-funded Democracy and Governance program, assists government entities in the implementation of technological and management tools with a view to enhancing internal control, transparency and accountability of the institutions.
+	There is a Memorandum of Understanding (MOU)[29] entered into by the SENATICs and USAID in 2014 and in force until September 30, 2017, the purpose of which is divided into three components: (a) the shared vision of the parties to strengthen governance and transparency in Paraguay, (b) state the principles that will guide their efforts and (c) define the non-binding operational guidelines that will promote the effective coordination between them. The MOU specifically states that the cooperation between SENATICS and USAID regarding the strengthening of key public institutions of Paraguay in the area of e-government and Open Data, is facilitated via its local partner CEAMSO.

29 - SENATICs - USAID MOU: https://www.senatics.gov.py/download_file/view_inline/492

+	To date, CEAMSO has played a crucial part in the operation of Open Data publication infrastructures and is a major partner of SENATICs in the provision of support services to the entities.
-	This multiplicity of actors leads to overlapping missions and coordination difficulties, which are normally resolved with the political will of interinstitutional cooperation. However, it does not imply the consolidation of bases for the articulation of an efficient Open Data service.
-	On the other hand, the existence of different departments inherent to each actor (OAIPs in the Ministry of Justice, UTAs in SENAC, and ICT Units in each entity) complicates the execution of specific procedures to improve data opening processes.
-	A specific procedure allowing to link recurring information requests and active publicity based on Open Data has not been implemented.
+	It must be highlighted that in most entities (approximately half of them, according to the information provided in the interviews) the OAIP and UTA functions are carried out by the same person, who reports to the department that created the position.
-	The general public is the target of the awareness and training actions relating to Open Data organized by SENATICs. No specific sessions have been developed for OAIP and UTAs, allowing to boost data opening based on the legal framework in place (Law 5282/14 on free citizen access to public information).

QUESTION
3.2

WHICH AGENCIES HAVE A CIO, CTO OR PERMANENT OFFICIAL POSITIONS DEDICATED TO DATA MANAGEMENT?

RELATIVE IMPORTANCE:
MEDIUM HIGH

+	Each institution under the Executive Branch must appoint a person responsible for ICT in a position of Director General or Director, who will be in charge of the Specialized ICT Units.
0	The position of ICT General Director in state entities is recent, having been created in 2014, and is in consonance with the declaration of the national interest in the application and use of ICTs in public management (Decree 1840/14).
+	A generic job description manual for the ICT Director General has been created within the framework of the ICT forum part of the CCIGE, which has served as reference for the different institutions in the preparation of their own manuals. Said manual proposes, among others, the structure of ICT areas in the government, standardizes minimum duties and aligns these duties to international standards and best practices.

+	ICT Directors of the specialized units serve as CIO for each institution. Their general duties[30] include planning, distributing, coordinating and directing all ICT-related tasks in the entity.
+	The specialized ICT units constitute an interinstitutional network, becoming an instance for coordination, actions and resources.
-	However, the position of CIO or CTO in the government providing executive guidelines to the ICT General Directors of each institution, does not exist.

QUESTION
3.3

WHAT INTER-AGENCY MECHANISMS COORDINATE ICT ISSUES (SUCH AS FOR TECHNICAL MATTERS)?

RELATIVE IMPORTANCE:
MEDIUM HIGH

+	There is the CCIGE made up of the ICT Specialized Units or the representatives of technical and IT areas, or the representatives of the technical and informatics areas of the Ministries part of the Executive Branch, National and Executive Secretariats of the Office of the President of the Republic and all other institutions dependent on the Executive Branch, Central Administration, as well as Decentralized Organizations and Entities, in addition to the public institutions with functional autonomy, as members. The Committee is chaired by the E-Government Director of SENATICs.
+	The CCIGE constitutes a forum for dialogue and joint work of state entities, focused on the ongoing development, consolidation and improvement of e-government.
+	The CCIGE currently has 151 representative members from 120 entities part of the Executive Branch and other guests from the other Branches and departmental governments.
+	The Committee has been organizing face-to-face meetings twice a year since 2014. The sixth meeting after its incorporation will take place soon.
+	In order to achieve effective coordination, it is empowered to create technical work meetings. To date, two meetings have been proposed: digital signature and hardware specifications.
0	The key issues for CCIGE are mainly the following: The Information Exchange System (SII, for its acronym in Spanish) and the Online Document Management (GDL, for its acronym in Spanish), the standardization of technical specifications for hardware purchases, the National Cybersecurity Plan, Nube-PY and digital signature.

30 - Manual de organización y funciones del Dirección General TIC del MSPBS: http://www.mspbs.gov.py/dgtic/wp-content/uploads/2017/02/RESOLUCION-499-DE-2016.pdf

QUESTION
3.4

WHAT PROCESS IS CURRENTLY USED TO MEASURE AGENCY PERFORMANCE OR QUALITY OF SERVICE DELIVERY?

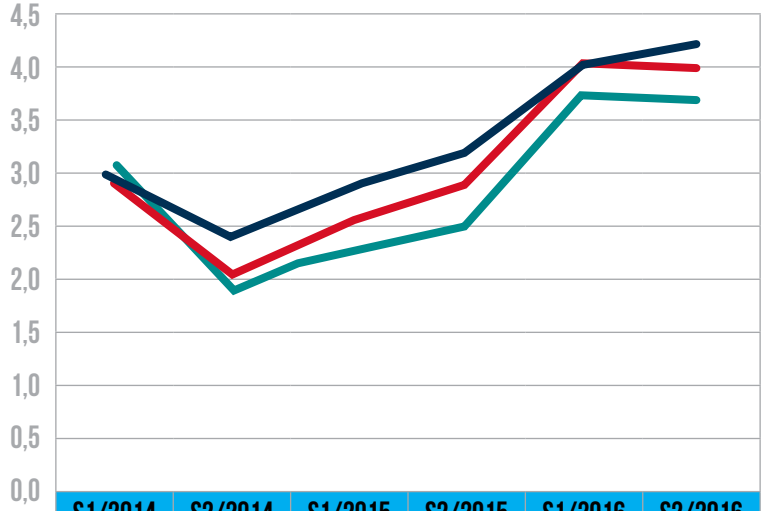
RELATIVE IMPORTANCE:
MEDIUM

+	The Standard Internal Control Model[31] for Public Entities (MECIP, for its acronym in Spanish) is a mechanism designed to support the assessment of compliance with the institutional goals of each public entity.
0	The model is based on a control structure concerning three key corporate components: strategy, management and assessment.
+	The MECIP Management System includes a report module (from S1/2012 to S2/2016) by institution or multiple institutions, showing data based on different indicators (institutional classification ranking, periods, performance, etc.). All reports may be downloaded in PDF and XLS format.
+	Within the management control corporate component, MECIP assesses the proper and timely management of data and information of the public institutions from internal and external sources which is used, among other functions, to make decisions, enhance institutional development or accountability with the Office of the Comptroller General of the Republic, etc. internal and external information, as well as information systems, are assessed.
+	Furthermore, and also within the management control corporate component, MECIP assesses the institutional and public communication and accountability.
+	Analyzing the reports on the two components -information and communication- regarding Ministries and Secretariats for years 2015 (S1 and S2) and 2016 (S1 and S2), it is observed that the Ministries show a greater evolution in the information component, by going from a deficient situation (S1/2015) to an adequate situation (S2/2016) and that the Secretariats have gone from a deficient situation (S1/2015) to a satisfactory situation (S2/2016).
+	As for the communication component, the comparison is slightly more favorable for the Ministries than the Secretariats. In both cases the evolution has gone from a deficient situation (S1/2015) to a satisfactory situation (S2/2016).

MECIP Portal: http://www.mecip.gov.py/mecip/

Report on the average performance of two management components directly impacting the Open Data policy assessed in Ministries and Secretariats in 2014, 2015 and 2016:

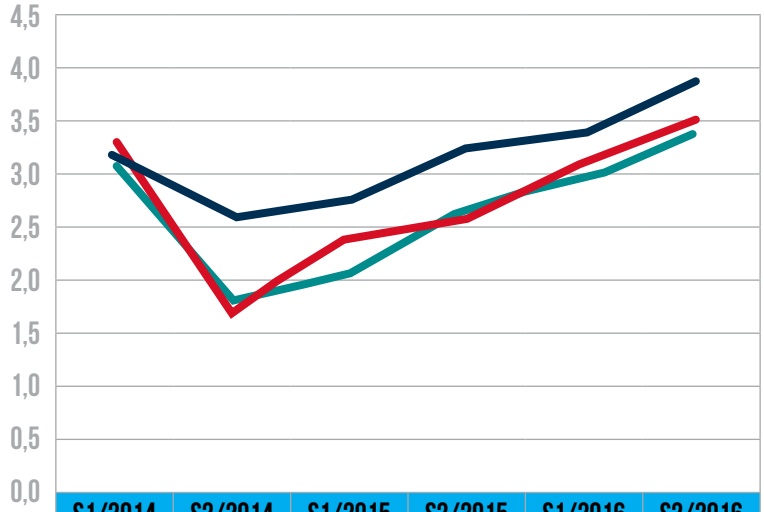
MECIP – REPORT ON AVERAGE PERFORMANCE: MINISTRIES



	S1/2014	S2/2014	S1/2015	S2/2015	S1/2016	S2/2016
GENERAL RATING	2,9	2,4	2,9	3,2	4,0	4,2
INFORMATION	2,9	2,1	2,6	2,9	4,0	4,0
COMMUNICATION	3,0	1,9	2,3	2,6	3,8	3,7

+

MECIP – REPORT ON AVERAGE PERFORMANCE: SECRETARIATS



	S1/2014	S2/2014	S1/2015	S2/2015	S1/2016	S2/2016
GENERAL RATING	3,2	2,6	2,8	3,2	3,4	3,9
INFORMATION	3,3	1,7	2,4	2,6	3,1	3,5
COMMUNICATION	3,1	1,8	2,1	2,7	3,0	3,4

+

The foregoing analysis means that although there is continuous improvement in aspects relating to information management, there is still a way to go concerning communication management, especially in the Secretariats.

QUESTION
3.5

WHICH AGENCY OR MINISTRY IS PRIMARILY RESPONSIBLE FOR DATA OR STATISTICS?

RELATIVE IMPORTANCE:
MEDIUM

+	The DGEEC is the state institution in charge of generating, systematizing, analyzing and disseminating the statistical and cartographic information of the country. Its mandate includes issuing regulations, coordinating, integrating and rationalizing activities in the area of official statistics.
+	It is usual to find Statistics Units in the organic structure of each public entity.
+	The Statistics Units must require directives and support from the DGEEC concerning work structure, methods and execution. Likewise, they must submit for the approval of the DGEEC the statistical forms of their corresponding services, as well as any other statistics prepared for dissemination, regardless of scope and form.
-	In practice, the Statistics Units carry out specific tasks in the institutional areas and usually require microdata managed by the DGEEC, which may occasionally cause difficulties when trying to share this input within the institutional context. One case is that of the BCP, which lacks a proper context for the exchange of specific microdata with the DGEEC to calculate the Consumer Price Index (IPC, for its acronym in Spanish).
+	Statistical confidentiality (arts. 8 and 9 of Decree 3087/15 whereby the competencies of the DGEEC are defined) absolutely forbid the publication, disclosure or any other misuse of information referring to physical persons, companies, either private or public, named or ascertainable. Also, the data enabling the identification and individualization of the DGEEC information sources are protected by statistical confidentiality.
+	The DGEEC usually uses personal data anonymization techniques in the publication of survey microdata.
-	In this sense, in spite of receiving requests for assistance from other public institutions to focus on anonymization processes, and the support required is provided, training in personal data anonymization techniques has not been formalized or offered.
-	Similarly, and since it is knowledge inherent to the DGEEC'a activities, the opportunity to create a training action focused on the preparation and quality (refine, standardize, correct, convert formats, etc.) of data for publishing, has not been contemplated.

-	Likewise, the systematic application of quality assurance techniques regarding the quality of the data prior to publication, is inconsistent.
-	The DGEEC does not publish Open Data on its corporate portal. Even though it offers the possibility of downloading data, it lacks a section on the terms and conditions of use of the published data.
-	DGEEC's main publication format for data and thematic indicators is PDF. XLS format is also used, but not as much.
-	The microdata of the Permanent Household Survey (EPH, for its acronym in Spanish) and the Ongoing Employment Survey (ECE, for its acronym in Spanish) are published in the SAV format of the SPSS statistical software.

QUESTION
3.6

WHICH AGENCIES OR MINISTRIES APPEAR MOST CONCERNED ABOUT THE OPENING OF DATA, AND WHAT IS THE BASIS OF THEIR CONCERN?

RELATIVE IMPORTANCE:
HIGH

+	There is no evidence of the existence of state entities that clearly object to data opening.
-	The entities showing some reluctance are those who have partially based their funding model on institutional resources (Source 30). The common argument is the reference to the laws in force, which authorize the current funding scheme and the uncertain institutional sustainability stemming from opening the data free of cost.
-	Another recurring argument of many institutions with the potential to make their data available, is the decision on the timeliness of opening the data. It is stated that this decision must be made by the persons responsible in the highest positions within the institutions, but there are doubts as to the specific knowledge of these persons.
-	There is also a strong tendency among may entities to confuse the mandatory character of active publication stemming from the Public Information Access Law with the concept of Open Data. This signals that Open Data has not been sufficiently discussed internally.
-	There are recurring concerns relating to the weakness of the infrastructure and the lack of human resources to face a data opening process in the short term.

QUESTION
3.7

HOW STRONG IS THE GOVERNMENT'S OVERALL ICT SKILL BASE AMONG SENIOR GOVERNMENT LEADERS AND CIVIL SERVANTS?

RELATIVE IMPORTANCE:
HIGH

+	The purpose of the Paraguay Public Administration Institute (INAPP, for its acronym in Spanish), which depends on the SFP, is to design and implement training policies in the public sector.
+	These training actions are usually carried out through agreements with universities.
-	The INAPP website[32] provides information on recent educational offers (actions that have been completed or are being evaluated). This offer only includes one course related to ICTs out of a total of 23, called "ICT for management and knowledge", with 48 class hours requiring part-time attendance and its target includes public officials in senior and middle-level positions.
+	It is also evident that the use of email and the internet is widespread among public officials.
+	Specifically, the SENATICs training offering includes a course on Open Data portals, whose main target is the technical personnel of the institutions.
-	No training or sentization actions concerning Open Data for senior-level institutional management or responsible personnel are taken.
+	From the SFP perspective, it is appropriate to channel educational actions on Open Data through the INAPP.
+	The catalogue of services provided by the SENATICs includes access to the e-Learning platform[33] made available to the public institutions so they may provide online courses to the citizens and to public officials. Currently 15 institutions are using the platform.
+	SENATICs imparted traning actions with ICT contents in 2016, which reached 260 officials. There is currently a catalogue of 15 training actions.
-	There is no evidence of the evaluation of the ICT competencies of the officials or that these constitute part of the criteria for internal promotion in the professional career of a public servant.

32 - INAPP training offerings: https://www.paraguayconcursa.gov.py/sicca/capacitacion/portal/portalCapacitacion.seam?cid=7544
33 - Online Campus: campus.senatics.gov.py

QUESTION
3.8

WHAT IS THE GOVERNMENT'S PRESENCE ON THE WEB?

RELATIVE IMPORTANCE:
MEDIUM

+	Paraguay´s public institutions are present online on portals, social media and smartphone apps.
+	In general, institutional websites are updated and display a uniform graphic image.
+	A Citizen Information and Services Portal[34] has been implemented as a one-stop website for all information, services and procedures offered by the public institutions of the Republic of Paraguay
+	SENATICs and the Information and Communication Secretariat (SICOM, for its acronym in Spanish) publish and provide training on the "Standard Guidelines for Government websites".
+	The "Standard Guidelines for Government websites" includes specific portions encouraging developments following W3C international standards in order to ensure adaptable, accessible and inter-operable designs.
+	There has been a progressive portal migration process at the request of the institutions. This means that as the institutions request the reconstruction of their institutional portal with the assistance of SENATICs, the technical, architectural and design criteria of the standard are applied.
+	Regarding web accessibility, Article 7 of Decree 4064/15 provides that the public information available on official websites from public sources must be accessible from devices with internet access, whenever technically feasible, in Open Data format. Likewise, official websites must gradually incorporate technological solutions that will eliminate or reduce the obstacles for the disabled.
0	Institutional websites offering data access usually only allow downloading files.
-	The implementation of data access using APIs is unusual in institutional websites, not even the websites that handle and make available a significant volume of data such as Education, Agriculture or Cadastre use it.

34 - Citizen Information and Services Portal: https://www.paraguay.gov.py/

+	The few cases in which API accesses have been implemented include public procurement, the national Open Data catalogue or the public information request portal, which has an API to access data on flows of requests, formats, institutions, requests, support or types of response.
+	Some institutional portals are starting to include in their content data-based interactive computer graphics, such as the case of the said public information requests portal, which provides the possibility of downloading information related to requests in CSV formats and the visualization of these records in simple interactive visualizations.
-	Institutions do not use web analytics to enhance the architecture of the website's information or prioritize the availability of Open Data based on the information most consulted by the users.

Ratings and conclusions

	ITEMS	IMPORTANCE	ASSESSMENT	COMMENT
3.1	Agency with capabilities, duties and skills to be a leader in the planning and execution of an Open Data initiative	VERY HIGH	Yellow	Although the technical and operational support to the initiative is assigned by way of the mission entrusted to SENATICs, there are significant limitations to the capacity to efficiently assume the activity that results from an Open Data service. The multiplicity of actors also complicates the coordination and dissemination of guidelines.
3.2	Permanent CIO, CTO or official positions dedicated to data management	MEDIUM HIGH	Yellow	There are persons responsible for ICT specialized units within the State institutions, but there is no government CIO or a CTO directing the political institution for data management.
3.3	Interinstitutional mechanisms in place to coordinate ICT issues	MEDIUM HIGH	Green	The CCIGE is the institutional forum that guides the e-Gov policy in state entities. It is an important mechanism to define, agree on and disseminate technical directions to promote efficiency in the offer of Open Data. The procedure is to create a thematic work meeting on Open Data.
3.4	Processes to measure agency performance or quality of service delivery	MEDIUM	Green	MECIP measures the evolution of compliance with institutional purposes. Even though there are no external assessments regarding the quality of the services rendered, MECIP conducts an interval assessment on the proper and timely management of the data and information regarding the public institution and institutional communication management, which are elements with a direct impact on the Open Data policy.
3.5	An institution responsible for data or statistics	MEDIUM	Yellow	The DGEEC is the entity responsible for producing and disseminating the country's statistical information. It has significant opportunities for improvement: preparing and publishing data in open formats, defining and disseminating regulations on the production of information and training other institutions in the process of preparing the data, data quality assurance and preservation of privacy.

	ITEMS	IMPORTANCE	ASSESSMENT	COMMENT
3.6	Agencies or Ministries most concerned about Open Data, and what is the basis of their concern	HIGH	Yellow	Even though a firm rejection to the data opening process has not been detected, significant weaknesses regarding knowledge on the potential of using Open Data, especially in senior management levels in the OEEs, has been evidenced. Another concern is the modification to the funding model of certain institutions facing a potential offer of Open Data.
3.7	ICT skill base among senior government leaders and civil servants	HIGH	Yellow	Although the use of ICTs is widespread among public administration officials, the offer of formative content related to ICTs on the part of the official training entity, the INAPP, is limited. Only SENATICs offers formative courses in Open Data.
3.8	Government presence on Internet	MEDIUM	Yellow	Institutional presence online has progressively improved with the generalization of new portal architectures, standardization guides, or placing Apps at the disposal of the public. However, there is room for improvement considering the use of APIs or web services for data consumption and reducing the use of PDFs to publish information, among others.
	OVERALL	HIGH	Yellow	**The National Government has an institution with Open Data responsibilities within its structure, but its capacity to take action is limited. There are elements that will help implement efficient coordination mechanisms, but the organizational resources must be aligned with the Open Data opening and reuse strategy.**

Recommendations

❖	It is necessary to define a strategy that will guide the Open Data policy of the Paraguayan Government. Said strategy must take into account the political, organizational, technical and operational pillars available in the current institutional framework. On the one hand, the Ministries responsible for cross-cutting policies, such as transparency (Ministry of Justice), the fight against corruption (SENAC), public management efficiency and effectiveness (Ministry of Finance) and Open Government (STP), must include the Open Data variable as an enabling element in the operational procedures of their public information management. The strategy must define, among other things, the following aspects: political leadership and the responsibilities of the institutions, the organizational and governance model, the scope of the Open Data service, sectoral planning with short and medium-term goals and the funding model that will guarantee its continuity over time.
❖	On the other hand, it is recommendable to take advantage of the technical and organizational structure currently in place to implement the public-sector management. The ENT is an interinstitutional harmonization mechanism which will enable coordination procedures to plan the data opening priorities based on parameters such as requests for information (demand) or the political agenda of the institutions (supply). The OAIs and the UTAs will define the goals of the opening process and act on them. The CCIGE is the mechanism for the technical institutional coordination, which will channel the technical directives towards an efficient data service.
❖	As for the operational area, SENATICs capacity must be increased and the allocated resources must be organized within one of its organic areas: Open Data Units (UDA, for its acronym in Spanish), coordinating the data policy and directly managing the Open Data service. The UDA must be the beating heart of the policy. The people working in the UDA will be entrusted with boosting and ensuring the evolution and maintenance of the Open Data policy. This unit must have links with all other public institutions and its main mission is to assist OEEs in opening the data and giving it value.
❖	In the institutions that make up of the Open Data initiative, a data opening sectoral plan must be formulated with a view to increasing the availability of the data catalogue. Each plan must respond to a specific systematic plan and be organized considering planning (priorities), new opening opportunities (due to technological developments or changes in the public policy priorities) and demand (resulting from a permanent dialogue with the reuser sector). Plans are approved at the management level and executed by the Directors of the specialized ICT Units with the active participation of the persons responsible for the OAIs and UTAs.

❖	It is recommended to establish a network of data production actors based on the existing CCIGE matrix. This network of contacts must concentrate on the success of each sectoral plan and a shared vision of the interinstitutional benefits of producing data. The facilitating mechanism of this network of actors linked to Open Data in its initial phase is a thematic working group.
❖	It is also recommended to incorporate a permanent actor dependent on the SENATICs, whose mission is to promote and energize the permanent dialogue with the reuser sector, thus progressively increasing economic development based on Open Data at its core, without neglecting the people's demand for accountability relating to structural plans and projects part of the 2030 PND. This actor is already a part of SENATICs current structure, through the Digital Inclusion and Education ICT Directorate, but may be reinforced with the greater involvement of CEAMSO.
❖	It is important to undergo a standardization process for certain aspects of information management, such as the use of common vocabulary (identifiers, metadata, data dictionaries and geographic reference systems, among others). It is recommended to involve the DGEEC in this technical and semantic standardization. It is also important to vindicate and empower the role of producer of high-value data in possession of the DGEEC within the Open Data governmental policy.
❖	In order to resolve the legal doubts that may arise from data opening, it is recommended to define and implement a training plan that covers issues such as preserving privacy rights, personal data anonymization techniques and safety and licensing schemes for data reuse. The preparation and dissemination of guidelines and other teaching material is recommended as part of this plan.
❖	In consonance with the foregoing, performing a diagnosis on the technical training needs concerning data management starting from the extraction, preparation and availability of the Open Data government catalogue, to the use of tools and internal exploitation of the data, is recommended. This diagnosis must guide the training plan with formative actions according to their target, initial capacities and the goals meant to be achieved with each action.
❖	It is important that the strategic orientation of the Open Data policy take into account, at the institutional level, an approach focused on cultural change linked to the opening and reuse of public data. Therefore, it is highly recommended to define and develop a strategic use of internal communication aiming at increasing knowledge on data and clearing any doubts and concerns. A relevant focus of internal communication is the first level of political responsibility in each public entity.

❖	It is important to foster debates on the opportunities provided by an Open Data policy and the return on investment in economic and social terms, when needed to face regulatory challenges relating to the funding of certain entities which have defined fees for the delivery of raw data. We recommend making a list of arguments based on international experiences that support the benefits of Open Data being free of charge for the reuser sector.
❖	We recommend including specific Open Data educational actions for OAIs and UTAs in INAPP's training offer.
❖	The institutional presence online must be used to inform the offer of and access mechanisms to Open Data, which must become more and more versatile considering technical sophistication, in order to cater to the multiple potential users of the data. Web analytics is essential for guiding the different possibilities of Open Data availability.

DIMENSION

4

Government data management and availability

RELATIVE IMPORTANCE:

HIGH

Context:

Open Data initiatives can build on established digital data sources and information management procedures within government where they already exist. Where data is only available in paper form it will be hard to release as Open Data and in reusable format quickly and cheaply. Conversely, good existing information management practices within government can make it much easier to find data and associated metadata and documentation, identify business ownership, assess what needs to be done to release it as Open Data and put processes in place that make the release of data a sustainable, business-as-usual, downstream process as part of day-to-day information management.

EVIDENCE AND COMMENTS ON KEY QUESTIONS:

QUESTION
4.1

WHAT ARE THE POLICIES AND PRACTICES ON THE MANAGEMENT OF GOVERNMENT INFORMATION?

RELATIVE IMPORTANCE:
HIGH

+	Up to the creation of SENATICs (2013) as the entity governing ICT policies, the institutions' ICT management was scattered and disjointed. Nowadays, the SENATICs' updates are trying to correct inefficiencies with concrete actions that add value to the institutions, even if they are incipient.
+	The UN e-Government and e-Participation index[35] for 2016 rated Paraguay 95 out of 193 countries, and 72 out of 193, respectively, improving its ranking by 25 and 50 places, respectively. This is a significant improvement compared to previous years, considering the serious deterioration of this index in the country between 2008 and 2014.
-	There are important institutions from the perspective of the economic and social value of their data, which are still undertaking the digitalization process of their information. This is the case with the country's basic cartography produced by DISERGEMIL.
-	Aside from the legal obligations concerning the active publication of public information, there are no common and systematic digital information management practices affecting all institutions.
-	In practice, each institution acts independently regarding the management of information systems.
+	The SENATICs organic infrastructure includes the Policies, Standards and Infrastructures Directorate, which is responsible, among other things, for establishing and managing policies to protect personal and government information, safety and security policies and defining a comprehensive information protection plan.
+	As for information security, the recent National Cybersecurity Plan must be highlighted.
+	Other relevant actions that tackle the deficiencies of other institutions include the operation of CERT-PY for cyberincidents, NUBE-PY for making available online the services to the institutions that require it or the data and document exchange mechanism based on SII and GDL platforms.

35 - UN e-Government and e-Participation index: https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/132-Paraguay/dataYear/2016

+	SENATICs is working towards achieving the ISO 27000 (information security management system) certification in the specific area of services of the NUBE-PY.
+	Dentro del paquete de guías Technicals de la SENATICs, se han formulado las siguientes: • Guide for preparing bids on software development; • Technical specifications for public procurement of desktops and laptops; • Guidelines for the Paraguay portal and online processes; • N° 1 – access to public information. Technical regulations for websites o; • N° 2 – for the public official in charge of the information access office; • And in addition to those already mentioned: • Open Data Guidelines; • Standard guidelines for Paraguayan State websites
-	Compliance with the guidelines published by SENATICs is not mandatory.
+	However, as was mentioned in subsection 1.2, circular PR/GC/2017/2272 issued in March 2017 requests compliance with the guidelines of the single portal for citizen information and services “Portal Paraguay” by all OEEs.
+	Similarly, SENATICS has a catalogue[36] of Services which are offered exclusively to the public institutions of the Paraguayan state within the framework of e-government promotion initiatives. It includes, among others, a group of services related to Open Data portals.
0	The way in which services are currently rendered to other institutions is the result of a reactive, not a proactive model, mainly due to the limited resources of SENATICs and the lack of a base line for action resulting from a time prior to the creation of SENATICS. Responses are usually given to concrete requests based on a catalogue of support services, but not really with a view to carrying out corrective actions based on the inefficiencies detected in the institutions.
+	Nevertheless, as progress is made in the provision of services, the specific support needs of each institution are being determined and a base line for action is being created.
-	Regarding Open Data, the potentiality of opening the data from data sources has not been analyzed because the inventory of information system assets of all state entities is unknown.
-	Beyond the Open Data guidelines, no directives have been issued that will allow guaranteeing the quality of potentially publishable data, taking into account parameters such as origin, accuracy, frequency, integrity or timeliness.

36 - Services provided by SENATICS for public institutions: https://servicios.senatics.gov.py/simple/tramites/disponibles

-	Although the SENATICs team includes technical staff responsible for controlling the quality of published data, there is no specific area within the organizational structure of the entity responsible for this. In the case of each institution's portal, there are no specific units responsible for this area either.
0	Although Guaraní is the official language of Paraguay and there is a Language Policy Secretariat, there is no requirement forcing publications, and specifically institutional websites containing public information, to be bilingual.
-	This circumstance may aggravate the public information access divide, due to the large amount of people who use Guarani in their everyday life.
-	Up to now, the benefits of opening data are more in line with the improvement of transparency and accountability than with the achievement of efficient inter-operability based on data or economic development. The potential of Open Data in strategic sectors of Paraguayan economy, such as agriculture, livestock breeding or energy, has not been yet explored.

QUESTION
4.2

TO WHAT EXTENT DOES THE GOVERNMENT HAVE A COHERENT VIEW OF ITS DATA HOLDINGS?

RELATIVE IMPORTANCE:
MEDIUM

-	There is no information asset inventory to document the existence and exploitation, within each institution, of management applications, geographic information systems, or database management systems. In brief, a catalogue of tools supporting the business processes of each organic institutional unit.
-	Therefore, there is no inventory of the source of data which may be used as the basis to start the data opening process in the entities.
-	The lack of an inventory does not allow for a global vision of the opportunities of data opening and complicates the preparation of a roadmap based on priorities that combines criteria such as the technical difficulties of data opening, and the expected impact of data reuse.

+	SENATICs is aware of the need to work on this inventory, because it will not only serve to identify priority datasets in each institution, but also to map the exchange of information among institutions.
-	There is also no evidence as to the existence of individualized inventories in each institution, except in those entities which are farther along the path of digitizing their information and are steadily achieving administrative modernization.
+	The entities part of this advanced group are the Ministry of Finance, MEC, DNCP, SENAVITAT, SFP, Social Security institution (IPS, for its acronym in Spanish) and the SENATICs.
+	SENATICs uses the open source “Alfresco” as its e-document repository. In the short term (the contract has already been granted), the next step is to complement the repository with the iGDoc commercial solution, as a file document manager that incorporates digital signatures.
+	The iGDoc solution permits the operation of instances on the same central platform or isolated installations. It also covers, among others, aspects such as e-document processing, signature, filing and scanning. The solution is in the testing phase on totally digitized and hybrid processes, transformation from analog to digital, and the SENATICs intention is to have a tested and viable platform proposal to extend its adoption to other institutions.
-	In general, document and file management as an administrative management and transparency tool is not being used to ensure the implementation of transparency laws.
-	The use of metadata to describe managed information is unusual, except in the treatment of statistical or geographic information.
-	Another difficulty of information management is the lack of widespread reference vocabularies or their common use among institutions, as is the case with the identification of state entities and organisms (with annual variations) or the standardization of territorial divisions.
-	The DGEEC is in charge of standardizing these classifiers but lacks the capacity to enforce their use.

QUESTION
4.3

HOW AND WHERE ARE GOVERNMENT DATA HELD?

RELATIVE IMPORTANCE:
HIGH

0	Institutional information management is completely decentralized and in certain cases is undergoing the digitalization process, except for economic and financial information, which is centralized by the Ministry of Finance.
+	The Financial Administration Integrated System (SIAF, for its acronym in Spanish) is a dynamic financial administration and information system that gathers the Budget, Treasury, Accounting, Credit and Public Debt systems.[37]
+	Law 1535/99 on State Financial Administration established the mandatory character of applying the SIAF in State organisms and entities.
-	There is no clear accounting for the volume represented by digitized information regarding that which exists in each institution. This parameter varies depending on the advancement of each entity.
-	There are institutions that are currently undergoing the information digitization process. Such is the case of DISERGEMIL (basic cartography) or Public Records (civil and property) or Cadastre, the latter with still much information that has not yet been digitized and still has paper files.
-	Information digitization processes are recent (many of the institutions claim having started at the beginning of this decade), which means that most historical archives are still in paper format.
+	On the other hand, there are institutions such as the IPS, which is quite advanced in the digitization of their information and has deployed advanced tools for its exploitation based on datawarehouse systems or big data techniques to analyze how late payments on the part of companies affect collection mechanisms.
+	Each ICT area in each institution must set up an institutional technological plan included in the corresponding POI.
+	Furthermore, Decree 4064/15 urges state entities to keep available and up-to-date the public information published on their official websites.

37 - Structure of SIAF: http://www.hacienda.gov.py/web-presupuesto/archivo.php?a=637274677577727767757671223432323a317863746b717531756b6368316b706871746f-63766b6563616c77706b712f343232363072666863002&x=8787026&y=6666005

+	The minimum information stated in Articles 8 to 11 of Law 5282/14 must be updated once a month whenever applicable, and periodically, as it is generated and considering its variations.
-	It is not possible to verify global compliance with the duty to update public information stated in Law 5282. The report[38] published by the Ministry of Justice does not include any data on this subject.
+	On the other hand, the SFP started publishing[39] this year the level of compliance of all institutions subject to Law 5189/14 (provision of information in the use of public resources on compensations and other payments made to public officials in the Republic of Paraguay).
-	Concerning its results, as of February 2017 only 15% of state entities show compliance, 75% show medium compliance and the other 9% shows non-compliance. 415 State Institutions and Entities (OEE) were included.
-	The regular format used by all institutions to publish information is PDF. Even though these documents include structured information (data tables), the regular format is PDF.
-	The public information available on institutional websites includes many documents that have been personally signed and digitized in PDF format.
-	There are no technical directives regarding the standardized use of data formats for any specific context (statistical, geographic, health data, etc.). The institution handling the specific type of data in each case applies its own criteria regarding the formats to be used.
-	Data exchange among entities is incipient and does constitute per se an origin of new datasets that may be opened.
-	There is no general registry that allows studying the conditions of outsourcing of the institutions, which entails the management of data on the part of third parties, making it impossible to decide who is responsible for the data managed.

38 - Advancements concerning the implementation of the information access law presented by the Ministry of Justice: http://www.ministeriodejusticia.gov.py/index.php/noticias/presentan-avances-en-la-implementacion-de-ley-de-acceso-la-informacion
39 - Report on Compliance with Law 5189/14: https://www.sfp.gov.py/sfp/articulo/13618-la-sfp-presenta-el-informe-del-cumplimiento-de-la-ley-5189-que-corresponde-al-mes-de-febrero-de-2017.html

QUESTION
4.4

WHAT IS THE EXTENT OF INTRA- AND INTER-GOVERNMENT ACTUAL DEMAND FOR DATA?

RELATIVE IMPORTANCE:
MEDIUM

0	The technical inter-operability framework placed at disposal by SENATICs for the different institutions, is still incipient. This framework is defined in the SII and is used by 35 institutions, 13 as producers and 22 as consumers. There are 8 institutions that are not yet connected to the system. [40]
-	There is no formal inter-operability framework that fully integrates the three dimensions: technical, organizational and semantic, beyond the technical aspect available on SII. In the organizational area, information exchange agreements are subscribed despite the weak hope to achieve common goals and concerning semantic inter-operability. Related issues such as the standardization of information and standard data exchange formats still must be addressed.
0	SII is a technical inter-operability platform that acts as a unified channel among State institutions and entities for sharing information. In practice, it is an information bus permitting the inter-connection of web services without storing or processing information, except for that which is related to the definition of each exchange session. The implementation of the SII is possible thanks to the inter-connection of the entities to the Public Sector Metropolitan Network (RMSP, for its acronym in Spanish).
0	The SII service is exclusively focused on public institutions and allows verifying online the information and data needed by the institutions requesting it, which is found in other institutions' systems, as well as the possibility of integrating data into their own systems for their own institutional purposes.
-	There is no global information exchange map among entities that compiles consumption needs and information production capacities for each exchange session between two or more institutions.
-	It is difficult for state entities to get to know the exchange capacities in place with other institutions, because, on the one hand, there is no accurate information on the technical options available other than the SII, and on the other, there are no formal contacts to coordinate these exchanges.
+	It has occurred that through the fieldwork carried out for this diagnosis, which entailed summoning entities from common areas to meetings (mobility, geographic, etc.) we have evidenced the disposition of the entities to cooperate. This has allowed making contacts to formalize joint work programs focused on improving the efficiency of information exchanges.

40 - SII and GDL advancements: http://gestordocumental.senatics.gov.py/share/s/uXiIJ8F3Qu-OYv83orBQ-A

+	An example of these future joint work programs is in the area of georeferenced information management. For instance: the CCIGE will create a specific forum on geographic information in which the Cadastre, STP, DINAC and others will participate with a view to optimizing the use of geoportals. Then there is DISERGEMIL, which will meet with STP to optimize cartographic availability through the dashboard platform (geomap that uses Carto technology), while the Cadastre is also considering the potential use of the platform.
+	Other improvement opportunities regarding information exchange result from the area of mobility, in which there are several common issues affecting many state entities: traffic and road safety, public transportation, automatic fare collection systems, etc.)
+	There is also GDL, a system for authorized public officials to exchange documents among institutions.[41]
+	GDL expedites and optimizes access to public data and sources in a standard certificate or e-document format, to be used in public processes or procedures. Its use is supposed to avoid burdening the citizens with the responsibility of obtaining said documents when they are already available to the State.
+	The same system[42] but with more restricted functions, is available to the citizens so that they may consult and download, free of charge, personal documents.
-	Regarding geographic information exchange, there is no spatial data infrastructure permitting the inter-connection of thematic georeferenced information layers.
+	Along these same lines and still in its experimental phase, Cadastre is opening a first WMS map server based on the Open Geospatial Consortium (OGC) standard.
-	The use of de facto standards in the exchange and management of information is unusual due to the weak inter-operability semantics previously mentioned. The entities capable of standardization, such as the DGEEC or SENATICs make Recommendations that are implemented according to the will and capacity of the institutions.
-	This weakness in the standardization of vocabularies and the use of taxonomies or common information classifiers leads to the inefficient reuse of data, statistics or others, among state entities.
+	However, this circumstance may be improved with the publication of the new SII version planned for the second half of 2017.
0	Finally, there is no evidence as to the acquisition of data from private sector suppliers.

41 - Online document management: https://gdl.senatics.gov.py
42 - Document Portal: https://www.documentos.gov.py

QUESTION
4.5

WHAT DATA IS ALREADY MADE AVAILABLE - EITHER FREE OR FOR A FEE - AND ON WHAT CONDITIONS?

RELATIVE IMPORTANCE:
HIGH

0

Paraguay has been undergoing a public data opening process since 2014. The third Action plan AGA 2016 – 2018 acknowledges the country is halfway there, and just a handful of institutions are opening and publishing their databases on the Open Data portal.

+

Paraguay´s position in the reference rankings that monitor the development of Open Data initiatives worldwide, shows positive progress that places Paraguay in the middle of the rankings of the countries on the list.

	2015	2016	TREND
OPEN DATA BAROMETER[43]	POSITION: **62 DE 92** SCORE: **16** RELATIVE POSITION LAC: **11 DE 14**	POSITION: **53 DE 115** SCORE: **28** RELATIVE POSITION LAC: **10 DE 20**	↑

	2014	2015	2016	TREND
OPEN DATA INDEX[44]	POSITION: **41 DE 97** SCORE: **45**	POSITION: **50 DE 122** SCORE: **35**	POSITION: **45 DE 94** SCORE: **38**	↑

+

Open Data are published in:

- Paraguay Open Data Portal[45]
- Public information requests portal[46]
- Citizen services and information portal[47]
- Public Procurement National Directorate Portal[48]
- Portal of the Ministry of Education and Culture[49]
- Portal of the Finance Ministry[50]
- Portal of the Ministry of Public Health and Social Welfare[51]
- Portal of the National Anticorruption Secretariat[52]
- Portal of the Public Administration Secretariat[53]
- Portal of the National Secretariat of Housing and Habitat[54]
- Portal of the Supreme Court of Justice[55]

There is also the civil society Open Data portal[56].

43 - Open Data Barometer: http://opendatabarometer.org/?_year=2016&indicator=ODB&lang=en
44 - Open Data Index: https://index.okfn.org/place/
45 - Government Open Data Catalogue: https://www.datos.gov.py/
46 - Public information portal: http://informacionpublica.paraguay.gov.py/portal/#!/estadisticas
47 - Single portal: https://www.paraguay.gov.py/datos
48 - Public Procurement National Directorate Portal: www.contrataciones.gov.py/datos
49 - Portal of the Ministry of Education and Culture: datos.mec.gov.py
50 - Portal of the Finance Ministry: datos.hacienda.gov.py
51 - Portal of the Ministry of Public Health and Social Welfare: http://datos.mspbs.gov.py
52 - Portal of the National Anti-corruption Secretariat: datos.senac.gov.py
53 - Portal of the Public Administration Secretariat: datos.sfp.gov.py
54 - Portal of the National Secretariat of Housing and Habitat: http://www.senavitat.gov.py/datos/
55 - Portal of the Supreme Court of Justice: datos.csj.gov.py
56 - Portal of civil society: http://datos.org.py/

+	Other entities are setting up the publishing infrastructure required for Open Data, such as Cadastre and the Civil Registry.
-	This multiplicity of isolated efforts in the creation of public data catalogues without a coordinated vision will be inefficient from the country's Open Data initiative maintenance perspective, if criteria preventing inconsistencies among catalogues are not applied.
-	• The current number of portals produces inconsistencies, such as those described below as an example: • The data on the portal is not always in line with the government catalogue. For instance, the MEC has 43 datasets on its portal, while the government c atalogue has 46; the MSPBS publishes 6 datasets on its portal and the government catalogue has 11. • The use of metadata is uneven, for sectoral portals do not always use the same metadata of the government catalogue. For instance, the MSPBS health product dataset has different names and descriptions compared to the government catalogue. • Sectoral portals provide links to data applications or visualizations that are not always reflected in the government catalogue, such as the map of healthcare establishments shown in the MSPBS portal, but not in the government catalogue.
+	Other than the Open Data offer, and as it has been previously mentioned, public institutions include in their corporate portals data relating to active transparency and statistical information related to the specific activities of each entity.
-	The usual publication format for active transparency content is PDF; the publication in formats that may be processed by computers (CSV, XLS, XML) reduced.
-	An example of data not offered in open format (published in PDF) is the data on the levels[57] of the Paraguay, Paraná, Tebicuary, Capiibary and other rivers, which may get in the way of exploiting this data for disaster prevention.
-	Another example in which reuse is penalized is that in which data consumption is subject to the payment of fees, as is the case with meteorological data published by the Meteorology and Hydrology Directorate, which depends on the DINAC.

57 - Niveles de los ríos: http://www.meteorologia.gov.py/nivel/index.php

+	Furthermore, data availability will increase as the third Open Government Action Plan is deployed, which includes opening the data in subjects such as: public offer of employment (Paraguay Concursa), payrolls, statistical information on foreign trade, public works maps (procurement and follow-up), investment in children and adolescents, air quality, environmental impact, water resources, forest inventory, healthcare services and social program oversight.
+	The Open Government plan has also defined Open Data published from 5 new institutions prioritized in the public consultation.
-	To date there is no concrete information on how the public consultation process that will allow determining the new prioritized institutions in the framework of the Open Government Action Plan will be carried out.
+	It is also planned that 30 institutions of the Executive Branch and 50 municipalities meet 100% of the requirements set in Article 8 of the AIP Law, concerning minimum information available (active transparency), using the active transparency system linked to the public information access portal. As it has already been mentioned, this active transparency module is in the works and it is expected that most of it will use Open Data.
+	On the other hand, SENATICS includes as an activity part of its POI 2017 incorporating 50 new datasets of at least level 3 (structured data) in the Open Data portal, between February and December.
+	SENATICs publishes two guides in order to synchronize the Open Data publication process: “Guides for the implementation of Paraguay’s government Open Data” and “Technical standards for the publication of government Open Data”. Both guides now have a version 2.
+	The guides published by the SENATICs are pivotal to promoting a uniform public data offer in all institutions.
-	However, these guides may be improved in certain specific areas, such as the following: • Regarding the licensing of Open Data, even though the date is set, each institution is responsible for defining the licenses for their published data, and examples are included, no reference is made to the license on the use of public information and Open Data defined in Decree 4064/15. • Concerning metadata, even though the convenience of applying the DCAT standard is mentioned, there is no distinction between metadata whose use is mandatory or optional, which means that metadata as important as the periodicity of updates or the last date of metadata update is often not defined. • The way in which the use of URIs is defined is confusing, because it fails to propose a common and unequivocal identification to invoke datasets. • Last but not least, the need to implement communication channels with the sector reusing the data is not mentioned.

+	Similarly, the government Open Data catalogue portal is being developed using CKAN open code, which provides an API for programmatic access to published data.
-	There is, however, no documentation related to the use of API.
+	A good example of documentation[58] on the use of API for data access is that published in the DNCP procurement portal.
-	The different sectoral data portals have been developed as sections within institutional websites. These sections do not have the functions inherent to an Open Data catalogue, such as search tools in datasets or APIs for automatic access to data.0020

QUESTION
4.6

WHAT PRACTICAL EXPERIENCE DOES THE GOVERNMENT HAVE IN ANONYMIZING PERSONAL DATA?

RELATIVE IMPORTANCE:
HIGH

+	In general, the institutions that have been interviewed declare carrying out the treatment of personal data with absolute rigor.
+	Statistical units use information aggregation techniques as part of the digitization process of personal information.
-	Nevertheless, there are no standards applicable throughout the entire public administration concerning the standardized anonymization of personal data stemming from a competent institution in this area, which should be the Ministry of Justice or another institution with standardization competencies, such as the DGEEC or SENATICs.
+	Examples of the application of data anonymization processes are found in entities such as the Social Action Secretariat (SAS, for its acronym in Spanish) which manages the data of people in vulnerable situations by way of its programs and projects. This institution prepares statistical information based on performance oversight.
+	Other institutions that apply personal data anonymization criteria are the Public Registry or the DGEEC.

58 - Documentación uso de la API de contrataciones: https://www.contrataciones.gov.py/datos/manual

+	There is no evidence on the de-anonymization of personal data.
0	It is worth pointing out that the operation of the document portal has been a controversial subject, due to the initial weakness of the mechanisms to avoid third parties from consulting other people's personal data without the consent of the affected party. This has been gradually solved, and even though the most effective way is to provide access to personal data by way of an electronic certificate, it has yet to be implemented on the portal.

QUESTION
4.7

WHICH AGENCIES WITH ESTABLISHED CAPABILITIES IN DATA MANAGEMENT COULD GIVE LEADERSHIP TO A WIDER OPEN DATA PROGRAM?

RELATIVE IMPORTANCE:
MEDIUM

+	On the one hand, there are the entities that manage data portals, which were generated with the assistance of CEAMSO for the following institutions: • National Directorate for Public Procurement • Ministry of Education and Culture • Ministry of Finance • Ministry of Public Health and Social Welfare • National Anti-Corruption Secretariat • Public Administration Secretariat • Supreme Court of Justice • Municipality of Asunción (underway) This, in addition to the civil society Open Data portal, which also contains data from institutional sources.
-	These institutions lack concrete plans for opening new datasets, except those generally included in the Open Government Action Plan.
-	There is also uncertainty as to the maintenance of current platforms in the event of a potential budget reduction linked to the current cooperation with CEAMSO or the full suspension of the contributions that support CEAMSO's actions. (For further details on funding refer to dimension 7).
+	Once the portal has been developed, CEAMSO then delivers the platform and trains the staff that will manage it.

+	There are other institutions worth mentioning because they stand out as examples of the application of best practices in data opening and may serve as reference to other entities that have difficulties making progress. These are: • **DNCP,** the entity which has applied the Open Contracting Data Standard (OCDS). It has also carried out actions towards linking data demand with invitations to the potential reusers of said data to explain how to use them. • **SENAVITAT,** whose data opening approach based on the integration of data from different sources, has led to internal changes to actively involve the different agents. There is an evolution plan that includes Business Intelligence (BI) tools to enhance data visualization and provide more control panels for management. • **IPS,** which is currently preparing its initial data catalogue and working on the implementation of an integrated and efficient publication process encompassing the backoffice with Extract, Transform and Load (ETLs) parameters, to the visualization of data in the frontoffice using interactive tools such as Tableau. The purpose is to automate the update of published data.
+	We must also highlight the following entities in the list of entities with great potential to lead a broad data opening program: • **Ministry of Finance,** for managing the cross-cutting economic and financial information in its possession and the technical modernization of the institution. • **The STP,** which implements tools for following up the execution of public policies and is therefore a key element in state accountability.

Ratings and conclusions

	ITEMS	IMPORTANCE	ASSESSMENT	COMMENT
4.1	Government information management policy and practice	HIGH	Yellow	Public information is largely decentralized and there are no procedures with an overall effect on government information management and positively impacting the Open Data initiative. SENATICs makes Recommendations towards their organization.
4.2	Data repository strategy	MEDIUM	Red	An asset inventory or a roadmap for opening opportunities based on the information systems' situation does not exist. The use of metadata and standardized vocabulary is minimal.
4.3	Data sources	HIGH	Red	The digitization level of institutional information is incomplete and in a few OEEs, which are important from an Open Data perspective, is insufficient, as is the case with cartographic or cadastral information. There is a major weakness in information system infrastructure.
4.4	Data interoperability	HIGH	Yellow	Mechanisms that will allow exchanging information among institutions is being activated, but there is still no global map showing the interaction needs among state entities.
4.5	Data availability	HIGH	Yellow	The Open Data offer is scattered throughout multiple portals whose management is not homogenous, leading to inconsistencies that are reflected in the government catalogue. A greater data offer has been planned and therefore a standardized availability is a must.
4.6	Personal data anonymization	HIGH	Yellow	Data anonymization is a usual practice. However, no directives have been created and no techniques have been discussed and disseminated to apply personal data separation processes.

4.7	Data management capabilities	**MEDIUM**	**Yellow**	In general, the institutions that gradually joined the data opening process lack concrete plans pointing out how to continue on the path that has already been taken. There are also public institutions that apply the best practices in data management and may become an example to the others.
	OVERALL	**HIGH**	**Yellow**	**There are significant weaknesses in the coordination of a sustainable publication of Open Data. It is imperative to disseminate and share guidelines, manage a global information asset inventory, standardize the preparation and homogenize the existing data offer. The institutions that are ahead of the curve must pull the data initiative.**

Recommendations

❖	The strategy guiding the data policy must contemplate the current technological modernization scenario of the public administration. Based on which sectoral plans for data opening must be made. The basis for each specific plan is the inventory of information assets detailing and describing the source of the data available in each institution. An information asset is any information component or element related to its treatment, such as, among others: applications, databases or Geographic Information Systems (SIG, for its acronym in Spanish). The use of a tool enabling the integration of all the information gathered from the different asset inventories is recommended in order to have a global vision of the technical capacity and feasibility of data opening.
❖	The information asset inventory is an essential element of the Open Data service, for not only does it feed the Open Data portal, but it also allows each institution to become acquainted with and manage its contribution, provides a strategic vision of the Open Data Unit (UDA, for its acronym in Spanish) and the ability to make decisions on the timing for opening each dataset that is potentially available.
❖	Every time an information system modernization process is undertaken, the inclusion of Open Data publication supporting mechanisms as a technical requirement is recommended.

❖	The UDA must be vested with sufficient competencies to tackle the data readiness needs related to ensuring their reuse, improving their quality and guaranteeing the standardization of the published data, and convey this to the ICT specialized units within each OEE.
❖	It is recommended to activate a specific inter-operability work forum within the CCIGE framework to address the technical approach, along with the organizational and semantic aspects involved in the exchange of information among institutions. The participation of the DGGEC in the forum will provide a crucial vision to go through information standardization processes and reach agreements on the way in which to represent, describe and contextualize the information to be exchanged.
❖	The implementation of an information exchange map among OEEs showing the flows of information from and into each entity is recommended.
❖	As for the availability of geographic information, it is recommended to advance towards the use of Spatial Data Infrastructure (IDE, for its acronym in Spanish), the use of which is widespread among institutions producing geolocation information layers. In order to implement this recommendation, the experience of Cadastre must be taken into account, since this entity has already started this process.
❖	It is urgent to start homogenizing the datasets being published in the different government portals and catalogues, with a view to eliminating the inconsistencies that have been observed so far. In this context it is important to follow the compulsory manual update procedures to the government catalogue, if the automatic update process is not possible.
❖	It is also advisable to review the SENATICs guides on Open Data publishing in order to include key aspects that will improve and instill trust in the reuse of Open Data. This also entails reviewing the mandatory character of the use of metadata, the use of a reference licensing scheme or the implementation of interaction channels with the reuser sector. This area provides the opportunity to take advantage of the methodological tools developed in other Open Data initiatives, such as those of Mexico, Chile or Uruguay.
❖	The publication of structured information in PDF format online must be gradually reduced, switching to spreadsheets or text files in XLS, ODS or CSV formats.
❖	Finally, it is desirable to gain insight on the outsourcing of systems and processes in order to implement technical and legal actions with a view to recovering control over the data sources that may currently be managed by the contractors of the OEEs. State institutions must own and be able to exploit the data regardless of the outsourcing of the services.

DIMENSION

5

Demand for Open Data

RELATIVE IMPORTANCE:

VERY HIGH

Context:

The value of data is in its use. A strong demand-side "pull" of data is important not only in creating and maintaining pressure on government to release data but also in ensuring that the wider Open Data Ecosystem develops and that Open Data is turned into economically or socially valuable services for citizens. The "pull" can come from civil society, the private sector, international organizations, donors and individual citizens.

EVIDENCE AND COMMENTS ON KEY QUESTIONS:

QUESTION **5.1**

WHAT IS THE LEVEL AND NATURE OF DEMAND FOR DATA FROM CIVIL SOCIETY AND THE MEDIA?

RELATIVE IMPORTANCE: **HIGH**

-	Although Paraguay's data demand is currently growing, it is still significantly incipient. The concept of data reuse is still not part of the agenda of the media, civil society, academia or the private sector.
-	Citizens, especially a few segments of the population, the private sector and the academia in general, are unaware of the concept of Open Data and of the possibility of requesting and accessing certain data.
0	Whenever infomediaries request data or information, this data is delivered in compliance with and within the terms set in the Law of Access to Public Information. However, infomediaries have stated that on multiple occasions, once the data has been delivered it is no longer useful because of the time elapsed between the request and the response given. Infomediaries have stated the need for expedited responses, preferably in real time and more current data. In this sense, they have manifested the need to eliminate the request for the information and directly access said information and the data. This is the reason why they often do not request the information.
+	The press has bolstered civil society's interest in public data, with the publication of certain analyses thereon. These analyses are mainly conducted with a view to reporting cases of corruption.[59]
-	The journalistic pieces and analyses mainly focus on stories, opinions and statements. The information sources are usually people, not data. The arguments given by the media in the stories and articles do not focus on or use the data available.
-	The media's awareness of data journalism is quite limited.
0	In fact, it has been observed that students or citizens interested in social science research have demanded more information than the media, since the latter only request information for certain specific pieces. In general, the rest of society has not demanded data for social and economic purposes.
0	International organizations such as USAID are leading the awareness raising campaign on the benefits of Open Data.
+	Ever since the Law of Access to Public Information was enacted in 2014, access to and interest in public information has increased.

59 - News example: www.abc.com.py/nacionales/paraguay-entre-los-mas-corruptos-1447895.html

0	The data that has most sparked the public interest is the data relating to the salaries of public servants and public spending. This interest allows clearly observing the purpose of overseeing and controlling the administration. The opening of these datasets has generated the largest amount of information, news and opinions amongst the media and civil society.
0	According to the tag cloud made up of the Public Information Access Portal[60] statistics, the data with the greatest demand is related to jobs, employment, health, legislation and tourism.
0	The demand for information is mostly technical in nature. Petitioners require data on scientific issues such as the inventory of greenhouse gas emissions, statistics on protected areas and information on projects with environmental impact studies. The latter, because of its magnitude, has great journalistic interest and is therefore of great interest to the people in general.
+	As for civil society organizations promoting Open Data, since they are working on the transmission of information and data to citizens, they are using the technology to educate or inform citizens and aim at creating a positive impact in society with the use of technology and data. The most relevant in this category are CEAMSO, TEDIC[61] and GiroLabs[62]. The Development Information and Resources Center (CIRD, for its acronym in Spanish)[63] must also be highlighted as one of the civil society organizations promoting information mobility and transfer.
+	Among the evidence of the reuse of public information that is not necessarily open, the following stands out: • **El Public Budget and Expenditure in Paraguay:** contributions towards a greater 2000-2009 understanding. Analysis that allowed knowing the details of a few relevant aspects of the Budget and the evolution of Public Spending conducted by CADEP.[64] However, this is a study and not a visualization. • **Physical Execution Supervision** (MEF, for its acronym in Spanish): FONACIDE data supervision in institutions that have been prioritized by the MEC regarding requests for the construction, repair or adjustments to improve school infrastructures carried out by the NGO Reacción.[65] • **Citizen budget:**[66] a project developed through the Strengthening Public Financial Management in Latin-America and the Caribbean program (PFM-LAC) with the cooperation of USAID and implemented by CEAMSO. Its goal is to allow the people to understand the process of setting up the state's budget. • **Buscador del Pueblo:**[67] part of the ABC journal website that allows searching the names and salaries of public officials in order to detect irregularities in the public administration.

60 - http://informacionpublica.paraguay.gov.py/portal/#!/buscar_informacion#busqueda
61 - https://www.tedic.org/
62 - http://girolabs.com/
63 - http://www.cird.org.py
64 - http://www.cadep.org.py/uploads/2011/02/Presupuesto_y_Gasto_Publico.pdf
65 - https://reaccionpy.neocities.org/informe-mef-cde.html
66 - http://presupuestociudadano.org.py/
67 - http://www.abc.com.py/buscador-de-funcionarios-publicos/

+	As for social accountability movements, the Ñañomoirũ[68] project stands out. It aims at developing an association model between civil society and the government towards a more transparent and socially auditable implementation of the Tekoporã Program. Ñañomoirũ focuses on information generation and management and seeks to provide information on the beneficiaries of social programs to public suppliers. This project is a part of the Open Government PY Joint Forum meetings.

QUESTION
5.2

WHAT ARE THE LEVEL AND NATURE OF DEMAND FROM THE PRIVATE SECTOR?

RELATIVE IMPORTANCE:
HIGH

-	In general, the private sector is uneducated when it comes to the possibility of reusing public sector data. No trend to the exploitation of opportunities brought about by using data to make innovations in business intelligence, improve business plans, optimize processes, develop new products and services and client segmentation has been observed.
-	Most in the private sector claim not knowing about the existence of an Open Data platform of the National Government of Paraguay.
+	However, ICT companies stated in the survey that led to the ICT Observatory[69] published by SENATICs, that they have the capacity or potential to develop innovative products and services using "*Information systems: Data management systems*". This subject was the second most favored from among the 18 that were proposed.
+	One of the main advantages found by the private sector in using public data is the identification of business opportunities.
+	There are few examples of companies that use data. Most of them are companies that are already aware of the value of data and use the Business to Business (B2B) model. Among the examples there is Dato, which works on data visualizations for decision-making processes;[70] Excelsis, which offers database and cloud-based computer platform solutions;[71] and CANOPY, a platform offering financial and real estate services by using the data from the real estate sector[72].

68 - http://www.auditoriasocial.org.py
69 - https://www.senatics.gov.py/publicaciones
70 - https://www.dato.com.py/
71 - http://excelsis.com.py/
72 - http://canopy.com.py/

-	The companies involved in data management using the B2B model have stated that the market is still small and the client base insufficient. Most companies, especially guilds and sectoral associations, have not yet demanded these services, for they are not entirely willing to pay for market research and data management.
+	There are companies specialized in providing data analytics services for business optimization processes, even though the demand for these services is still quite reduced. It is in this context that consultants such as First Análisis y Estudios, which offers support services in decision-making process at the senior management level and even contribute Open Data to the Paraguay Cultural Observatory[73], and COIN[74], a company specialized in market research and offering consultancy services in branding strategy and communications based on databases, can shine.
+	There are examples of Business to Consumer (B2C) business models, such as StayPY[75], a mobile application for making reservations and finding accommodation in Paraguay, which uses data from the National Tourism Secretariat.
+	Providers of financial services request and use data, especially the data published by the BCP on its website. Another example of data use is Informconf[76], which uses the financial data of the people to grant loans.
+	The service Consigo, which provides independent professionals and suppliers (electricians, plumbers, etc.), uses data of the SNPP alumni of professions that are certified by the Paraguayan Government and have a Single Taxpayer Number (RUC, for its acronym in Spanish) to issue invoices.
+	Although Paraguay is one of the few countries that still does not have a Digital Agency Association, we found examples of digital marketing companies such as Tree[77], Yeah[78] and Mister Co[79], which monitor social media, meaning that they are capable of analyzing and finding value in the data, even if it is not open.
+	There are companies involved in digital marketing based on large databases that include personal data, the source of which is unknown because the lack of a Personal Data Protection Law, which means that the source of the data is not registered. For instance, companies that grant small credits and loans launch promotion campaigns and send the offers to mobile phone numbers.
+	Telecommunications operators such as Tigo, Personal and Claro use data to analyze market rates and identify opportunities in both the local and international markets. According to what has been said during the interviews conducted for this assessment, these telecommunication companies operating in the Paraguayan market use Big Data techniques to maximize the value of the volume of the data used to operate. However, there is no evidence indicating that they incorporate or cross-reference their databases with Open Data.

73 - www.observatoriocultural.gov.py/index.php/noticias/capli-aportara-datos-para-el-observatorio-cultural-del-paraguay
74 - http://www.coin.com.py/
75 - http://www.staypy.com
76 - https://www.informconf.com.py/
77 - www.tree.com.py
78 - http://yeah.com.py/
79 - http://www.mister.com.py/

+	As for companies using transportation data, there is Topa[80], the first SITT (Integrated System for Traffic and Transportation) platform that provides information on mobility, traffic and transportation in real time. It is used to locate buses and public transportation stops/stations, observe vehicular traffic in the cities, discover places and sites of interest and make citizen reports.[81] Intercity transportation companies also use geospatial data and maps.
+	Regarding the use of geospatial data and maps, most Paraguayan companies use Google Maps to facilitate finding their physical location. Some examples of tools developed with geospatial data and maps include: • **Ogapp**: an application developed in open code that facilitates the search for real estate for sale or rent near the user's location, by using geospatial data and maps. • **MAWIO:**[82] an interactive web-based map to consult the works of the Sanitation Services Company of Paraguay (ESSAP, for its acronym in Spanish), which also allows downloading for free the data contained in the platform through an API. • **Bacheando:**[83] an application to report problems on the roads, such as holes, subsidence or loss of water within the city of Asunción.
+	The data with the largest demand from the private sector are those referring to the procurement schedule of the public sector, as well as historical data on the specific products that have been purchased. The purpose of the demand for this data is to identify market opportunities.
-	Furthermore, other data with significant demand from the private sector is the data from the population and housing census. The last census conducted in Paraguay was in 2012 and it could not be validated because it only reached a 76,5% coverage, and international standards require at least a 90%-95% coverage for the census to be deemed valid. The last valid census was in 2002 and the next one will be organized in 2022.
0	The following is a list of some of the different types of data that the companies consider that the Government should make available: • **Data useful for market studies:** economic, population, data of other companies, government suppliers or awarded bids. • **Data used for operations and decision-making:** transportation, the price of the basic shopping basket, public utilities, equipment, civil constructions, natural disasters and the price of fuels, are among those with the highest demand.

80 - www.topa.com.py
81 - https://www.mapadeasentamientos.org.py/
82 - https://mawio.net/#!/mapa?departamento=00
83 - http://www.codium.com.py/portfolio/bacheando/

QUESTION
5.3

HOW DO PUBLIC AGENCIES LISTEN TO AND RESPOND TO DEMANDS FOR DATA?

RELATIVE IMPORTANCE:
MEDIUM

-	Although significant progress has been made thanks to the Law of Access to Public Information and the portal for requesting specific data, this data is not exploited in order to be published openly, but is delivered directly and exclusively to the petitioner.
0	According to the portal for filing requests for public information of the National Government, these were their figures up to May 2017: 4325 requests made in 99 members institutions, most of which (1930) are from Asunción. As for the ministries with the highest requests for information, the leader is the MEC with 623 requests, the Ministry of Justice, with 477 requests and the Ministry of Finance, with 362 requests.
0	Despite the recent launching of the Single Public Information Portal, its use is still incipient. Requests for information and data are mainly sent via email and a minority by phone.
+	When the requests are paper-made, there are transcribed and introduced into the portal.
+	The Single Public Information Portal provides mechanisms for processing and following up the requests for information. Once the request has been placed the portal indicates status and the flow of the process of receiving a response, and offers interaction with the requester.
+	The Single Public Information Portal not only takes requests, but also allows consulting data previously requested by others.
+	Under the Law of Access to Public Information, public institutions must respond to the request made within 15 business days. The interviewees have said that the response is made within the term. In addition, if the citizen deems that his/her request has not been given an appropriate response, he/she may request his/her requests be reconsidered.
+	Beyond the online media, each institution has its own Citizen Care Center where the people may go to make their information request at the registry office.
-	Another regular standard observed to obtain data and information consists of requesting the data directly from known officials. In fact, they recur to a Facebook group with 1630 members called “Anyone Knows?” (*¿Alguien sabe?*)[84] where users ask who they may turn to for official information.

84 - https://www.facebook.com/groups/512844072243636/

-	Reusers' perception is that data opening is mainly reactive. Proactive actions have taken place within the OEEs based on their perception of the data that may be requested, without considering the users' perspective. For instance, the Mifuturo[85] and What are we buying (*¿Qué compramos?*)[86] platforms could collect data relating to the studies and purchases that raise the most interest respectively, considering the searches and uses the prioritization of the opening as a result of the demand.
-	The reasons for the adoption of political decision are not usually explained to the people. Sometimes they are, but they are not accompanied by the analysis of data supporting these decisions.
-	A lack of active listening has been observed in two key areas: attitude with proactive listening and the use of forums in which the listening process should occur (blogs, forums, and social media). Sometimes the demands, requests and claims directly received by Government web or e-mail channels created for this purpose are just received, and no efforts are made to go beyond these means to implement active listening. It also occurs that citizen contributions are not classified by subjects, type of suggestion and there is no reaction to them.
-	It is observed that, in general, data is not analyzed to prioritize the data that must be published, decision-making and active listening. In this sense, the opportunity to exploit the potential of Big Data and Business Intelligence to increase analysis capabilities is lost. The visitors to a website are sometimes measured, but no further measurements are made when they visit sections, information, publications, especially the visits to datasets or file downloads.
-	The absence of a communication strategy to help achieve the goals of the Government of Paraguay has also been detected. In fact, there is a tendency to communicate issues instead of responding to the treatment of issues of great public interest at any given moment, as a way of managing crises and as daily information.
-	In the absence of a comprehensive communication strategy, internal communication is also neglected. This leads to the risk of making public officials uneasy, for they have stated in the interviews that they need to have more information, more systematically.

85 - http://mifuturo.gov.py/v1/
86 - http://quecompramos.gov.py/

QUESTION
5.4

HOW IS PUBLIC AGENCIES' WILLINGNESS TO LISTEN AND RESPOND TO DEMANDS FOR DATA PERCEIVED OUTSIDE THE AGENCIES?

RELATIVE IMPORTANCE:
MEDIUM

+	Citizen participation initiatives pertaining to the enhancement of transparency tools, and the preparation and validation of PAGA commitments have been organized.
+	Paraguay has been formulating and implementing PAGAs since 2012 in the framework of which citizen participation forums have been created.
+	The commitments acquired with the current PAGA include prioritizing opening data in five institutions based on the citizen's participation at consultation forums.
0	According to the e-Government survey conducted by the UN[87], in 2016, Paraguay was ranked 95 out of 193 countries and 72 in the e-participation index.
-	In general, the National Government considers that the people are being informed of political decisions, since there are official mechanisms such as public hearings before the Legislative Branch passes a law. They claim that the people are being informed on political decision through the Official Gazette of the Executive Branch and the official communication means of the Legislative and Judicial Branch. Nevertheless, the people feel there is insufficient proximity, access, use and clarity regarding the information disseminated through said official mechanisms.
0	As gathered from the Single Public Information Portal, the positive satisfaction rate of the users[88] based on their information requests, is 73.3%. However, this satisfaction rate is computed based on an insignificant sample: of the total amount of 4670 requests filed to May 2017, the citizens have only rated 45 of them as satisfactory. Although we must take into account that this functionality has only been available for one month prior to the preparation of this report and despite its retroactive character, not enough time has elapsed to make the satisfaction rates significant.
-	Although the responses to information requests are made within the terms set by the Law of Access to Public Information, users have said that they are dissatisfied. The main reasons given focus on the quality of the data delivered, the formats in which the information is received (PDF or hard copy), as well as the level of data aggregation, which is not as specific and useful as they had wished.

87 - https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/132-Paraguay
88 - http://informacionpublica.paraguay.gov.py/portal/#!/estadisticas/satisfaccion

-	Interviewees also stated that most of the requested information is not structured or even digitized.
-	The users also believe that public officials do not have the skillset to understand and respond appropriately to their demands.
+	Interviewees also stated that there has been a conceptual advancement considering the openness of public entities compared to past years in which all information was deemed confidential.
0	The people demanding information perceive that the Government of Paraguay has good intentions. However, there are other factors additional to the government's good intentions that can also affect the capacity to respond, since the information requesters we interviewed have found themselves in situations in which the Government states insufficient budget or incapability to access the requested information.
+	Along with the good intentions, the people perceive advancements and adjustments to the laws and regulations in force. Therefore, there is currently a certain degree of trust in the administration due to the measures taken in favor of making public information available.
-	However, this improvement to the degree of trust contrasts with the perception of limited effectiveness of these measures. This means that the expectation of a more tangible form of materializing the data opening still persists.
-	As for cooperating with reusers, there have been cases in which civil society has offered the possibility of contributing with datasets that may be opened and added to the country's catalogue. However, the interviewees have said that this cooperation has not come to fruition due to bureaucratic reasons, lack of information, interest or capacity.
+	Furthermore, regarding the possibility of cooperating to contribute to the enhancement of the data, there are infomediaries who, after repeatedly having received data that is useless to them due to format or characteristics, have made suggestions and proposals on how to present, offer and Open Data. They state that they are willing to work with the Government of Paraguay to Open Data.
-	They do claim, however, that they have not received a response from the Government of Paraguay accepting their cooperation, nor have they been invited to cooperate in the opening process.
-	There is mistrust in the portals offering data, because the users say that the data from some portals does not match that from other portals offering the same datasets.

Ratings and conclusions

	ITEMS	IMPORTANCE	ASSESSMENT	COMMENT
5.1	Level and nature of demand from civil society and the media	HIGH	Red	Data are yet not deemed useful as a source of continuous and reliable information. There is, nevertheless, a slight awakening |in this sense that must be exploited, influenced by the international trend towards data journalism.
5.2	Level and nature of demand from the private sector	HIGH	Yellow	Except for isolated cases or large corporations, the private sector is oblivious to the potential of the use of data and does not use it. However, the great need for a digital transformation favors its evolution.
5.3	Listening and responding process by public agencies	MEDIUM	Red	There is no comprehensive communication strategy fostering a more appropriate response to demand. Active listening represents an opportunity to convey assertively, instead of dealing with crisis management.
5.4	Willingness of public agencies to listen and respond to demand for information	MEDIUM	Yellow	Reusers must become more involved, so that the information that is contributed may become more valuable, although this transformation is driven by good will, disposition and the current level of compliance.
	OVERALL	HIGH	Red	**Demand is scant and unaware of the potential of data. The Government of Paraguay has made isolated but effective efforts to boost its potential.**

Recommendations

❖	Society must be made aware to make it understand that Open Data is public and belongs to them. This awareness may be conveyed through communications campaigns, making real and practical examples visible, so that this identification may promote engagement. The media must also be made aware so that they understand the value of data as the most objective source. This awareness may be boosted by offering information based on data so that the journalists may confirm their usefulness.
❖	In order to foster internal and external inspiration and to spark interest in the usefulness of data, we recommend potentiating examples and visualizations with Open Data, prepared by the both the Government of Paraguay, civil society and other countries. It is also necessary to raise awareness on the potential use of public data and how to request them so that the private sector may take swift and safe actions based on it. Training in aspects linked to Open Data, such as Big Data and Business Intelligence, may promote the need to reuse data.
❖	Listening to the demand is recommended in order to cover the right needs and provide new opportunities. This is why the opening of new areas to receive data opening requests is recommended, in particular, along with active listening and monitoring all this information to produce more effective actions. Once the needs have been known, it becomes necessary to carry out a communications plan that has been previously set up around a strategy that has been co-created by the reusers to reinforce involvement in the Open Data policy. It is recommended for this strategy and communication to prioritize the achievement of a few goals regarding daily crises, contemplate internal and external communications and of course, show consistency between online and offline communications. It would be advisable to lean on startups and on companies as partners for public-private agreements promoting data opening.
❖	Raise awareness and design a communication strategy to disseminate participative policies, as well as their dynamization. This should be carried out based on the hyper-segmentation of the targets with a view to achieving greater efficiency in the outcome. To this end, we recommend setting up a data opening strategy and plan that go hand-in-hand at all times with communications, all of them in consonance with data opening. We recommend providing the official media of Paraguay with mechanisms and structures so they may make an effort to get closer to, access, make comprehensible and attractive and search for the usefulness of public information by using data as sources of information.

DIMENSION

6

Civic engagement and capabilities

RELATIVE IMPORTANCE:

HIGH

Context:

Experience among leading governments has demonstrated that Open Data initiatives are more sustainable and high-impact when Open Data efforts use an "ecosystem" approach – meaning governments invest not only in supplying data but also address the policy/legal framework, institutional readiness, capacity building (for government and infomediaries), citizen engagement, innovation financing and technology infrastructure. Governments need to play a multi-dimensional role in an Open Data ecosystem and create new types of partnerships with a wide range of stakeholders.

EVIDENCE AND COMMENTS ON KEY QUESTIONS:

QUESTION 6.1

PRESENCE OF POTENTIAL INFOMEDIARIES OR DATA JOURNALISTS

RELATIVE IMPORTANCE: **HIGH**

0	According to the records of the National Telecommunications Commission (CONATEL, for its acronym in Spanish) in Paraguay there are currently 324 media outlets (radio stations and television channels) and 11 printed newspapers. Private media are distributed into four large editorial groups, three of which are local and one is foreign. The level and capacity of influence of the media in the country's agenda is significant, the press being the most influential, followed by television and then radio.
+	In Paraguay, freedom of speech and freedom of the press are protected by the National Constitution.
-	However, according to a study conducted by the Organization Reporters Without Borders[89], Paraguay ranked 110 in the 2017 World Press Freedom Index. The same NGO has reported that journalists and community radio are often threatened and assaulted, especially on the border with Brazil and Argentina, a highly dangerous area for journalists investigating drug trafficking and corruption. The study concluded that the media outlook in Paraguay is still greatly concentrated and community communication media barely get by.
+	To counteract this, the Paraguayan Journalist Union (SPP, for its acronym in Spanish) created the Freedom of Speech Observatory[90] so that journalists may report threats or raise alerts should they experience a hazardous situation while exerting their duties, among others.
-	In general, journalists in this sector are closely linked to the media that employ them, and therefore, to their editorial tendencies. There are very few freelance journalists. This context affects journalistic independence and favors neither data journalism nor the healthy competition to differentiate journalistic approaches or investigation lines.
0	Paraguay, just as the rest of the world, is also experiencing the increasing instability of the journalism sector. Journalists are tending to publish more information through more channels with fewer resources, greater dedication and without any salary raises.

89 - https://rsf.org/es/paraguay
90 - http://libertaddeexpresion.org/

-	The journalists interviewed state that they are aware of the concept and thematic of data journalism, but have not found evidence proving the application of data journalism in Paraguay. They also note that there is confusion surrounding economic journalism and investigative journalism with data journalism. There are journalists who work with data but are not data journalists.
+	Economic journalists consider that they are practically the only ones with the skillset to venture into data journalism. They also display the analytical and statistical capabilities and possess the knowledge to make certain basic visualizations.
-	Opinion regarding the facts continues to prevail among journalists. In general terms, journalism is declaratory and recounts that which the sources have told the journalist. Access to and use of raw data to contrast the information has not been observed.
+	Concerning media outlets with the capabilities to tackle data journalism, Cinco Días, ABC and UH stand out.
-	According to the interviewees, the media has still not found value in data journalism, which is why they have not made the leap yet.
0	The Government of Paraguay has its own public and official communication media, namely the news agency Paraguay TV and Radio Nacional de Paraguay, broadcasted on several channels.
-	Journalists working at public official media do not practice data journalism.
-	Having observed a few journalists' publications, it is deduced that data visualization tools are unknown. For instance, the ABC news piece on national parks and protected areas[91] described their location, extension and main natural feature through coordinates (latitude and longitude), instead of providing an interactive map or data visualization.
0	Open Data has been addressed in a few sessions from the conceptual (not technical or practical) point of view, such as an Open Data event[92] and International Blog Action Day[93].
+	As for the training requested by infomediaries with the potential to venture into data journalism, the most popular demands involve the development of competencies for data analysis, treatment and visualization. This need stems from the fact that their academic studies did not include this education subjects, which they currently need.
+	The NGO TEDIC has organized Open Data training events such as DataBootCamp[94], intended for journalists.

91 - News on Natural Parks and Protected Areas: www.abc.com.py/edicion-impresa/suplementos/escolar/parques-nacionales-y-areas-protegidas-1021665.html
92 - https://www.senatics.gov.py/noticias/debaten-sobre-el-open-data-en-la-autonoma
93 - https://www.senatics.gov.py/noticias/dia-del-blog-2016-es-declarado-de-interes-tecnologico
94 - https://www.tedic.org/primer-databootcamp-en-asuncion/

+	SENATICs has participated in meetings organized by universities on the challenges of journalism in the Open Data era, in order to disseminate information and data access mechanisms and encourage journalists to reuse data.
+	The number of infomediaries in Paraguay that currently have the capabilities needed to reuse data is low. A group of 50 investigative journalists who could become data journalists has been identified.
+	A potential partner may be the Paraguayan Journalists Forum (FOPEP, for its acronym in Spanish), an independent non-profit organization that brings together journalists practicing their profession in Paraguay. It is a potential ally because it has the following aims: • Promote reflection forums and debate on the practice of journalism; • Help train journalists and raise the professional quality and ethics of Paraguayan journalists by way of courses, seminars, workshops, alternative communication means, websites, etc.; • Defend the freedom of information and of speech of the people, report the restrictions to these freedoms that are essential to the democratic system, and work to overcome them.[95]
+	The members of the Information Access Driver Group (GIAI, for its acronym in Spanish) are potential partners in the defense of Open Data, since they work to provide information, thus their work can become more effective if part of that information, in this case the data, were in an open and accessible format. They may also locate other potential partners, such as Paraguay Debate,[96] an inter-organizational platform aiming at joining efforts towards including issues of general interest in political agendas and public debates, relating to key aspects of social and economic policies and public management in general, drawing the attention of the people to these issues.
+	Although data reuse is limited, issues of greater public interest such as public wages, have triggered data journalism cases, visualizations and reuses on the part of journalists, such as the public official search tool published by ABC Color Journal.[97]
+	There are civic hackers such as El Surtidor[98] who are engaged in illustrated journalism to convey, with the aid of visual information, Paraguayan history and facts surrounding the country's current state of affairs with a social and political content backdrop. They also display analytical and data visualization competencies.
+	HacksHackers Asunción acts as the local chapter of the global network that brings together journalists, designers and web developers to innovate in the area of journalism. A few introductory workshops were the starting point of the local group to disseminate the concept of data journalism in Paraguay.

95 - fopep.blogspot.com.es/
96 - paraguaydebate.org.py/?page_id=1866
97 - www.abc.com.py/buscador-de-funcionarios-publicos/
98 - elsurtidor.co/

+	There are civil society initiatives to carry out social oversight, such as Ñañomoirũ[99], with the Citizen's Rating Notebook, to provide reliable information to public suppliers concerning the quality of the goods and services offered. There is also the Community Report, which conducts local oversight and the provision of public services is assessed by the communities.
+	Infomediaries that actively use data from the Government of Paraguay include the following: DECIDAMOS,[100] TEDIC, ReacciónPY,[101] CADEP, IDEA,[102] and FOPEP.[103] These infomediaries display capabilities for reusing data for their projects, services or investigations, meaning that they practice data journalism.
-	Most journalists do not demand raw data and just settle for treated data.

QUESTION
6.2

WHAT ACTIVITIES HAS THE GOVERNMENT ENGAGED IN TO PROMOTE REUSE OF GOVERNMENT-HELD DATA AND CO-CREATION EVENTS?

RELATIVE IMPORTANCE:
HIGH

+	SENATICS, through the InnovandoPY[104] program, seeks to promote creativity in the development of new ideas and proposals towards improving public management and placing the citizens at the center of all actions. Among its purposes, InnovandoPY includes promoting the reuse of Open Data. The program is based on three lines of action: • **STARTUPS:** pre-acceleration program for startups • **HACKATHON:** marathon for the development of mobile applications based on government Open Data • **IDEATHON:** generation of innovative ideas in two key areas: entrepreneurs and Open Data
+	In its third version of 2016, InnovandoPY Startups[105] supported more than 50 technological entrepreneurs to bolster their ideas. The mentoring program included technical, administrative and legal advice to help materialize their ideas. The four winning startups received each PYG 50 million in non-refundable seed capital. InnovandoPY Startups is the first Paraguayan innovation program certified by the Global Entrepreneurship Network.
+	It has offered seed capital of PYG 50 million for the development of applications and another PYG 20 million for mentoring, business plans, communications and infrastructure.

99 - www.auditoriasocial.org.py/
100 - http://www.decidamos.org.py/
101 - https://reaccionpy.neocities.org/
102 - https://www.idea.org.py/
103 - http://fopep.blogspot.com.es/
104 - http://www.innovando.gov.py/
105 - http://startup.innovando.gov.py/

+	The third edition of InnovandoPY *Hackathon* took place in November 2016, bringing together programmers and specialists of different areas such as economists, political scientists, sociologists, lawyers, software analysts, graphic designers and entrepreneurs to develop informatics tools to the benefit of citizens. The goal of these events is to raise civil society's participation in the development of technological solutions with high social value, so that they may be incorporated into the public management and thus facilitate people's access to services provided by the State.
+	*The first Hackathon* took place in 2014 and was based on the use of public data on education and public procurement. The winners then were the following two applications: "Contralor de Fonacide" which provides information on MEC infrastructure requirements, and "Contrataciones PY" which provides dynamic information on the awarding of bids and allows making specific claims from the website or mobile devices.
+	The second edition took place in 2015 and its specific goal was to design and develop projects based on government Open Data pertaining to Justice and Public Health. One of the two winning applications was "Akuerapp", a web and mobile application based on MSPyBS Open Data that provides information on the healthcare services provided by each establishment, the quality of the services or products received and even geo-referencing of the facilities. The other was the web and mobile application "Guía Legal" (Legal directory), whose purpose is to enable citizens' access to justice by providing the location of all judicial offices of the nation in a map, a list of required procedures detailed step by step and the list of judicial facilitators of each district.
+	The InnovandoPY *Hackathon* initiative is possible thanks to the support of the PDG of USAID and CEAMSO. This support has helped certify the experience and encourage participation, as stated by those attending.
+	In March 2017, SENATICs launched an *Ideathon* as part of the InnovandoPY program with the purpose of generating innovative ideas to face or respond to a need: help the government, companies and civil organizations to become aware of the Open Data with the largest demand from citizens. The activity took place entirely online in order to enable the participation of all people, without any mobility or scheduling restrictions. The ideathon.innovando.gov.py platform was setup to this end, so that those interested in participating could propose ideas and get to know and vote for already existing proposals. The platform remained available throughout the month of March. SENATICs offers mentoring so that participants can learn to Open Data and make them available for use and reuse.
+	While the *Ideathon* platform was available to submit proposals, a total of 30 ideas and 185 supporting votes were received.

+	The Ideathon initiative was added with the implementation of the second engagement of the third PAGA 2016-2018, which mentions the continuation of an Open Data policy and promotion of the generation of capabilities among Civil Society for their use.
+	SENATICs was supported by SociaLab in the formulation of the Ideathon of Innovando PY, a civil society organization present in many countries throughout the region, which aims at generating social impact by identifying and supporting social entrepreneurs. SociaLab contributed by donating the platform for citizen engagement in the initiative.
+	On Open Data Day, which was held in March 2017, Girolabs, TEDIC, CIRD and SENATICs invited the actors of the data ecosystem from both Civil Society and the Government. This last edition gathered more than 40 people in Asunción, while 30 *daters* participated in 2016.
+	Spearheading the organization of programs and events has made SENATICs the National Government's reference within the innovation ecosystem regarding innovation, entrepreneurship and data reuse.
+	Participation in these events is proportional to the universe of startups and reusers existing in Paraguay. To date, 96 startups have participated in the pre-acceleration program.
0	Most events take place in the country's capital. Reusers and entrepreneurs are also mainly based in Asunción.
+	Several Startup Weekends have been held since 2013 in Asunción and one in San Lorenzo. They are usually organized with the cooperation of universities and focus on a theme such as social innovation and *Fintech*.
+	Contests or challenges sponsored and organized by private companies also exist. The Tigo Conecta Awards is an initiative of the Tigo's CSR Area in partnership with the social company KOGA Impact Lab. Its goal is to incentivize the ideas of young entrepreneurs committed to their reality, which are based on digital technology that propose innovating solutions to social and environmental issues.
+	The first edition of the idea contest *Comprometidos*[106] by UNESCO took place in Paraguay in June 2016 with the participation of 25 young Paraguayans.[107] This contest is held in many countries throughout the region and seeks to generate a positive social impact based on the ideas of young people. In Paraguay it was organized by Koga Impact Lab in partnership with organizations such as GiroLabs, and Jóvenes Iberoamericanos, along with the National Youth Secretariat.

106 - http://www.estamoscomprometidos.org/
107 - http://www.unesco.org/new/es/medium-services/single-view/news/comprometidos_celebrates_its_first_ideas_workshop_in_paragua/

+	As to the academia, initiatives such as StartLab –Technological and Business Innovation-[108] of the Polytechnic School of Universidad Nacional de Asunción, aiming at promoting the creation of startups among students and alumni, stands out. The social launch of StartupLab took place in 2015, and its first enterprise was the Copyloto application, created to disseminate knowledge on traffic laws and road safety.
+	There is a relation, and knowledge, experiences and events are shared with other countries in the region through cooperation networks focused on Open Data and innovation. Civil society actors that are part of the data ecosystem actively cooperate with the Latin-American Open Data Initiative (ILDA, for is acronym in Spanish) and the Abrelatam event. Another network in which knowledge is shared is the Latin-American Innovation Rally (*Rally de Innovación Latinoamericano*) which involves the Paraguayan Association of Business Incubators and Technological Parks (INCUPAR, for its acronym in Spanish), SENATICs, CONACYT, the MiPyMES Deputy Minister, Parque Tecnológico Itaipú Foundation (PTI, for its acronym in Spanish), Universidad Nacional del Este (UNE, for its acronym in Spanish), Fundación AMCHAM, Fundación CIRD and the Chamber of Commerce of Lambaré.
+	The experience acquired during the many hackathons and co-creation events that have taken place in the last three years indicates that the satisfaction and motivation of the attendees remains high. The participants and other actors of the innovation and entrepreneurial ecosystem believe these events are positive, for they instill a sense of community, they serve to meet other people, discover talent, formulate projects, make up teams, find motivation and training.
+	Attendees have manifested their willingness to participate in more co-creation events and encourage others to do the same. In fact, a few projects and companies were born in hackathons, such as the company CODIUM[109], which won a hackathon with the Akuerapp application.
+	The average number of attendees of the events is 100. This figure would grow considerably when we take into account that more people participate online via streaming. SENATICs, for instance, has calculated the number of attendees in one year at 25,000 when including online participants.

108 - http://www.startuplab.pol.una.py/
109 - http://www.codium.com.py/

QUESTION
6.3

WHAT IS THE EXTENT OF ENGAGEMENT WITH GOVERNMENT THROUGH SOCIAL MEDIA?

RELATIVE IMPORTANCE:
MEDIUM

0	SICOM is the body that governs the National Government's policies and activities in the area of Information and Communications. It was created through Decree 171[110] issued August 27, 2008 and its mission is to implement strategies that will bring State and community together with a view to promoting social dialogue and development, based on transparent and participative management.
0	SICOM coordinates communications of the different OEEs. Practically all entities of the National Government have specialists responsible for carrying out communication activities, including social communication.
+	The Government of Paraguay uses social communication media to communicate. Social media is used in addition to its own official media (communication agency, radio stations and television channels). President Horacio Cartes' Twitter account has over 350 thousand followers, the largest number among National Government accounts, followed by that of the National Electricity Administration (ANDE, for its acronym in Spanish), which has 200 thousand followers.
-	However, this communication is mainly unidirectional and pertains to official communications. Social media are used to promote and inform on the government's activities.
-	The journalists of the Government of Paraguay which are coordinated by SICOM are oblivious to the subject of data journalism. Likewise, weaknesses have been perceived concerning capabilities in aspects linked to data communication, visualization techniques and data analysis.

110 - http://www.sicom.gov.py/?page_id=60

-	As for the main recipients of Government communications, it is observed that both politicians and journalists tend to address mainly journalists and opinion leaders, and not so much the people.
-	There is no evidence that the journalists of the National Government of Paraguay practice an integrated communication that combines internal and external communication, both online and offline, and a strategic execution segmented by target. In general, they are mostly focused on handling information towards the media and taking care of issues relating to the press.
-	There are no indications that the National Government of Paraguay has thematic territories (issues related to government management and of public interest) to disseminate an opinion or managing third-party content, which may weaken engagement capacity or the relations and commitment to public policies.
-	The use on the part of the National Government of Paraguay of techniques to convey the values of the administration with the support of its public officials, i.e. the Employee Advocacy tool, is limited.
-	There is no evidence of initiatives seeking to involve the people in participative processes through the use of social media. Online surveys are conducted on a few, isolated occasions, as a consulting mechanism.
0	The most widely used social media in Paraguay are Facebook, Twitter and Instagram. As indicated by an IADB report issued in December 2016, Paraguay is spearheading the use of social media in Latin America, with an 83% penetration.
-	Despite the widespread use of Whatsapp in Paraguay, the National Government of Paraguay is barely using its potential to disseminate viral content generated specifically for this tool.
+	Citizens use social media to get involved and participate, report, criticize, propose and give an opinion on public issues. This is a growing trend, according to the interviewees.

+	Citizens also participate in social platforms, such as change.org or in collaborative initiatives such as Mi Ciudad[111] to report problems, make proposals and generate and share events.
-	The interviewees recognize that whenever a citizen proposal is accepted by the Government of Paraguay it takes more than three years to implement it, which is why participation is weak.
-	With the exception of the Municipality of Asunción, Villa Elisa, Emboscada y Luque, the application of participative budgets is not used throughout Paraguay.
+	Initiatives such as Presupuesto Ciudadano[112] have been launched, promoted by the Ministry of Finance and developed by CEAMSO with the support of USAID under the PFM-LAC.
-	There is a perception that compliance with the laws and their publication are not enough to keep the citizens current. Because there is no communication plan that targets the citizens, laws are perceived as a communication channel.

QUESTION
6.4

TO WHAT EXTENT IS THERE AN EXISTING APPS CREATION CULTURE?

RELATIVE IMPORTANCE:
MEDIUM HIGH

+	There are over 150 mobile applications available, which were developed in Paraguay; most of them focus on deliveries and providing information. For example, during the Pope's visit, a free app called *Francisco y Paraguay* was created by two youngsters from Encarnación with the purpose of providing access to all types of information relating to the Pope and his visit to the country.
-	The app-creation culture is only now budding. The Paraguayan market is small and the digital innovation and business ecosystem shows difficulties creating sustainable business models that may support mobile applications.

111 - https://www.miciudad.org.py/
112 - http://presupuestociudadano.org.py/

+	Other than the projects that have won any of the multiple events mentioned in subsection 6.2, these other applications are also worth mentioning: • **Toky:** offers companies the possibility of forgetting telephone numbers by using this app, which converts them into links to make communication more effective • **PulgApp:** an app for everything pets • **Consigo:** an app to locate different professionals and suppliers in high demand • **Avañee'e:** Spanish – Guarani dictionary • **Constitución del Paraguay:** to facilitate access to and consultation of the Constitution. • **Cines Paraguay:** location of cinemas and movies currently playing. • **Sicp.py:** official application of the Paraguay Public Procurement portal. • **Tudelivery:** location of the places that make home deliveries
-	No apps have been found that are exclusively based on Open Data with a sustainable business model
+	There are a few apps with social purposes that reuse Open Data, such as: • **Akuerapp,** to search for medical services or medications; • **Contrataciones PY**[113], the mobile app of the DNCP that uses Open Data published by said institution; • **Guía Legal**[114], to locate judicial offices and the services they offer; • **Contralor FONACIDE**[115], to find all the information on infrastructure requirements for institutions prioritized by MEC Micro-planning; • **YOYA**[116], an app to locate services for the disabled; • **TOPA**[117], the public transportation application • **VIADEDO**[118], an initiative to carpool or hitchhike
+	Applications have been created using data contributed by the people and also using Open Data, such as TOPA. There are also applications that generate data and even developers have placed them at the disposal of the government.
+	CODIUM is the company with the largest amount of developments[119] linked to Open Data. It was the developer hired for the Open Data portal of the Ministry of Finance and the Single Public Information Portal. It was also one of the main developers of the apps Akureapp, Contrataciones PY and the application Bacheando, to report problems on the road promoted by the municipality of Asunción, among other apps.

113 - https://play.google.com/store/apps/details?id=py.gov.dncp.sicp.android&hl=es_419
114 - http://accesojusticia.csj.gov.py/#/mapa
115 - https://www.mec.gov.py/contralorfonacide/
116 - https://ejempla.com/ideas/yoya-marcando-los-caminos
117 - https://www.topa.com.py/
118 - https://www.facebook.com/viadedo/
119 - http://www.codium.com.py/#trabajos

+	The members of the developer community are connected, they know one another and they network to share knowledge. They also organize meetings in their free time, such as Hacks and Hackers or meetups in Asunción[120]. There are approximately 300 members.
-	The digital entrepreneurship ecosystem in Paraguay is small and incipient. The records maintained in the SENATICs database include 20 digital startups that appear as active.
+	There are groups for development or areas of interest, such as free software, the development of mobile apps, robots or scientific for data. A few of them are: • **JavaUserGroup:**[121] community of Java developers • **PythonParaguay:**[122] community of Python developers • **Vtech:**[123] community of developers that meet once a month to share experiences. Its members are employees and employers of several private companies.
+	A few professionals (academicians, consultants or software development company employees) combine their professional activity with mentoring activities or the development of their own projects. These are highly qualified professionals who are open to new trends, such as Open Data or Big Data.
-	Just as in other countries, the interviews have allowed evidencing a distinct gender gap among developers and technological entrepreneurs.
+	To mitigate this situation, Paraguay has GirlsCode,[124] a community part of the ecosystem that seeks to encourage and support girls and adolescents in the field of digital technologies.
-	Funding of startups is very weak. The Government of Paraguay's funding is scant and limited to concrete awards resulting from contests. There is barely any support in the search for funding.
-	Corporate aid programs mainly help traditional SMEs and neglect technology-based startups. Entrepreneurs believe that there is no firm commitment to digital innovation and development. The funds allocated to strengthening entrepreneurship are restricted and startups do all they can to make the most of them.
-	Private funding for companies is mainly provided by large banks or private entities. Seed capital funds, business angels, venture capitalists, connections to investment networks, incubators, accelerators, and mentoring networks are uncommon. Most entrepreneurs are funded by the immediate network or "Friends, Family and Fools".

120 - https://www.meetup.com/es-ES/hackshackers-asuncion/
121 - https://github.com/jugpy
122 - https://pythonpy.org/
123 - https://www.facebook.com/groups/916854338432615/
124 - http://www.girlscode.com.py/

+	There are startup references which have received investments and are growing, such as Fiweex, TOKY, and PO Paraguay. There is also evidence of two applications developed in Paraguay, which have managed to spark the interest of Silicon Valley. This is the case of Tex app and the wanted ads platform, AISell.
+	According to the Aspen Network of Development Entrepreneurs (ANDE) survey in June 2016, the institutions providing seed capital are SENATICs, through its InnovandoPY program, Koga Impact Lab and the Association of Young Entrepreneurs (*Asociación de Jóvenes Empresarios*). Likewise, Fundación Paraguaya grants loans to businesspersons and the Paraguayan Chamber of Tourism and Fenómeno Diseño grant capital and mezzanie (debt) to businesspersons.
+	As for startup funding projects in universities, that of INCUNA stands out. It is promoted by the UNA.
+	There are also two universities, UNA and UCA, which develop and foster the capabilities of developers in the search for businesses and entrepreneurship. Startup weekends and hackathons also aid this professional development.
+	According to the businesspersons we interviewed, they are aware of the need to treat data to reinforce their business models, but they believe they lack the technical capacities to enhance the reuse of the data.
-	Entrepreneurs do not know where to search for the data, and are unaware of the existence of data sources, that the data has been gathered or that the data is public or is in possession of the administrators.
-	There have been initiatives to bring Government and civil society closer. As a result, Ideathon was created with the purpose of boosting the communication with the entrepreneurial and business ecosystem. However, entrepreneurs are dissatisfied because they say that they are never asked what they need or what data they may need.
-	One of the main problems faced by technology-based startups in Paraguay, but not in other countries, is the poor penetration of credit card-based payments, which is under 10%, according to a Bancard report. This circumstance presents a negative impact in the feasibility of business models requiring online payment for services and products.

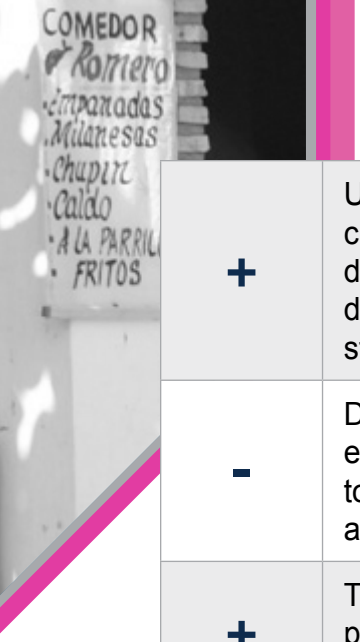
QUESTION
6.5

TO WHAT EXTENT IS THERE A QUALIFIED ACADEMIC AND SCIENTIFIC COMMUNITY WITH CAPABILITIES IN DATA ANALYSIS?

RELATIVE IMPORTANCE:
MEDIUM

+	There is an academic and scientific community that is qualified in data analysis and sharing knowledge in the UNA, although its size is quite small.
+	Researchers from CONACYT, UCA and UNA request and use data.
+	A small number of students who are working on their research papers are using data from the National Government of Paraguay.
+	There is at least one Paraguayan researcher with experience in Open Data in Latin America. He actively cooperates with the development of the Open Data initiative of Paraguay and works on the use of Open Data applied to health sciences.[125]
+	One of these most relevant papers[126] revolves around the use of Open Data to create innovative tools that are reusable and easily adaptable to other regions seriously affected by dengue. The work has led to the development of an open source prototype that uses the data presenting risk and dynamic incidence maps by department and district, allowing searches, filters and downloading the data in Open Data format. The work has been presented in multiple international forums, such as the latest International Open Data Conference (IODC) held in 2016.
+	Paraguay's membership to Red Clara is proof that there is at least a network of researchers with the capabilities to analyze, treat and visualize data.
-	Research is not on the rise due to the limited funds allocated thereto.[127] Paraguay only invests 13 USD per inhabitant in research.[128]
-	There is no evidence of the existence of Open Data repositories in any outcome of research.
+	On the other hand, the National Agency for the Assessment and Accreditation of Higher Education (ANEAES, for its acronym in Spanish) uses data for its own management and audit reports.

125 - http://juanpane.com/
126 - http://www.opendataresearch.org/dl/symposium2015/odrs2015-paper30.pdf
127 - http://datos.bancomundial.org/indicador/GB.XPD.RSDV.GD.ZS
128 - http://www.abc.com.py/edicion-impresa/locales/paraguay-invierte-en-investigacion-cientifica-solo-us-13-por-habitante-439804.html



+	UNA's polytechnic school offers an elective course in the Computer Engineering curriculum called "Open Data", which teaches the concepts and tools available for data analysis. Those interested may also complete their studies by preparing their dissertations on these subjects. The challenge the school faces is having enough students enrolled in the course so it may be imparted.
-	Despite the solid upward trend, one of the arguments given by universities to explain the poor offer in disciplines relating to data treatment and analysis has to do with the fact that they have found that the market is not demanding data analysts and they deem that it offers few professional possibilities.
+	The professors who were interviewed believe that if technological programs are promoted it is because universities deem that programming is a discipline with significant professional opportunities.
0	The informatics level applied to high schools is quite high, as stated by the university students we interviewed.
-	Students say that technical high schools focused on computer science have specialized laboratories, and emphasize is placed on theory, not on practice. One of the reasons given is that the classrooms do not have enough computers.
0	Engineering and Mathematical Science Schools offer courses in Advanced Statistics and Data Analysis.[129]

129 - http://mifuturo.gov.py/v1/index.php/buscador-de-carreras/

Ratings and conclusions

	ITEMS	IMPORTANCE	ASSESSMENT	COMMENT
6.1	Infomediaries	HIGH	Yellow	Traditional declaratory journalism is deeply rooted. The data with which journalists work has already been treated. “Data” journalism is confused with journalism “using data”. There are a handful of experiences that may encourage the rest.
6.2	Reuse promotion	HIGH	Yellow	Reusers are satisfied with the benefits of events such as the hackathons. A clear and solid strategy is needed to incentivize reuse.
6.3	Social communication	MEDIUM	Red	The communication plan and strategy must be in line with the goals. Communication is unidirectional. Greater conversation and segmentation of the targets and recipients is lacking.
6.4	Culture of reuse and applications	MEDIUM-HIGH	Yellow	A data culture is inexistent and businesspersons are not provided sufficient support, which is why they have a hard time. Nevertheless, there are a few important initiatives that may help others grow.
6.5	Academia and research	MEDIUM	Yellow	There are isolated cases of researchers, who must be found in order to make them visible and create practical communities to extend the value of data.
	OVERALL	HIGH	Yellow	**Interest in the data culture has been sparked. Certain reusers have displayed important capabilities that must be boosted and extrapolated so that the Open Data ecosystem can bloom.**

Recommendations

❖	The individual creativity of each journalist must be heightened through data journalism contests and other mechanisms, so that they may be detached from their communication media and to arouse their curiosity, fostering research, the development of capabilities and a passion for data journalism, regardless of their work for certain media. Likewise, the civil hacker culture must be potentiated, promoting meetings among them, the data journalists, technologists and analysts so they may become a stronger community. In order to develop the skillset needed, permanent data journalism training for infomediaries must be provided so that it will attract more people and favor the development of collaborative research. We also recommend fostering relations with infomediaries to cooperate with data opening, training and the dissemination of the benefits of using data, thus turning them into government allies.
❖	Continue incentivizing co-creation events to promote Open Data. However, segmentation policies for the attendees must be created and the goals and outcome must be analyzed in order to innovate in their promotion. Communication campaigns to allure data reusers must also be carried out, because organizing the events and ensuring that the teams and projects are maintained over time and after the event or hackathon, is not sufficient. More sophisticated mechanisms with comprehensive support of the ecosystem in its different phases and complementing co-creation events should be designed. The formation and personal improvement of those attending events must be encouraged without neglecting entertainment, which boosts motivation and helps consolidating the efforts of the awards or resources within the main purpose of “promoting Data Reuse”. In this sense, there should be clarity regarding the expectations generated at the events in order to avoid future frustrations among the attendees.
❖	The communication plan should be co-created with civil society, so they may be involved from the beginning, fostering engagement, but especially, to get to know their needs first hand and thus achieve the goals together.
❖	Efforts must be made to promote innovations, support entrepreneurs in more than one way and contribute to the development of their data analysis, visualization and treatment skills. Entrepreneurs must be aided to find sustainable business models, funding or to achieve global reach. In this sense, they must be professionally mentored in the aspects in which there are greater weaknesses, so they may embark on successful projects. It is always necessary to work on talent retention and recruitment.
❖	With the academia it is positive to foster data research, subscribe agreements with universities and educational institutions, so that the data culture and its usefulness may be disseminated, and the capacities of more students can be developed. In this sense and in order for the academia to join the reuser community and sector, we recommend promoting collaboration among the Academia, researchers, companies and infomediaries.

DIMENSION

7

Funding an Open Data initiative

RELATIVE IMPORTANCE:

MEDIUM HIGH

Context:

Funding with respect to both the "supply side" and "demand side" of Open Data is important to ensure that the objectives of an Open Data Initiative are met.

EVIDENCE AND COMMENTS ON KEY QUESTIONS:

QUESTION 7.1

RESOURCES TO FUND THE OPEN DATA INITIATIVE

RELATIVE IMPORTANCE: **VERY HIGH**

0	The funding model for an Open Data initiative is mainly based on external contributions, complemented with government contributions, which assumes the costs of the personnel assigned to Open Data, both at SENATICs and at the different OEEs undergoing data opening processes.
+	The financial resources allocated to the initiative have enabled affording the costs to take important steps forward in the Open Data initiative. These steps include making portals available for data access and downloading, the organization of events to promote reuse and the realization of permanent internal training towards raising an incipient institutional awareness regarding the value of Open Data.
0	The goal of USAID's Democracy and Governance Program (PDG, for its acronym in Spanish)[130] implemented by CEAMSO is to strengthen the capacities of key government institutions, increase transparency and fight corruption. The PDG is the Open Data initiative's main source of funding.
+	The program started in 2013 with a 5-year term (to September 2018) and its annual budget is five million dollars. PDG not only concentrates on actions directly related to Open Data, but also on other actions that are part of the program's funding: (i) improving human resource management systems, (ii) raising the performance bar regarding financial management and administration, and (iii) strengthening the capacities of institutions providing basic services, as well as the capacity of the Judicial Branch in justice.
+	In the last semester, CEAMSO has issued many bids funded by the PDG, which favorably contributed to the Open Data initiative. Among other actions, it has procured the production of video tutorials on the use of Open Data, a consultancy service experienced in Open Data, along with support to the implementation of Open Data tools for the Municipality of Asunción.
0	A few of the most recent bids, such as that relating to the design and implementation of Open Data for the State Undersecretary for Economy and the State Undersecretary for Financial Administration at the Ministry of Finance, were declared deserted and thus the processes were suspended.

130 - Democracy and Governance Program: http://www.ceamso.org.py/programa-de-democracia-y-gobernabilidad

+	There are bids currently ongoing to support the implementation of MECIP, SENADIS and the Ministry of Finance.
+	The Akuerapp and Guía Legal applications were developed with PDG's budget through CEAMSO.
+	Currently, all actions linked to Open Data have been funded with the support of the PDG.
+	The Cooperation MOU between SENATICs and USAID, which states the cooperation between institutions through CEAMSO, includes, among others, two key points relating to the actions financed by PDG funds: (a) USAID agrees to place at the disposal of SENATICs the technical products prepared within the framework of the MOU, and (b) SENATICs agrees to guarantee the sustainability of the reforms implemented with the technical assistance of USAID.
+	Both commitments ensure the delivery and further maintenance of the projects carried out with an entity centralizing the technical and operational Open Data capacity.
-	To present, all actions linked to the Open Data initiative have been within the funding framework previously described and are greatly dependent on external funding. In an uncertain scenario regarding the continuity of the funds that support the foregoing actions, thought has not been given to a funding model including other than external contributions.
+	The growth of SENATICs' financial resources in 2016 and 2017 was 1%, according to the information reported in the corresponding POI, going from PYG 21,646 million in 2016 to PYG 22,106 million (approximately US $4 million) in 2017.
+	Bilateral relations with the OECD, IADB and WB are stemming into different missions[131] and technical assistance aiming at identifying opportunities and making the Recommendations on sectoral policies that will lead to structural projects.
+	SENATICs has planned to negotiate and renew at least five agreements, specific agreements and/or MOUs in force, in addition to managing and executing 30 new agreements or MOUs through the interinstitutional relations component described in the POI 2017.

131 - OECD Exploratory mission in Paraguay: http://www.ip.gov.py/ip/mision-de-la-ocde-inicio-reuniones-exploratorias-para-estudio-en-paraguay/

+	The National Fund for Public Investment and Development (FONACIDE, for its acronym in Spanish) is a resource created exclusively for funding public investment and development projects. FONACIDE has the potential to become a member of the funding scheme, since it is a fund for investments with significant economic and social impact at a municipal, departmental and central level. FONACIDE's distribution also involves the national treasury, departmental and municipal governments, the Fund for Excellence in Education and Research and the National Health Fund. The sectoral scope of these funds covers education, research and healthcare, pointed out as high-impact sectors for Open Data policies.
0	Finally, a potential reformulation of the OEE funding model that charges fees for the delivery of raw data (unprocessed as reports or value-added services) has not yet been submitted for consideration on the part of the Ministry of Finance and the institutions involved.
-	The collection of fees for public data constitutes an impediment to the promotion of innovation and the country's economic development based on Open Data. On the other hand, a significant part of the revenue of these institutions comes from other public entities.

QUESTION 7.2

RESOURCES TO FUND DEVELOPMENT OF APPS AND E-SERVICES FOR OPEN DATA

RELATIVE IMPORTANCE: **HIGH**

+	Paraguayan institutions have applications that offer online solutions to the multiple information needs of the citizens, by way of mobile devices or internet portals.
0	According to the citizen information and services portal, 19 online applications are available[132], 15 of which are adapted to be used via mobile devices. The applications were developed by 14 institutions, and SENATICs is the entity with the most applications available.
-	The information gathered on the portal is not up-to-date, since the list of applications does not include the MSPBS' Akuerapp and the MEC's Contralor de Fonacide.
-	The use of Open Data as the basis for the development of applications is still quite restricted: only four of them use them, namely: "Legislativo PY" of the Senate and developed by SENATICs, "Contrataciones públicas PY" of the DNCP and MSPBS' "Akuerapp" and the MEC's "Contralor de Fonacide".

132 - Online applications portal: https://www.paraguay.gov.py/aplicaciones-en-linea

0	SENATICs 2017 POI stipulated the development of 10 applications or modules (web or mobile) as a part of the component of supporting the reinforcement of ICTs in OEEs, without stating whether they would be based on Open Data.
0	The financial effort for activating demand and the creation of a data reuse culture for the development of innovative services is the responsibility of the SENATICs Digital Inclusion and Education ICT Directorate.
-	There is no evidence of the forging of relations with departmental and municipal governments to co-fund the development of applications or services.
0	In the area of the technological development of new electronic applications or services, the possibility of forging public-private alliances with companies interested in generating data-based business models or investing in them, has not yet been explored.
+	In this sense, there are opportunities to establish cooperation bonds with SMEs stemming from the community of developers who base their professional activities on data, such as TOPA or CODIUM, among others.

QUESTION 7.3

WHAT FUNDING IS AVAILABLE TO SUPPORT THE NECESSARY TECHNOLOGY INFRASTRUCTURE AND ENSURE THAT STAFF RECEIVE SUFFICIENT TRAINING TO MANAGE THE OPEN DATA INITIATIVE?

RELATIVE IMPORTANCE:

MEDIUM HIGH

+	The different Open Data catalogues available in state institutions, including the government Open Data catalogue, have been developed with the financial support of the PDG.
0	The maintenance and evolution of each catalogue depends on each promoting institution, with the technical support of SENATICs.
-	Institutions do not have specific budget items for the tasks involved in ensuring the evolvement of the corresponding catalogues, such as the preparation and publication of new datasets, internal training on data reuse or the development of services based on published data.
0	Currently, the maintenance of the catalogues is assumed by the specialized ICT units as if it were another portal of the institutional website.
-	The institutions do not have personnel specifically dedicated to Open Data and SENATICs helps with a very small technical team.

+	SENATICs 2017 POI defined the incorporation of 50 new datasets of at least level 3 (structured data) to the government catalogue.
-	This weakness, linked to the poor allocation of personnel to the data initiative, contrasts with SENATICs purposes and the goals set in the PAGA concerning the availability of new datasets, which represents a potential trouble spot considering the risk of not achieving the goals set due to insufficient resources.
+	SENATICs has started on the technological service virtualization path, which permits economies of scale, thus entailing a cost cut in the implementation of new support infrastructures.
+	SENATICs 2017 POI includes the contribution of infrastructure (IAAS) and platforms (PAAS) as cloud-based services through the NUBE-PY initiative. The compliance indicator for year-end 2017 is of 25 new OEEs using the service.
0	Thus far, NUBE-PY has not been contemplated as the supporting infrastructure for the deployment of Open Data platforms, new or existing, allowing to increase the availability of Open Data while optimizing production costs.
+	Other technological projects financially supported by the entities that are implementing them and have a positive impact on the Open Data initiative are those carried out by IPS, automating the extraction and preparation of the data, as well as their analysis and visualization, or by Cadastre, with the availability of new Web Map Services (WMS), which will provide georeferenced information layers.
-	Furthermore, institutions are not allocating economic resources to educate public officials in competencies relating to data exploitation.
+	However, the technical capabilities are normally required from the institutions' statistical units, areas responsible for preparing studies or ICT units. The general level of technical knowledge is deemed sufficient for working on structured information on spreadsheets.
-	Except for SENATICs and DNCP, data portal promoters have not approached the reuser sector or other OEEs on how to achieve the efficient consumption and exploitation of the data they are publishing.
+	In addition to SENATICs' mission to foster reuse, we must highlight the experience of the DCNP, which has been approaching public procurement data reusers to show them how to use the access API.

QUESTION
7.4

WHAT FUNDING MECHANISMS DOES THE GOVERNMENT HAVE FOR INNOVATION?

RELATIVE IMPORTANCE:
MEDIUM HIGH

+	The mission of the National Council of Science and Technology (CONACyT, for its acronym in Spanish) is to strengthen the National System for Science, Technology and Innovation. According to data from the 2016 financial control and budget assessment report[133], the entity invested PYG 99.9 billion, a 40% increase compared to the resources used in 2015.
-	According to the first national public perception survey on science and technology[134] in Paraguay, the knowledge of those surveyed on CONACYT programs[135] is close to 20%. On the other hand, 30% of those surveyed deems that the economic resources for funding scientific research and technological development in Paraguay are reasonably sufficient or quite sufficient.
-	The Research and Development expenditure (as a percentage of the GDP)[136] according to data from the World Bank, was 0,09 in 2012, one of the lowest in Latin America. The region barely reached 0.8%.
+	Similarly, the purpose of the National Scholarship Program (BECAL, for its acronym in Spanish)[137] is to increase the levels of generation and application of knowledge in areas pertaining to education for the development of the country. A total of PYG 73,717 million was invested through BECAL in 2016 to the benefit of 844 people. As for the scholarships for reinforcing innovation, the goal was to grant 230 scholarships but they ended being 495.
-	However, the goal pertaining to scholarships granted for the reinforcement of research, which was set at 325, only reached 147. Likewise, those allocated for reinforcing education were set at 690, but only 202 were granted.
-	The citizens' perception of the role played by innovation in the country's growth is minimal. According to the 2016 Latinobarometro Report[138] prepared by the IADB, 24% of Latin-Americans believe that innovation is important to development. This belief spikes to 39% in Costa Rica, 38% in Uruguay and 31% in El Salvador, while it falls to 12% in Dominican Republic, 16% in Paraguay and 17% in Bolivia.

133 - 2016 financial control report: http://www.hacienda.gov.py/web-presupuesto/index.php?c=269
134 - Public perception survey on science and technology 2016: http://www.conacyt.gov.py/resultados-encuesta-percepcion-cyt
135 - CONACYT programs are PRONII: National Program of Incentives for Researchers; PROCIT: Program to Support the Development of Science and Technology and Innovation; DETIEC: Technological, Innovation, Conformity Assessment Development Project; PROCIENCIA: Paraguayan Progam for the Development of Science and Technology
136 - R+D expenditure in Paraguay: http://datos.bancomundial.org/indicador/GB.XPD.RSDV.GD.ZS
137 - National Scholarship Program: http://www.becal.gov.py/
138 - Latinobarometro: http://www19.iadb.org/intal/alianzalb/reporte.php

+	SENATICs 2017 POI sets the following under component 6: technology-based enterprises: (1) implement programs to develop the ICT-based capabilities of SENATICs, with a view to training 200 entrepreneurs; (2) organize hackathons to identify innovative projects with a goal of assessing 10 projects; (3) identify entrepreneurs with innovative ideas based on ICTs; its compliance indicator was 10 enterprises supported.
+	The purposes of SENATICs 2017 POI relating to technology-based enterprises exceeded those set in the 2016 POI, reflecting a growing trend in the support given to innovation promoted by the public sector.
-	However, the said POIs fail to specify if the goals of the proposed actions should be achieved based on the reuse of Open Data.
0	Innovando PY is the pre-acceleration program for startups created by SENATICs. The goal of Innovando PY is to award non-refundable seed capital to the startups chosen for the process of developing and validating their business models with innovative products, services or sale methods with a great potential to grow using ICTs.
+	The total amount of the award given to the Innovando PY winning startup is PYG 50 million (approximately US $9,000). The project is also offered hosting on SENATICs' NUBE-PY and follow-up and monitoring for 6 months.
+	SENATICs allocates nearly US $100,000 per year to the funding of open innovation programs, such as Innovando PY, *hackathon* and Ideathon events. These resources are used in the invitation, organization and awards for these activities, promoting creativity and the development of new ideas.

Ratings and conclusions

	ITEMS	IMPORTANCE	ASSESSMENT	COMMENT
7.1	Funding an Open Data initiative	VERY HIGH	Yellow	The current funding model of the initiative is greatly dependent on the PDG, which will be in force until September 2018. Thought has not been given yet to the resources needed and the model that should sustain the initiative.
7.2	Funding the development of apps and e-services	HIGH	Yellow	The extension of the application and e-services catalogue has been planned, although it does not specify whether its development will involve Open Data. There is no specific funding for its development; it will be assumed by the budget of SENATICs and the institutions promoting the apps and e-services.
7.3	Funding for technological support and staff training	MEDIUM HIGH	Yellow	Several Open Data catalogues have been implemented in addition to that of the government and funded by the PDG. However, there is uncertainty as to the budget and the allocation of personnel for the maintenance thereof and its evolution is quite reduced.
7.4	Funding innovation	MEDIUM HIGH	Yellow	In general, Paraguay's public administration still has a way to go concerning support to innovation and enterprise. However, SENATICs provides support to multiple technology-based entrepreneurial actions, for which a modest budget is allocated.
	OVERALL	MEDIUM HIGH	Yellow	**Although financial resources are scant and immediate thought must be given to the sustainability model and its future consolidation, institutions have allocated funds for taking the first steps towards data opening. There are opportunities to apply economies of scale exploiting the shared infrastructure. Financial support to innovative uses of Open Data must be boosted.**

Recommendations

❖	We recommend setting an annual budget that includes estimations of costs and human and economic resources for all tasks part of the process, and which also takes into account the SENATICs and the institutions involved in sectoral plans defined in the Open Data strategy, as the first step towards defining the financial model that will support and sustain the Open Data initiative. These tasks must take into account (i) the identification of the source of the data, (ii) the extraction and transformation of the foregoing, (iii) preparation and publication of Open Data, (iv) awareness and training and (v) fostering reuse.
❖	The budget estimation must take into consideration the application of economies of scale, taking advantage of the NUBE-PY infrastructure for the instantiation of the Open Data sectoral catalogues. It may be interesting to use the SII platform to generate an Open Data repository based on the exchange of information among institutions. This opportunity may lead to an internal observatory for public sector information as an internal action towards Open Data reuse.[139]
❖	We recommend maintaining and consolidating the bond with the entities that are contributing development funds, considering the proposal of Open Data-based innovative projects with high social impact that boost business competitiveness.
❖	The applications and services that are being developed based on Open Data are not visible in the government catalogue of the initiative, and it is important to have a space that describes and details these efforts, while encouraging the creation of new and innovative services. Along this same line, we recommend favoring the visibility of external reuses instead of internal reuses with a view to incentivizing the reuser sector.
❖	We recommend creating funds for encouraging and funding enterprises based on Open Data, as well as introducing data reuse dynamics in the innovation roadmap (public and private) to foster data reuse.
❖	In the medium term, and as a budget is acquired to further the initiative and the Open Data ecosystem gets consolidated, the Return on Investment (ROI) must be estimated in order to facilitate the justification of the economic investment in the initiative. To do so, it is necessary to quantify the economic and social value generated by the reuse of data, such as: applications, studies and computer graphics or collective creation actions like those resulting and materialized from the Ideathon.

139 - World Bank's Open Data Toolkit publishes multiple examples on the sustainability of Open Data initiatives. http://opendatatoolkit.worldbank.org/en/starting.html

DIMENSION

8

Technological development and information society

RELATIVE IMPORTANCE:

HIGH

Context:

In very practical ways, Open Data Initiatives normally rely for their success at least in part on the national technology infrastructure, in terms of information and communications technology services and the ICT skills among officials, infomediaries and the general public.

EVIDENCE AND COMMENTS ON KEY QUESTIONS:

QUESTION
8.1

WHAT IS THE LOCAL ICT ECOSYSTEM? WHICH TECHNOLOGIES REACH WHAT PROPORTION OF CITIZENS?

RELATIVE IMPORTANCE:
HIGH

0

International technological development indexes indicate that Paraguay is far behind the countries with the highest development and readiness figures, although it is showing a growing trend.

	2015	2016	TREND
ITU - ICT DEVELOPMENT INDEX[140]	**112** OUT OF **167 (3.79)** REGIONAL POSITION: **27**	**109** OUT OF **175 (4.08)** REGIONAL POSITION: **26**	↑
NETWORKED READINESS INDEX DE WEF[141]	**105** OUT OF **143 (3.4)** MEDIAN = **2.99**	**105** OUT OF **139 (3.4)** MEDIAN = **4.83**	↔

-

The regular use of Internet amongst Paraguayans is still limited and is mainly concentrated in the urban area of Asunción and the Central Department; its use is uneven depending on the means used to access it –landline or mobile phone - and it is mainly used for social media and instant messaging.

+

The 2015 EPH[142] conducted by the DGEEC shows that as a country, the population over age 10 that used the internet in the survey's reference period is 48.44%. The internet penetration trend has steadily increased in the last 5 years:

	2010	2011	2012	2013	2014	2015
POPULATION (%)	19,80	24,80	29,30	36,90	43,00	48,40

140 - IDI 2016: http://www.itu.int/net4/ITU-D/idi/2016/#idi2016rank-tab
141 - NRI 2016: http://reports.weforum.org/global-information-technology-report-2016/economies/#economy=PRY
142 - DGEEC Permanent Household Survey (EPH) 2015: http://www.dgeec.gov.py/Publicaciones/Biblioteca/eph-2015/PRINCIPALES%20RESULTADOS%20EPH%202015.pdf

0	According to the World Bank[143], despite the steady growth in the number of people accessing the internet, there are significant limitations getting in the way of its growth: lack of connectivity in rural areas, high price of the service and insufficient infrastructure of the access network. Nevertheless, the arrival of smartphones to the market, and with them, the revolution of social media, were pivotal to the internet's ascent.
-	Even though there is at least one mobile phone in 95% of the households, less than one fourth has internet access, which evidences the poor infrastructure of the access network using fixed data networks. Furthermore, the limited presence of tablets and similar is significant.
	The 2015 EPH (acronym in Spanish for Permanent Household Survey) results showed the following results for the indicator "households per area of residence, according to type of durable goods possessed (%)":

		AREA OF RESIDENCE	
TYPE OF DURABLE GOOD	TOTAL COUNTRY	URBAN	RURAL
Total	1.799.936	1.086.839	713.097
Television	92,7	96,64	86,7
Landline	17,35	27,11	2,48
Mobile phone	94,74	96,61	91,89
Computer/notebook	28,2	38,94	11,83
Tablet or similar device	5,59	8,49	No data
Internet access	22,71	31,86	8,76

Source: (EPH) Permanent Household Survey 2015 (DGEEC)

+	According to the FAO the use of smartphones is practically widespread.[144] It is in fact another work tools for many professions. Most landlines are installed in urban areas, while mobile phones are more widely used in rural areas.
-	In addition, the EPH indicates that the reasons for the more frequent use of the internet with the lowest impact on the population are those relating to banking transactions, government institutions' services, healthcare and healthcare services, and purchasing and/or selling products or services. On the other hand, most people use internet for social media and instant messaging.

143 - Internet Access in Paraguay doubled in five years thanks to smartphones: http://www.americaeconomia.com/negocios-industrias/acceso-internet-en-paraguay-se-duplico-en-5-anos-con-los-telefonos-inteligentes
144 - Use of smartphones, according to FAO: http://www.fao.org/docrep/017/ap738s/ap738s.pdf

0

The 2015 EPH indicator "Population 10 and older using the internet by gender and by most frequent use of the service (%)" showed the following:

REASON FOR USING INTERNET SERVICE	TOTAL	GENDER	
		MEN	WOMEN
Total country	2.745.934	1.327.879	1.418.055
Social Media	89,99	89,91	90,07
Email	46,85	46,84	46,87
Instant messaging	93,72	93,79	93,64
Instant communications	31,78	32,01	31,56
Products and services	13,21	13,56	12,88
Healthcare and healthcare services	8,4	6,9	9,8
Government institutions' services	7,94	7,57	8,28
Purchasing and/or selling products or services	8,85	9,65	8,1
Banking transactions	5,36	5,8	4,96
Education or training	26,93	23,68	29,97
Reading or downloading newspapers, magazines	34,64	35,91	33,46
Using / downloading games, videos, movies	45,01	48,18	42,04

Source: Permanent Household Survey (EPH) 2015 (DGEEC)

-

Although the use of debit cards for payment has increased[145], electronic payment is barely used in 3% of all transactions. According to Bancard, only 8.8% of the economically active population in Paraguay uses a card to make payments.[146] This largely affects digital businesses.

+

However, in March 2017 the BCP approved the Rules for Electronic Payment Means, which define the requirements for entities providing non-banking transfer and electronic money services through telecommunication services.

-

The digital divide between the capital and the rest of the country is noticeable. According to the perception of the interviewees, this is due to three principal factors:

- Poor coverage and high cost of connectivity.
- People are not trained.
- The language, since most of the population only speaks Guaraní.

+

CONATEL, in coordination with SENATICs, is preparing the execution of the 2016-2020National Broadband Plan. One of the plan's main goals is to bolster ICT education and training among youngsters with a view to generating greater opportunities for getting a first job and develop their talent. The Universal Service Fund has subsidized the connectivity of 123 teaching centers and institutions depending on the MEC, in 28 municipalities throughout the country, as a consequence of the actions to mitigate the digital divide.[147]

145 - www.lanacion.com.py/2016/10/22/aumenta-pago-tarjeta-debito-paraguay/
146 - www.ultimahora.com/paraguay-sigue-ultimo-el-uso-tarjetas-pagos-n1068387.html
147 - Statement of the President of CONATEL on the digital divide: http://itu150.org/story/august-es/

0	As for the use of tools for surfing the internet, the data for April 2017 found by StatCounter[148], a web analytics firm, the most used browser in the region of South America is Chrome (77.29%), followed by Firefox (6.12%). In Paraguay, the use of Chrome is 71.78%, followed by Android, with 6.68%, then Samsung Internet with 6.31% and Firefox with 4.62%, which is indisputable evidence of the use of mobile internet in the country.
+	According to the study conducted by the Institute for the Integration of Latin America (INTAL, for its acronym in Spanish), dependent on the IADB, for the journal El País[149] in December 2016, Paraguay spearheads the ranking as the Latin-American country in which social media is used the most. The number of users per total social media population reaches 83%. Trailing Paraguay are Costa Rica (78%), Uruguay (74%), Mexico (73%), Chile (69%), Colombia (68%), and Brazil (63%).
0	According to that same report, the most used tools are Facebook and Whatsapp, with over a 50% penetration among the population. YouTube is used by 3 out of 10 Latin-Americans, followed by Instagram (14%), Twitter (13%) and Snapchat (5%). 35% of Latin-Americans does not use any social media.
0	According to Latamclick[150], the social media statistics in Paraguay for 2016 were as follows: • Facebook has 2.7 million users in Paraguay, 52% of which are men and 48% are women. The age interval with the highest user penetration is 18 to 24 years of age. 85% access them through their mobile device. 91% use the Android OS, while 4% uses iOS. The most common language is Spanish, followed by Guaraní and Portuguese. The subjects that most interest the users are: technology, entertainment and sports; • As for Instagram, which has a user penetration level lower than that of Facebook, currently has 620 thousand users in Paraguay, most of which (56%) are women. The age interval with the highest user penetration is 18 to 24 (42%) years of age. Concerning Linkedin, there are 200 thousand active users in Paraguay. Regarding Twitter, even though the Twitter platform does not have a figure representing user penetration in Paraguay, according to official data the number of users would be around 400 thousand.

QUESTION
8.2

WHAT IS THE LEVEL AND COST OF INTERNET ACCESS, BOTH BY BROADBAND AND BY MOBILE TECHNOLOGIES?

RELATIVE IMPORTANCE:
HIGH

148 - StatCounter browser use statistics: http://gs.statcounter.com/browser-market-share/all/paraguay/#monthly-201604-201704
149 - Study conducted by INTAL on the use of social media in LA: http://internacional.elpais.com/internacional/2016/12/30/actualidad/1483055106_448456.html
150 - Statistics on the use of social media: https://www.latamclick.com/estadisticas-redes-sociales-2016-paraguay/

<table>
<tr><td>0</td><td>The Broadband Development Index (IDBA, for its acronym in Spanish)[151] published by the IADB shows that Paraguay is below the average:

<table><tr><th>2012</th><th>2015</th><th>2016</th><th>TREND</th></tr><tr><td>3,77/8</td><td>3,78/8</td><td>3,84/8</td><td>↑</td></tr></table>
The value 1 means lower development and 8 means greater development. All 26 LAC achieved an overall 4.37.</td></tr>
<tr><td>-</td><td>The cost of internet access in Paraguay through broadband (fixed and mobile) is one of the highest in the region. This is due mainly to the elevated cost of international access to internet connection.</td></tr>
<tr><td>0</td><td>Paraguay’s geography continues to be a significant stumbling block for high-speed, low-cost internet. And since the country does not have any coasts, it relies on access to the submarine fiber optics cables of neighboring countries.</td></tr>
<tr><td>-</td><td>As for the speed of the data loading and downloading connection, it is lower than the region’s average.</td></tr>
<tr><td>-</td><td>The penetration of access of high-speed mobile internet (4G) is the lowest of all modalities available.</td></tr>
<tr><td>0</td><td>The 2016-2020 National Broadband Plan includes an analysis of the country’s covered areas. Even though the plan does not provide specific figures relating to the level of total coverage of internet access in the country, it does include information on the most densely populated areas, location of industrial areas and location of government institutions –educational, health and administrative – which are the target of full zonal coverage. It also provides details on the plans to extend existing coverage through the plan.</td></tr>
<tr><td>0</td><td>According to the telecommunications development indicator matrix published by CONATEL, mobile internet access for December 2015 was distributed as follows:[152]

<table><tr><th>MODALITY</th><th>SUBSCRIBERS</th></tr><tr><td>ACCESS THROUGH MODEM WITH USB CONNECTIONS</td><td>205.610</td></tr><tr><td>ACCESS THROUGH SMARTPHONES AND TABLETS (4G)</td><td>5.836</td></tr><tr><td>ACCESS THROUGH SMARTPHONES AND TABLETS (3G)</td><td>2.815.317</td></tr><tr><td>ACCESS THROUGH SMARTPHONES AND TABLETS (GPRS)</td><td>491.276</td></tr></table>
Source: CONATEL (December 2015)</td></tr>
<tr><td>-</td><td>The use of fixed, high-speed internet (greater than 10 Mbps) is the lowest option available.</td></tr>
</table>

151 - Broadband Development Index: https://www.senatics.gov.py/observatorio/indicadores/idba
152 - CONATEL 2015 telecommunications development indicator matrix: https://www.conatel.gov.py/index.php/89-

0

The data provided by CONATEL on the use of fixed internet in December 2015, showed the following results:[153]

MODALITY	SUBSCRIBERS
UNDER 512 KBPS (NOT CONSIDERED BROADBAND)	6.347
FROM 0,512 TO 2 MBPS	109.421
FROM 2 TO 10 MBPS	98.292
OVER 10 MBPS	1.156
TOTAL	215.216

Source: CONATEL (December 2015)

0

As for the place where internet is accessed, most access takes place from mobile phones, while access from work or home trails far behind.

0

The 2015 EPH data for the indicator "Population over age 10 using the internet by gender and by place of access (%)", showed the following results:

		GENDER	
PLACE OF ACCESS	TOTAL	MEN	WOMEN
Total country	2.745.934	1.327.879	1.418.055
Home	32,68	31,77	33,53
Work	19,37	20,95	17,9
Schools	13,39	11,91	14,77
Another person's house	6,78	6,77	6,8
Commercial facilities (CYBER)	5,39	5,26	5,52
Local community access	4,4	4,62	4,2
Mobile - phone	93,9	94,3	93,53
Mobile - other devices	7,38	7,68	7,1

Source: Permanent Household Survey (EPH) 2015 (DGEEC)

+

SENATICs has placed a "free Internet" Wi-Fi connection service at the disposal of citizens in 35 public spaces in the metropolitan area of Gran Asunción.

+

In 2007, CONATEL opened up the international internet land connection and nowadays internet access in Paraguay is provided by several private companies and the state-owned COPACO.[153] There are also four mobile telephone services providers: Tigo, Claro, Vox and Personal.

+

The main technologies providing internet access are the following: ADSL, Modem Cable, Fiber optics, 3G, 4G, WiMAX, Wireless and Satellite. In total there were 422 thousand subscribers to December 2015.

153 - Telecommunications market indicators: https://www.conatel.gov.py/index.php/89-informaciones-generales/indicadores/6-plan-nacional-de-telecomunicaciones-pnt

+	The following technologies are the most largely used: 3G (200 thousand subscribers), Modem Cable (98 thousand subscribers), ADSL (65 thousand subscribers) and Wimax (28 thousand subscribers).
+	The number of mobile telephone lines exceeds the country's total population. According to the last study published by ITU, in 2015 Paraguay had more mobile telephone lines per inhabitant than Colombia, Chile and the U.S. According to the ITU, in 2015, 5.46% had a landline subscription and 105.49% had a mobile subscription (more than the number of inhabitants).[154]
+	According to the ECLAC 2015 report on Broadband Status in Latin America and the Caribbean[155], Paraguay has experienced one of the greatest leaps in the evolution of the service accessibility indicator[156] among the countries of the region, with an average decrease of 15 percentage points between 2010 and 2014.
-	Said report states that in 2014 Paraguay had the second lowest fixed broadband rate accessibility indicator in the region at 4.84%, trailing Bolivia, where access still implicated 20% of the income.
-	As for mobile broadband (post-paid), the ECLAC report shows that the rate is approximately 6% of the GDP, surpassing the accessibility threshold (5%) set by the International Broadband Commission.
+	CONATEL expects an impact[157] in the reduction of internet service rates of up to 80 per cent for users nationwide by 2020, according to 2016-2020 the National Telecommunications Plan (PNT).
+	Similarly, greater coverage of telephone services and incentives to terminal devices have been planned. The goal is that by 2020 the households with an internet connection will go from the current rate of 30% to 60%.

QUESTION
8.3

HOW READILY AVAILABLE IS COMPUTER AND CLOUD STORING INFRASTRUCTURE?

RELATIVE IMPORTANCE:
MEDIUM HIGH

+	The UN's E–Government Development Index (EGDI)[158] indicates that Paraguay has improved significantly after many consecutive years of a downward trend:

2008	2010	2012	2014	2016	TREND
88/193	101/193	104/193	122/193	95/193	↑

154 - http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx
155 - Broadband status in Latin America and the Caribbean 2015 by ECLAC: http://repositorio.cepal.org/bitstream/handle/11362/38605/S1500568_es.pdf
156 - Fixed broadband service accessibility is measured by the average Price offered for 1Mbps and the mobile broadband by the average Price offered in a mobile internet post-payment plan, both of them expressed as percentages of the GDP per capita. This indicator is an approximation to the proportion of the income that must be allocated for the broadband service; the smaller the proportion, the greater the accessibility.
157 - National Telecommunications Plan (CONATEL): https://www.conatel.gov.py/index.php/articulo-destacado?id=14
158 - E–Government Development Index: https://www.senatics.gov.py/observatorio/indicadores/egdi

+	SENATICs has placed a cloud-based service infrastructure solution at the disposal of the Public Institutions of the State of Paraguay.
+	The service catalogue is abundant and includes multiple elements of the public and private cloud, among them: hosting, data center, virtual machines, private servers and backups.
+	According to the 2016 SENATICs management report, 21 public institutions manage their own online data center on Nube PY; 77 have hosted their websites there and 39 use it to host their institutional email.
+	According to SENATICs 2017 POI, it has planned to provide infrastructure (IAAS) and platform (PAAS) as cloud-based services to 25 new OEEs this year.
+	150 cloud-based hosting are also planned (website and email hosting).
+	Technical support and oversight will be provided to the OEEs using the cloud-based infrastructure and services platform. 30 services have been planned.
+	The acquisition and operation of a cloud-based digital web platform has also been planned.
+	CONATEL 2016-2020 National Telecommunications Plan includes the analysis of the growth of the Cloud Computing market around the world. Said analysis estimates the size of the Paraguayan market in 2016 at a volume of USD 16 million.
+	The same report indicates that the market for the construction of Data Centers in Latin America is expected to grow at a 9.6% rate per year for the upcoming years. The main drivers of the data centers are: greater volume of data generated by companies and individuals, Cloud Computing, Internet Traffic and Big Data Analysis.
0	Due to the cost of access to international data networks, the private service offer on the cloud is restricted. Large multinational companies such as Microsoft (Azure), Amazon (Elastic Compute Cloud), IBM (Cloud Computing), Oracle and NexsysCloud, which mainly operate in the region, are concentrating on their cloud-based service offers.
+	As for telecommunications operators, TIGO stands out for its latest investments in this type of solutions.
+	According the General Manager of Microsoft, Sandra Balbuena “Paraguayan companies are rapidly catching on to digital transformation and are migrating their business processes to the cloud”.[159]

159 - Sandra Balbuena, Manager of Microsoft in Paraguay on the advance of Cloud Computing: http://innova.news/senalan-que-cuarta-revolucion-industrial-ya-esta-en-marcha/

QUESTION
8.4

HOW STRONG ARE THE IT INDUSTRY, DEVELOPER COMMUNITY AND OVERALL DIGITAL LITERACY?

RELATIVE IMPORTANCE:
HIGH

-

The international index that measures the ease with which businesses are created shows a descending trend in the last year:

	2015	2016	TREND
DOING BUSINESS[160] WORLD BANK	102 OUT OF 189	106 OUT OF 190	↓

The Global Innovation Index (GII) analyzed by the World Intellectual Property Organization (WIPO) shows how Paraguay's position has been gradually slipping in recent years:

	2014	2015	2016
GLOBAL INNOVATION INDEX (GII) [161]	89/143	88/141	↓

0 SENATICs publishes an ICT Observatory resulting from the annual survey to companies in the ICT sector conducted by the Ibero-American Federation of Information and Communication Technology Entities (ALETI, for its acronym in Spanish).[162] This survey contains the outcome of 2014 and a few forecasts for 2015 on third-party service providers. The following are the most relevant results.

0 The ICT sector is small, concentrated in the nation's capital, whose market is mainly found in the metropolitan region; poor exporting capacity with growth expectations; its main activities consist of providing ICT services.

0 A directory of companies from this sector was made in 2013 in order to become acquainted with the nationwide offer of ICT products and services. 316 companies were registered.

0 Approximately 90% of ICT companies are located in Asunción (73%) and in the Central Department (19%).

0 71% of activities focus on the provision of ICT services implicating the use of people (software development, technical service, call centers, consultancy services, among others) or infrastructure (equipment rental, image or voice communication services, hosting, physical installation of equipment, wiring, internet provision, among others).

0 19% of activities are linked to ICT trade (wholesale and retail imports and sale) of hardware, software and consumables.

0 Only 10% of the companies carry out their activity in the area of development of software packages for applications, games and hardware.

160 - Doing Business 2017: http://espanol.doingbusiness.org/data/exploreeconomies/paraguay
161 - Global Innovation Index (GII): https://www.senatics.gov.py/observatorio/indicadores/gii
162 - ICT Observatory: https://www.senatics.gov.py/publicaciones

0	The Government only represents 7.3% of the ICT sector's invoices.
0	The rate of outsourcing of technological services at the public institution level has not been identified.
+	Expected billing compared to previous years is positive, for 22% of the companies expect to see a 10% to 25% growth rate.
0	In 2014, billing forecasts showed that for 19.5% of the companies, expected billing was up to USD 180 thousand; while 18.2% of the companies were in the 180 thousand to 600 thousand-dollar range; the same percentage of companies (18.2%) reported billings for USD 600 thousand to 1.8 million.
0	As for the qualifications of the professionals of the ICT sector, in addition to those who are employed and have completed university studies or professional certificates, 26% of the companies have 1 or 2 professionals in graduate studies and 23.4% hires 3 or 4 professionals with these characteristics.
0	In addition, corporate mobility is high, since 1 in 3 companies (33.8%) reported at the time of the survey that one or two professionals had resigned in the last year of reference. 62.3% of the companies hired professionals in the last twelve months.
0	From the perspective of the base technology for the development of products or services, the most used operating system is Microsoft (27.1%), followed by Linux (20.3%) and mobile phone, smartphone or tablet systems (11%).
0	Database management systems that support products and services offered by the companies are mostly free software (i.e., mySQL, PostgreSQL) with 26.8%, followed by SQL Server (19.7%).
0	The most commonly used programming languages supporting products and services offered by the companies are those focused on web development (26.8%), followed by programming languages for client-server environments (19.7%).
-	Only 6.5% of the companies has some type of certification. In particular, from among the certified companies, four of them have been ISO 900X certified, one has a level 2 or 3 CMMi certification and one has a Microsoft certification.
+	As for research subjects for the development of innovating products or services, the subject "Information systems: Data management systems" ranked third in preference from among the 18 originally proposed.
+	Similarly, companies of the ICT sector state that they do have the capacity or potential to develop innovations (even if they are not using it at the time of the survey) on the subject "Information systems: Data management systems" ranked second in preference from among the 18 originally proposed.

-	23.4% of the companies do not invest in R+D+I (Research + Development + Innovation). On the other hand, 6.5% of the companies invest over 15% compared to expected sales.
0	The Software Industry Chamber (CISOFT, for its acronym in Spanish)[164] of Paraguay, represents the technological sector of the country. The list of members of the entity is made up of 31 companies.
0	The Paraguayan Chamber of E-Commerce (CAPACE, for its acronym in Spanish)[165] gathers user and enterprising companies of the e-commerce sector.
0	INCUPAR[166] brings together 20 institutions, including universities, technological parks and business incubators.
0	Koga Impact Lab[167] has assisted over 300 entrepreneurs and recently subscribed an agreement with the Multilateral Investment Fund (FOMIN, for its acronym in Spanish) to strengthen the promotion and consolidation of impacting enterprises that represent social innovation in Paraguay.
+	There are also informal developer communities (refer to dimension 6 herein), such as the groups created via social media and by their affinity to certain subjects. They operate as informal communities without legal personality or a formal organizational structure.
0	Paraguay's 2013-2018 digital agenda is the action plan that the National Government has decided to implement through its different institutions to improve access to and use of ICTs.[168] The plan has defined three main pillars: e-government, ownership and use, innovation and competitiveness.
+	The innovation and competitiveness pillar has defined the government's goals for boosting the technological sector. It is articulated through five master plans: • Encouraging entrepreneurs • Local content • E-commerce • Digital signature • ICT innovation and development • ICT observatory • Technological development and innovation hub
-	The detailed plans of the digital agenda do not have an accompanying financial report that will allow determining the expected impact of this public policy.
0	No studies providing details on the level of qualification and the ongoing training needs of the technological sector have been identified.

163 - CISOFT: http://www.cisoft.org.py/
164 - CAPACE: http://www.capace.org.py/
165 - INCUPAR: http://www.incupar.org.py/
166 - Koga Impact Lab: https://projeqt.com/kogapy
167 - 2013-2018 Digital Agenda: http://www.senatics.gov.py/application/files/7214/6308/0182/Senatics_correccion_4.pdf

Ratings and conclusions

	ITEMS	IMPORTANCE	ASSESSMENT	COMMENT
8.1	ICT ecosystem	HIGH	Yellow	The internet penetration index shows significant progress, especially considering the use of mobile devices. The poor use of Government institutions' services, healthcare services, the purchase and sale of products or services and banking transactions is significant.
8.2	Internet access levels and costs	HIGH	Yellow	Internet access and its associated cost is lagging behind due to the interconnection difficulties of the country to international networks, although quality improvements and cost reductions are expected in the medium term with the 2016-2020 PNT. The prevailing means of access is the mobile network, mainly 3G.
8.3	Shared services and infrastructure	MEDIUM HIGH	Green	The virtualization of technological services in the cloud is an opportunity that SENATIcs is exploiting to place them at the disposal of the OEEs. Growth in the market share of the local private sector is expected, even if the large multinational companies are currently holding the largest share.
8.4	IT sector strengths	HIGH	Yellow	The ICT sector is small, extremely concentrated territorially in the capital and with expected growth. Billings to the public sector are still low. The interest of companies in technologies relating to Data Management Systems is highlighted.
	OVERALL	HIGH	Yellow	**The country's technological development is growing, mobile internet access penetration is significant and the public sector is implementing structures that try to take advantage of economies of scale. The digital divide among territories is noticeable and the Government is promoting measures to reduce its impact. The ICT sector and the developer community are both good allies in the promotion of the initiative.**

RECOMMENDATIONS

❖	Advancements in internet use penetration indexes among the population must be accompanied by uses that respond to the people's vital needs, but the people deem unattractive the Government institutions' services offer due to their limited use. We recommend improving the production of applications linked to public services, taking care of aspects such as the usability of applications, the use of designs adapted to the diversity of users and the promotion of the offer.
❖	Furthermore, and considering the deployment of the existing mobile network, we recommend focusing the production of applications on the smartphone sector, taking into account that the use of the 3G band prevails. This circumstance entails the efficient content management to guarantee an acceptable user experience considering the limitations of the available broadband. Likewise, we also recommend adapting the technical specifications of the applications as the use of the 4G band becomes widespread.
❖	The use of the Nube PY infrastructure for the deployment Open Data sectoral catalogues is recommended. Likewise, it is important to exploit this technology to experiment and advance in the availability of Linked Open Government Data. In this context it is important to work on datasets with referenced taxonomy, as is the case with the legislative documents and the experience[168] of the National Library of Congress of Chile.
❖	The interest of the private sector in the "Information systems: Data management systems" subject chosen as the preferred subject for the development of innovations in the ICT sector, is an opportunity to formalize cooperation processes. We recommend involving the private sector in the definition and execution of the data opening sectoral plans.

168 - Chilean BCN linked data: http://datos.bcn.cl/es

ANNEX

1

Availability of priority datasets

This Attachment provides details on the situation of a set of datasets considered priorities in terms of feasibility for their publication as Open Data.

The proposed relationship between datasets stems from the accumulated experience of the World Bank in the analysis of international practices and trends and the making of ODRA diagnoses, combined with other proposed initiatives such as the Open Data Barometer[169], the Open Data Index[170] and the International Open Data Charter[171].

These datasets are considered priorities because of the value they provide to the fundamental objectives of Open Data policies, such as economic development, improved public services, increased transparency and open government.

The following datasets were taken into account for this analysis and the results of their situation regarding Open Data:

169 - Open Data Barometer: http://opendatabarometer.org/doc/3rdEdition/ODB- 3rdEdition-Methodology.pdf
170 - Open Data Index of OKFN: http://index.okfn.org/methodology/
171 - Open Data Charter. Key datasets (G8). https://www.gov.uk/government/publications/open-data-charter/g8-open-data- charter-and-technical-annex

The following datasets were taken into account for this analysis and the results of their situation regarding open data:

Public budget	QW
Public expenditures	PA
Official statistics	PA
Censuses, civil registry and electoral information	PA
Data of the legislative branch, including minutes, draft legislation and voting records	QW
Tenders, contracting and public procurement	QW
Location of public assets	LP
Assessment of public policies/services and their results	PA
Data on mobility, roads, public transport, etc.	PA
Citizen security (geopositioning data)	PA
Reports on sanitary inspections and sanctions	PA
Official records: of companies, associations, cadaster, etc.	PA
Geospatial data: maps, addresses, points of interest	PA
Meteorological data	PA
Datos de urbanismo (catastro, calificación del suelo, …)	PA
Vivienda (vivienda social, propiedad inmobiliaria, ventas, impuestos, …)	QW
Monitoreo MEDIUMambiental (niveles de contaminación, calidad del aire, agua,...)	PA

QW: Quick Win	**PA:** High priority	**LP:** Long term

The methodology used for this study is based on information gathered from interviews during the fieldwork phase and research on contents published by entities on their Web portals. This research took place from 22/05/17 to 09/06/17.

For each dataset, evidence is given about its availability; however, there may be more instances of similar datasets at other data origins different from those analyzed. The main usefulness of this document is to guide a process of dataset identification in greater depth.

In this study, a file is generated for each dataset in which the following characteristics of the information are described:

- **FEASIBILITY OF OPENNESS:** institutional. Based on the mission of the entity and the known evidence, the advisability of opening data is inferred from the perspective of political relevance, whether because there is a positive attitude towards opening data or because there are already downloadable published data.
- **FEASIBILITY OF OPENNESS:** technical. The physical location where the data are published on web sites and format is referenced, and the situation of data source that gives rise to the dataset that is published is analyzed based on the available information: Information systems, web application or evidence of interoperability with other entities.
- **BENEFITS OF OPENNESS.** It is justified because these datasets add value to the Open Data policy, in terms of their possibilities for reuse or how they are being dealt with in other initiatives.
- **RECOMMENDATIONS.** In this section, a series of actions directly related to the available datasets are compiled. In many cases, the incorporation of such sets into the Open Data portal is immediate, while in others, an information process must be implemented to enable publication.
- **RATING:** Quick Win (QW), High Priority (PA)/ Long-Term (LP). These categories are a synthetic indicator of the feasibility of publication of the identified datasets. The Quick Win label is used to classify those sets that are in structured formats, available for downloading at a corporate portal and can therefore be linked from the Open Data portal. High Priority refers to data sets that require intervention prior to publication as Open Data but whose facility of transformation is possible in the short term. Datasets classified as Long-Term are not available to be opened whether due to major deficiencies in the data sources or to institutional barriers for the opening.

It is important to take into account that this classification is determined based on evidence derived from this research process and the affirmations obtained by the interlocutors during the interview phase; this valuation must therefore be used cautiously because a deeper approach must be made to the entity to determine the true status of each dataset.

- Current contribution to the government portfolio or Open Data sector portal. Indicates whether the entity contributes such datasets to the current Open Data government portal or to similar datasets currently being published by entities. This situation changes constantly due to permanent updating of the data portal, which means that the information described in this section may not be totally precise.

In the following sections, the situation files for each priority dataset is detailed.

DATASET	PUBLIC BUDGET	
RESPONSIBLE INSTITUTION		Ministry of Finance OEEs
OPENING FEASIBILITY	INSTITUTIONAL	Article 8 of Law 5282/14, which details active transparency, requires that all OEEs publish their institutional operation programs, including their budgets. The OEEs publish the quarterly progress of their budget's execution on active transparency portals. The Ministry of Finance consolidates the global budget with the SPIR system from which information pertaining to public budgets and expenditures is extracted, and publishes it as Open Data.
	TECHNICAL	There is an Open Data portal of the Ministry of Finance, which publishes detailed data by OEE that can be downloaded in CSV format. These data come from the SPIR system developed on an Oracle 10 database. The data on the quarterly progress of the budget execution published in the OEE transparency websites is usually available in PDF format.
BENEFITS OF THE OPENING		There are many examples of publication and visualization of budget planning in different Open Data international initiatives. This type of data allows the people to understand which activities are being allocated with public resources and how the execution of public policies evolves. During the latest edition of the International Open Data Conference IODC 16, data and budgets was a central issue, which was given a specific slot.[172]
RECOMMENDATIONS		• Extend the availability of open formats. • Study the use of the XBRL format to publish economic and financial information. • Publish the data of the OEEs' institutional operational programs, including the allocated budgets and the quarterly progress results using open formats. **QUICK WIN**
DATASET PUBLICATION		• The Ministry of Finance contributes 10 datasets to the government catalogue.[173] • The Ministry of Finance publishes the same datasets on its own portal, including the nation's general expenditures budget (2011 – 2017).[174]

172 - Data and budgets at the IODC 2016: https://internationalopendataconfer2016.sched.com/event/7P0A/data-budget
173 - Data of the Ministry of Finance: https://www.datos.gov.py/organization/ministerio-de-hacienda-mh
174 - Open Data Portal of the Ministry of Finance: https://datos.hacienda.gov.py/

DATASET	PUBLIC EXPENDITURES	
RESPONSIBLE INSTITUTION		Ministry of Finance
OPENING FEASIBILITY	INSTITUTIONAL	There is great availability and proactivity in the publication of data of the Ministry of Finance, due to its cross-cutting range and degree of institutional modernization. There are many websites containing data on public expenditures: • Open Data portal of the Ministry of Finance • Financial report portal. It is possible to access updated data on public revenues and expenditures: revenues, expenses by economic groups, purpose of the expense, social expenditure, budget execution, financial and production goals' progress, goods and services goals by program, human resources, pensioners, wire transfers to Municipal and Departmental Governments, etc. Data from 2014 and 2017. • BOOST database. Includes Expenses-Central Administration and Decentralized Entities and Municipalities.
	TECHNICAL	There is potential for the publication of data exceeding that which is currently taking place, because the implementation of Business Intelligence tools enables the significant disaggregation of information. The financial report portal uses the tool Oracle BI and enables the publication of data in the following formats: CSV, TSV, XML, XLS, PPT, PDF.[175] The BOOST database contains data from 2002 to 2015, which may be downloaded in CSV format.[176] The Project bank of the National System of Public Investments (SNIP, for its acronym in Spanish), gives access to annual and historical budget execution data, but downloading the data is not permitted.[177] Georeferenced data from the Treasury System (SITE, for its acronym in Spanish) related to the wire transfers to Departmental and Municipal Governments is also published, but cannot be downloaded.[178]
BENEFITS OF THE OPENING		The information relating to public expenditures is key to transparency and accountability. The use of a single source of data allows enhancing the efficiency in the publication of expenditure reports.
RECOMMENDATIONS		• Link the BI tool of SPIR to the Open Data catalogue. • Enable the download of geolocated data for transfers originating from SITE. • Review BOOST data updates, adding data from 2016 and 2017 and include this database in the Open Data catalogue. • Allow the download of SNIP data. • Publish data still not published, on the Open Data portal of the Ministry of Finance. **HIGH PRIORITY**
DATASET PUBLICATION		• The Ministry of Finance contributes 10 datasets to the government catalogue.[179]

175 - Financial report portals SPIR: http://www.hacienda.gov.py/portalspir/
176 - BOOST Paraguay database: http://isdatabank.info/boost_paraguay/
177 - SNIP Project bank: http://bancosnip.hacienda.gov.py/Snip_Web/portal/portalBancoProyecto.jsf
178 - SITE georeferenced data: http://www.hacienda.gov.py/portalspir/mapas.jsp
179 - Ministry of Finance data: https://www.datos.gov.py/organization/ministerio-de-hacienda-mh

DATASET	OFFICIAL STATISTICS	
RESPONSIBLE INSTITUTION		DGEEC
OPENING FEASIBILITY	INSTITUTIONAL	The availability of an Open Data portal has been planned for the first semester of 2017. It will include in open format, among other data, the historical results of the Permanent Household Survey (EPH). Statistics publishes the statistical annual directory (2014) with all the statistical information about all the entities (70 institutions) that prepare official statistics. The DGEEC performed a diagnosis (unpublished) on the statistical reporting capacity of the country's institutions.
	TECHNICAL	The technical capacity to contribute Open Data to the initiative exists. The usual publication format used is PDF (content structured in tables), which may be published as Open Data. The most recent statistics are published in XLS formats. Microdata is published in SPSS SAV format.
BENEFITS OF THE OPENING		Statistical information is a great enabler of the reuse and a fundamental source of information for all OEEs. Economic and social return is possible by making all the data available without access restrictions (user registration or payment for the provision of raw data).
RECOMMENDATIONS		• As long as an Open Data portal does not exist: » Include a section of terms and conditions of use of the portal's contents. » Combine the availability of data in SPSS formats with other open formats. • Exploit the technical knowledge on data treatment and anonymization of personal data to formulate the training offer to the OEEs. • Get to know the statistical capacity diagnosis to estimate the feasibility of incorporating statistical data to the government catalogue. **PRIORIDAD HIGH**
DATASET PUBLICATION		• DGEEC publishes 13 datasets[180] in the government catalogue.

180 - https://www.datos.gov.py/organization/direccion-general-de-estadisticas-encuestas-y-censos-dgeec

DATASET	CENSUSES, CIVIL REGISTRY AND ELECTORAL INFORMATION	
RESPONSIBLE INSTITUTION		DGEEC Civil Registry (dependent on the Ministry of Justice) Superior Court for Electoral Justice
OPENING FEASIBILITY	INSTITUTIONAL	The DGEEC conducts the population and housing census. The 2002 census is still in force, since the last one conducted in 2012 is invalid. The civil registry is undergoing its information digitization process and modernizing its information systems. A single record for persons' project is underway. It has planned to open an Open Data section (mid-2018). The institution must improve its interoperability aspects to meet the internal demand for data of the OEEs. Voting data is published on the different websites of the electoral process, along with data visualization.
	TECHNICAL	DGEEC publishes a series of datasets with georeferenced information linked to census data (2002 and 2012) using the CARTO platform.[181] This data may be downloaded in CSV, SHP, KML, SVG, GeoJSON formats, in addition to being accessible through the API provided by the platform. The civil registry could publish statistical data, but it is not currently being published. Registry offices are georeferenced.[182] Voting results are published in XLS and PDF format.[183]
BENEFITS OF THE OPENING		The data from the population census is permanently demanded, among others, by demoscope and market analysis firms. For example, these data are relevant to companies of the reuser sector, such as TOPA or DATO. Civil registry data is highly demanded for inter-institutional information exchanges, i.e., the SAS requires this important data for the development of social policies. Opening the data pertaining to voting results not only enhances the transparency of the processes, but also facilitates the development of applications that provide voting information in real time during elections. During the latest edition of the International Open Data Conference IODC 16, voting data was a central issue, which was given a specific slot.[184]
RECOMMENDATIONS		• Publish statistical data on the civil registry in open format. • Publish the civil registry offices as Open Data. • Update the data on the general elections of 2015 in the government catalogue.
		PRIORIDAD HIGH
DATASET PUBLICATION		• The TSJE publishes 8 datasets[185] in the government catalogue. • The Civil Registry does not publish any Open Data in the government catalogue.

181 - http://geo.stp.gov.py/user/dgeec/datasets
182 - Registry Offices: http://registrocivil.gov.py/oficinas/
183 - Voting results: https://tsje.gov.py/resultados-2015.html
184 - Data and elections in IODC 2016: https://internationalopendataconfer2016.sched.com/event/7PUg/data-elections
185 - https://www.datos.gov.py/organization/tribunal-superior-de-justicia-electoral

DATASET	PARLIAMENTARY ACTIVITY (LEGISLATION, MINUTES, VOTING, ...)	
RESPONSIBLE INSTITUTION		Legislative Branch: House of Representatives and Senators Supreme Court of Justice (CSJ, for its acronym in Spanish) National Congress
OPENING FEASIBILITY	INSTITUTIONAL	The CSJ publishes the legislative basis[186] made up of laws and decrees governing the enforcement of the laws from year 1.869 to date. The National Congress publishes parliamentary activity based on the Legislative Information System (SIL, for its acronym in Spanish) in Open Data format, along with several visualizations.
	TECHNICAL	The Legislative Information System SILPY is capable of exporting Open Data in XML format through an API.[187] The App: Legislación PY was developed based on this data. The web consultation application for the legislative basis returns data sheets of each item in HTML with links to PDF documents. These data sheets cannot be downloaded.
BENEFITS OF THE OPENING		It is important to highlight the impact and added value generated by the availability of regulatory data, due to its significant internal consumption on the part of the public administration. At an international level, there have been experiences worth noting by opening the data of the legislative branch. Such is the case with the National Library of Congress of Chile[188] or the Compendium Law[189] of the United Kingdom. These two examples show the implementation of semantic technologies (Linked Data) to resolve the publication of Open Data. These initiatives have also made publicly available multiple technical documentation and reusable ontologies. Parliamentary data and activity was discussed during the latest edition of the International Open Data Conference IODC 16.[190]
RECOMMENDATIONS		• Publish the legislative basis as Open Data • Become acquainted with and lead a Linked Data project, such as that developed in the legislative area by the Chilean BCN. **QUICK WIN**
DATASET PUBLICATION		• The CSJ publishes[191] 14 datasets in the government catalogue. • The National Congress publishes the legislative Open Data section[192] and contributes 8 datasets to the government catalogue.[193] • The Senate publishes the legislative information system[194] and contributes 5 datasets to the government catalogue.[195]

186 - http://www.csj.gov.py/legislacion
187 - SILPY Open Data: http://datos.congreso.gov.py/
188 - Linked Data de la Biblioteca del Congreso Nacional de Chile: http://datos.bcn.cl/es/
189 - Legislation UK: http://www.legislation.gov.uk/
190 - Data and parliaments in IODC 2016: https://internationalopendataconfer2016.sched.com/event/7PVS/data-parliaments
191 - https://www.datos.gov.py/organization/corte-suprema-de-justicia-csj
192 - Legislative Open Data: http://datos.congreso.gov.py/
193 - https://www.datos.gov.py/organization/congreso-nacional
194 - SIL Senate: http://sil2py.senado.gov.py/main.pmf
195 - https://www.datos.gov.py/organization/camara-de-senadores

DATASET	BIDS, CONTRACTING AND PUBLIC PROCUREMENT	
RESPONSIBLE INSTITUTION		DNCP
OPENING FEASIBILITY	INSTITUTIONAL	The DNCP has joined the Open Contracting Partnership (OCP) international initiative and uses the OCDS standard for publishing data on public procurement. The use of the procurement platform is mandatory for all public institutions of the three government branches. Planning, bidding and procurement processes have been implemented. The implementation of a payment process is still pending. The project's evolution will include electronic follow-up to the contracts (February 2018). The intention of the institution is to make public all the information it manages by using Open Data and visualizations. The portal "quecompamos.gov.py" has been created thinking of the people. The institution has reduced its requests for public information after publishing the Open Data. Aggregate purchase processes are not undertaken. Training workshops are being organized with the platform's users (guilds, suppliers, SMEs) along with CEAMSO.
	TECHNICAL	he institution possesses a highly technical level of information management. Statistical exploitations of the public procurement processes are being carried out in order to explain them to the people and to the specialized technical personnel. The public procurement management system offers access to the Open Data of the processes implemented through an API.[196] The terms of reference of the procurement processes are published in PDF. There is a partial catalogue (only containing computers) of goods and services in PDF format. The international OCDS standard allows the generation of data of the public procurement processes in JSON format. Georeferencing all information pertaining to public procurement, not just public works, has been planned.
BENEFITS OF THE OPENING		Opening the data will facilitate and improve the exploitation of indicators linked to public procurement. The DNCP states that opening the data will not represent a greater cost to the institution's modernization process. Data and accountability in public procurement were discussed in the latest International Open Data Conference, IODC 2016.[197]
RECOMMENDATIONS		• Publish the goods and services catalogue in open formats. • Use Open Data to analyze efficient procurement. • DNCP and SENATICs are excellent allies to explain the opportunities represented by Open Data. **QUICK WIN**
DATASET PUBLICATION		• DNCP publishes 6 datasets[198] in the government catalogue. • DNCP has a public procurement portal that uses Open Data.[199]

196 - Public procurement: https://contrataciones.gov.py/datos
197 - Data and accountability at IODC 2016: https://internationalopendataconfer2016.sched.com/event/7PVO/data-accountability-i
198 - https://www.datos.gov.py/organization/direccion-nacional-de-contrataciones-publicas-dncp
199 - Public procurement portal: https://www.contrataciones.gov.py/datos

DATASET	LOCATION OF PUBLIC FACILITIES	
RESPONSIBLE INSTITUTION		General Accounting Directorate at the Ministry of Finance
OPENING FEASIBILITY	INSTITUTIONAL	The mission of the General Accounting Directorate at the Ministry of Finance is to record public goods, but its management system is not completely developed and there is no directory bringing together all the information referring to the location of public services (buildings, offices, services, etc.). The information managed by the General Accounting Directorate at the Ministry of Finance is not geolocated and there are concerns regarding its accuracy. In the long term, the collection of information has been planned in order to build a new inventory. It has not been discussed whether this information will be open.
	TECHNICAL	The implementation of a common use tool for managing the location of public services has not been carried out yet. Each institution manages and documents its own public facilities and corresponding websites using different methods.
BENEFITS OF THE OPENING		The location of public facilities is a dataset that is pivotal to facilitating citizen's access to public services. It is also a key dataset in the development of applications allowing to disseminate the activities of public administration.
RECOMMENDATIONS		• Gather all the information relating to the location of public facilities • Geolocate and publish the location of public facilities as Open Data. **LONG TERM**
DATASET PUBLICATION		• Not all OEEs publish public facilities information

DATASET	ASSESSMENT OF POLICIES/PUBLIC SERVICES AND RESULTS	
RESPONSIBLE INSTITUTION		STP Office of the Auditor General for the Executive Branch (AGPE, for its acronym in Spanish)
OPENING FEASIBILITY	INSTITUTIONAL	The STP publishes the Citizen Report on the Presidential Dashboard. In the short term, a version of the dashboard and the Results-Based Planning Systems will be available, which will allow searching the information in georeferenced layers. The STP launched a new edition of the 2017 Hackathon with the cooperation of SENATICs (May 2017), which will bolster public policy Open Data-based ideas. To this end, the STP will place the Presidential Dashboard and the SPR at the availability of the Open Data initiative. The STP publishes other data, such as the development plans of local governments and data on poverty by location (not downloadable). On the other hand, the AGPE, which depends on the Office of the President of the Republic, is in charge of auditing the entities depending on the executive branch, and implements the MECIP, which is an internal control mechanism of the efficiency and performance of public institutions of Paraguay.
	TECHNICAL	STP has the technical capacity to publish Open Data and is implementing a new version of the presidential dashboard on CARTO. This new geoportal made for the analysis of public policies will allow downloading the data in GeoJSON format. For the time being, the monthly dashboard reports are published in PDF format.[200] The development plans of local governments may be downloaded in PDF format. The MECIP publishes reports with different aggregation levels and allows downloading data in PDF and XLS formats. [201]
BENEFITS OF THE OPENING		La rendición de cuentas es uno de los elementos fundamentales de las iniciativas de Gobierno Abierto. La publicación de estos datos incrementa la confianza de la ciudadanía en la acción de Gobierno y permite mejorar la eficacia de las políticas públicas.
RECOMMENDATIONS		• Acelerar la puesta a disposición de Datos Abiertos del tablero de control y el SPR. • Integrar la información geoespacial en la futura infraestructura de datos espaciales. • Publicar los datos de pobreza por localidad en formatos abiertos. • Incluir una sección de Términos y Condiciones de uso en el portal web de MECIP. **PRIORIDAD HIGH**
DATASET PUBLICATION		• Neither the STP nor the AGPE publish Open Data in the government catalogue.

200 - Citizen Report on the Dashboard: http://www.stp.gov.py/v1/reporte-ciudadano-so/
201 - MECIP Reports: http://eval.mecip.gov.py/Mecip/reportes/listareportes

DATASET	MOBILITY DATA (ROADS, PUBLIC TRANSPORTATION, ...)	
RESPONSIBLE INSTITUTION		MOPC National Bureau of Traffic and Road Safety (ANTSV, for its acronym in Spanish) National Transportation Directorate (DINATRAN, for its acronym in Spanish) Metrobús
OPENING FEASIBILITY	INSTITUTIONAL	Generally speaking, institutions related to mobility present weaknesses linked to their information systems, despite using the technological tools (SIG) that could facilitate opening the data. Although progress is being achieved in the collection and processing of the information, publication based on data is unusual. The institutions state their lack of knowledge and of a methodology to publish data, in spite of recognizing the usefulness of publishing this type of information. Regarding transportation, even in the absence of an Exploitation Assistance System (SAE, for its acronym in Spanish) for the integrated management of exploitation information relating to public transportation, an automatic fare collection system (Single ticketing) for all transportation means is being implemented. The system includes the management of multiple oversight indicators. There is a noticeable weakness regarding the interoperability of agents linked to mobility.
	TECHNICAL	The MOPC has planned to implement a public works oversight system, which will allow access to execution data by way of an interactive map (project funded by the WB). The institution uses ArcView to manage all the itineraries in metropolitan areas. The MOPC website publishes: • Road maps in JPG format (Info updated to May 2017.[202] • Mandatory bus stops in JPG[203] • Toll information in JPG[204] • Scale information in JPG[205] • Information on the conditions of the road throughout the National Territory in DOC format (updated every day, with historical information since 2016).[206] • Data on the execution of works' budgets in XLS.[207] The ANTSV publishes the Road Observatory in PDF format.[208] Metrobús has files on sections in SHP format, but it publishes in JPG. DINATRANS may be the most advanced entity in the use of Web Services use, due to the exchange of information with Mercosur countries (systemization of cargo and passenger transportation data exchange).

202 - Road network: http://www.mopc.gov.py/red-vial-s1
203 - Mandatory stops: http://www.mopc.gov.py/mopcweb/paradas-obligatorias-p29
204 - Tolls: http://www.mopc.gov.py/peajes-s20
205 - Scales: http://www.mopc.gov.py/basculas-s21
206 - Road conditions: http://www.mopc.gov.py/mopcweb/estado-de-las-rutas-s19
207 - http://www.mopc.gov.py/mopcweb/expo-obras-todos-los-datos-y-cifras-p34
208 - Road observatory: http://www.antsv.gov.py/direcciones/direcci%C3%B3n-de-observatorio-vial

BENEFITS OF THE OPENING	Mobility data are highly demanded by the reuser sector in all Open Data initiatives. Proof of the foregoing is the abundance of applications and services developed with this type of data. These are data that have a great social and economic impact. Without waiting for an improvement to the technological infrastructure, the opening of existing data with georeferenced information would expedite the development of innovative services. One of the risks that must be mitigated is the potential low quality of the data. It is information with great potential for consumption and prior to its publication, an acceptable quality threshold must be defined by refining the data. These data are especially relevant for the processing of technologies associated to Big Data. Data and transportation had their own slots in the latest International Open Data Conference, IODC 2016.[209]	
RECOMMENDATIONS	• Improve the publication of information relating to the road network, bust stops, scales, tolls, etc., using open formats that are machine-processable. • Include data on the execution of works' budgets in the government catalogue • Publish the road observatory of the ANTSV using open formats. • Study the display of data through the DINATRAN WS to analyze the opportunity of publishing Open Data based on these services • Get to know the single ticketing oversight system to identify Open Data publication opportunities. • Change the footnote "All rights reserved" for standardized terms and conditions in order to allow reusing the data.	**HIGH PRIORITY**
DATASET PUBLICATION	• MOPC publishes 9 datasets[210] in the government catalogue. • The ANTSV does not publish data in the government catalogue.	

209 - Data and Transportation at IODC 2016: https://internationalopendataconfer2016.sched.com/event/7P05/data-transport
210 - https://www.datos.gov.py/organization/ministerio-de-obras-publicas-y-comunicaciones-mopc

DATASET	CITIZEN SECURITY (GEOPOSITIONED INFORMATION)	
RESPONSIBLE INSTITUTION		Ministry of Interior National Police
OPENING FEASIBILITY	INSTITUTIONAL	The National Police is undergoing an information system modernization process, although punishable information is not being published. The institution acknowledges that it lacks a communication policy based on data and targeted at the citizens. The decision of opening the data falls to the institution's highest authority, and it has been stated that initially there are no impediments to make the information public, for it may aid the citizens to take precautions.
	TECHNICAL	The National Police is developing an application that makes georeferencing punishable information possible. In mid-July this year, the Police Information System (SIP, for its acronym in Spanish) will become available. The system will enable all police personnel to update the information from a Tablet. It has been planned that this will be an internal system for the time being. The National Police does not have a statistics department, but statistical information is not published. The Ministry of Interior publishes a series of statistical reports in PDF format.[211]
BENEFITS OF THE OPENING		The Ministry of Interior publishes a series of statistical reports in PDF format.
RECOMMENDATIONS		• Raise awareness, through examples, among the police high ranks and the Ministry of Interior of the opportunities that opening data provides towards improving the perception of citizen security. • Study the possibility of non-sensitive Open Data based on the SIP. • Publish in Open Data format the statistics of punishable actions published by the Ministry of Interior. **HIGH PRIORITY**
DATASET PUBLICATION		• Neither the Ministry of Interior nor the National Police contribute to the government Open Data catalogue.

211 - Ministry of Interior: http://www.mdi.gov.py/index.php/component/k2/itemlist/category/11

DATASET	SANITARY INSPECTIONS AND PENALIZATIONS	
RESPONSIBLE INSTITUTION		National Institute for Food and Nutrition (INAM, for its acronym in Spanish) Consumer Protection Secretariat (SEDECO, for its acronym in Spanish)
OPENING FEASIBILITY	INSTITUTIONAL	The INAM, which depends on the MSPBS, is responsible for conducting sanitary inspections (facilities that handle packing procedures, food that is ready-for consumption, warehouses, school cafeterias, foodstuff registries, among others). The information on inspections is not public. The publication of data has been discussed internally, but the subject was dropped at the advice of legal counsel. The publication of data has not been planned. Statistical information is also deemed sensitive. Reluctance to change. On the other hand, SEDECO will have a data section that will be developed with the support of SENATICs. Only the price of the basic shopping basket will be published for the time being. There is fear of publishing other data, such as that referring to companies that have been reported by consumers. Legal counsel has advised against this type of publication. In both cases, the publication decision will depend on the Director of each entity.
	TECHNICAL	It would be technically feasible for the INAM to publish the information. It is registered in databases and is periodically updated, albeit not georeferenced. Any publication would be in PDF format. SEDECO has the data pertaining to the oversight of the basic shopping basket prices available in HTML format and statistics in PDF format.[212] [213] It is technically feasible to publish Open Data.
BENEFITS OF THE OPENING		This type of information, specifically that relating to sanitary inspections of public food-preparation facilities, sparks great interest among the people. The UK, the US and Canada are examples of successful experiences in this area. However, it is important to initiate a creative dialogue with the sector, so that the opening of this type of data may contribute to improve the image and quality of the establishments, and not become a mechanism just for public reporting or persecution.
RECOMMENDATIONS		• Make INAM and SEDECO aware of the opportunities of publishing Open Data. • Provide training and advisory to ensure the safe publication of Open Data by anonymizing personal data and sensitive information. • Publish SEDECO's statistics and oversight of the basic shopping basket prices as Open Data. **HIGH PRIORITY**
DATASET PUBLICATION		Neither INAN nor SEDECO contribute to the government Open Data catalogue.

212 - SEDECO Price oversight: http://www.sedeco.gov.py/index.php/publica/monitoreo-de-precios
213 - SEDECO statistics: http://www.sedeco.gov.py/index.php/publica/estadisticas

DATASET	OFFICIAL RECORDS (ENTERPRISES, ASSOCIATIONS,...)	
RESPONSIBLE INSTITUTION		Ministry of Industry and Trade (MIC, for its acronym in Spanish) General Directorate of Public Records (DGRP, for its acronym in Spanish) Single Office for Exports (VUE, for its acronym in Spanish)
OPENING FEASIBILITY	INSTITUTIONAL	The MIC is in charge of the Business Opening and Closing Unified System (SAUCE, for its acronym in Spanish). Its single-office system allows reducing the time required to open a company. Even though it is a registration mechanism, the use of this system is not mandatory. The MIC is also responsible for managing the Industrial Registry (RIEL, for its acronym in Spanish), which is mandatory, and the Service Providers Registry (REPSE, for its acronym in Spanish). The SME registry depends on the Office of the Deputy Minister for SMEs. The VUE manages data on exports (export companies, products, volumes, etc.). The DGRP manages public records pertaining to real estate property (companies and associations, properties, ships, airplanes, etc.).
	TECHNICAL	At the time of this diagnosis, the RIEL application could not be accessed.[214] REPSE data is not available.[215] The National SME Registry is published in PDF format. [216] The MIC publishes other data, such as the gas station census and fuel statistics, in PDF format. The DGRP publishes statistical data on their website in JPG format, but does not publish data on the registry entries. VUE does not publish data on its website. The registry of associations (civil, artisans, etc.) is not published.
BENEFITS OF THE OPENING		Corporate data is highly valuable and greatly demanded for reuse (market studies, business creation, etc.).
RECOMMENDATIONS		• Publish in Open Data formats and geoposition the gas station census. • Publish data on fuel statistics • Open the REPSE and RIEL data • Publish in open formats and geoposition the SME registry. • Publish the registry of civil associations. **PRIORIDAD HIGH**
DATASET PUBLICATION		• MIC, VUE and the RGRP do not contribute to the • government Open Data catalogue.

214 - RIEL web application: http://riel.mic.gov.py/
215 - REPSE: http://www.mic.gov.py/mic/site/comercio/repse.php
216 - SME Registry: http://mipymes.mic.gov.py/index.php/registro-nacional-mipymes

DATASET	GEOSPATIAL DATA (MAPS, ADDRESSES, SITES OF INTEREST, ...)	
RESPONSIBLE INSTITUTION	DISERGEMIL, DGEEC, CATASTRO	
VIABILIDAD DE APERTURA — INSTITUTIONAL	DISERGEMIL is the institution in charge of the official cartography (political and geographic maps) of the country in paper format. No maps are made in digital format. It charges a fee for the sale of maps. On its part, Cadastre has been building the country's digital cartography as it completes the cadastre. It is currently not available for download. Then there is the DGEEC, which develops census cartography, but its quality is low due to the fact that the 2012 census was not completed. The last valid census was in 2002.	
VIABILIDAD DE APERTURA — TECHNICAL	DISERGEMIL's technical capacity is constrained and requires cooperation and support in order to provide digital services. Official digital cartography is scarce, and the different cartographies in place present inconsistencies (i.e. district borders). On the other hand, there is abundant georeferenced information in the geoportals of different institutions, among them: • Geoportal for the analysis of STP's public policies, offering data in GeoJSON. • Cadastre Geoportal • Geoportal of the Ministry of Agriculture and Livestock Breeding: productive investments, infrastructures, services by department.[217] • SEAM Geoportal. [218] • INFONA Geoportal [219] • SAS Geoportal of the social territories (TEKOHA) developed using Google FusionTables.[220] In most cases the information shown in these geoportals is up-to-date but cannot be downloaded. Data is not available in Open Geospatial Consortium (OGC[221]) format, such as WMS and WFS services, except for the experience of Cadastre with the implementation of an experimental WM services.	
BENEFITS OF THE OPENING	Geographic web services can be consumed from any geographic viewer compatible with the standard, which entails great internal and external reuse capacity by the entities of the territory. It is important to emphasize, acknowledge and disseminate the interoperability features of spatial data infrastructures. The link between geographic web services and Open Data paves the way to explore new ways in which to exploit this type of information using GeoSPARQL technologies to make spatial consultations on linked geodata. It is also important to qualitatively highlight the expert use of the users of this type of data. Likewise, the use of the Open311 standard may improve the interoperability of traceability data for citizen care and thus avoid overlapping information management. Geospatial data was at the core of specific sessions in the latest International Open Data Conference, IODC 2016.[222]	
RECOMMENDATIONS	• Unify georeferenced information in a spatial data infrastructure • Incorporate the data of the SAS geoportal of the social territories (TEKOHA) into the government data catalogue.	PRIORIDAD HIGH
DATASET PUBLICATION	• DISERGEMIL does not make any contribution to the government Open Data catalogue.	

217 - MAG Geoportal: http://www2.mag.gov.py/index-b-nuevo.php?pag=geoportal-mapas.html
218 - SEAM Geoportal: http://www.seam.gov.py/sistema-de-informacion/geoportal
219 - INFONA Geoportal: http://snmf.infona.gov.py:8091/portal/
220 - SAS Geoportal: https://www.google.com/fusiontables/DataSource?docid=15f0vNx1MCRUMaYL6q_H3ULmgKZa-vWR93ojqENMKm#map:id=3
221 - OGC: http://www.opengeospatial.org/
222 - Geospatial data at IODC 2016: https://internationalopendataconfer2016.sched.com/event/7Oyt/data-geospatial

DATASET	METEOROLOGICAL DATA	
RESPONSIBLE INSTITUTION		DINAC
OPENING FEASIBILITY	INSTITUTIONAL	Decree 8701/12 set fees for historical weather data. The institution has formulated strong reservations to opening their data because it would entail a potential reduction of their revenue. A potential alternative to the entity's currently funding model has not been addressed (mainly source 30). Furthermore, the DINAC website does not include terms and conditions of use.
	TECHNICAL	Although the technical capacity exists and the information provided is up-to-date, the formats in which they are delivered do not allow opening the data – image formats such as GIF and PNG are used to publish aeronautical meteorology and satellite images, and HTML to publish weather forecasts or river levels. In other cases, the information is published in Adobe Flash Player or PDF formats.
BENEFITS OF THE OPENING		Meteorological information is pivotal to the efficient management of agricultural and livestock breeding production, in addition to being essential for the prevention of risks due to climate change. The value of this information lies in its provision in real time, which entails a great service availability that may be activated using the NubePY service.
RECOMMENDATIONS		• Redirect the publication of information on DINAC's website to formats that will enable its reuse. • Use RSS subscription formats for critical information, such as weather alerts. • Offer official forecasts using open formats. • Because this data must be frequently updated, an application program interface (API) mechanism must be provided, or RSS or GeoRSS in the absence of the former. • Use the Open Data license to ensure data reuse without restriction. **PRIORIDAD HIGH**
DATASET PUBLICATION		• DINAC does not make any contribution to the government Open Data catalogue. • Weather forecast data is offered in HTML format.[223] • The data on river levels is updated every day and is available in HTML format.[224] • Data of the National Network of Weather Stations is provided in PDF format.[225] • Weather alerts are available in HTML and image formats.[226]

223 - Weather forecasts: http://www.meteorologia.gov.py/index.php
224 - River levels: http://www.meteorologia.gov.py/nivel/index.php
225 - Stations: http://www.meteorologia.gov.py/serviciopublico.php
226 - Weather alert: http://meteorologia.gov.py/aviso/alerta.php

DATASET	URBANISM DATA (CADASTRE, LAND USE AND ZONING, ...)	
RESPONSIBLE INSTITUTION		National Cadastre Service (Ministry of Finance)
VIABILIDAD DE APERTURA	INSTITUTIONAL	There is a positive attitude towards data opening and they are currently working on improving the availability of data, in spite of the notorious deficiencies in the information provided. After two years of trying to open their data, Cadastre has yet to complete the process and the data are incomplete. There is a wealth of information undergoing digitization. Cadastral data from municipalities and private surveyors are currently being gathered, but the process is inefficient. Cadastre's revenue mainly comes from providing services (source 30), although the municipalities have free access to the services being provided. The elimination of data fees is being discussed.
	TECHNICAL	Cadastre Geoportal has cadastral information of the rural and urban areas from an institutional SIG. Experimental work is being done on the availability of WMS services. There is a deficit of technological structure (*hardware*), which is an impediment to the availability of Open Data. As soon as the server infrastructure is enhanced, data may be published in SHP format. Information exchanges with the Public Registry exists but there are semantic and technical interoperability issues. An information migration process to ArcGis or QGis is being discussed.
BENEFITS OF THE OPENING		The quality of cadastral information has consequences on the management of institutional public funds, among others. The data related to the use of the land are of strategic importance to territorial development. Detecting urban areas that are empty, abandoned or marginalized, which are usually ignored by the citizens, implies locating and cataloging obvious sub-uses within the urban areas, which in many cases are subject to real estate speculation processes. This data must become a part of the georeferenced information actives and are key to the efficient zoning for the growth of the territories. On the other hand, complete and reliable cadastral information is a fundamental source of income for the municipalities.
RECOMMENDATIONS		• Standardize the information (minimum lot sizes, scales, etc.) • Integrating geospatial information in the future spatial data infrastructure. • Improve Cadastre's high-availability needs with the NubePY. • Create a work forum in the area of CCIGE on geographic information management. • Eliminate fees on raw data • Increase the use of the SHP format. • Incorporate data from the list of files processed by Surveyors to the Open Data catalogue. [227] • Incorporate MHGEO data to the Open Data catalogue.[228]
		PRIORIDAD HIGH
DATASET PUBLICATION		• Cadastre does not make any contribution to the Open Data government catalogue. • Cadastre publishes cadastral information (not downloadable) on the SNC geoportal.[229] • Cadastre publishes urban cadastral cartographic files on its website in DWG format.[230] • The list of files processed by Surveyors (years 2015, 16 and 17) are published in XLS, JSON and PDF formats. • MHGEO is published with georeferenced information from the Ministry of Finance.

227 - http://www.catastro.gov.py/consultar/2017.html
228 - http://www.catastro.gov.py/mhgeo/#15,-25.2921,-57.6283
229 - http://www.catastro.gov.py/visor/?snc=geo
230 - http://www.catastro.gov.py/cartocad.html

DATASET	HOUSING: (SOCIAL HOUSING, REAL ESTATE PROPERTY, SALES, ...)	
RESPONSIBLE INSTITUTION		SENAVITAT
OPENING FEASIBILITY	INSTITUTIONAL	Data opening is promoted from the maximum institutional level. The publication of information is an institutional priority and internal resistances have been overcome. There is great interest in sharing the value of Open Data in the context of housing programs and there is cooperation with the Government of Chile to launch a similar program. Funding is being negotiated with the IADB to modernize the data platform. Conversations have been had with TEDIC to advance in housing data reuse processes.
	TECHNICAL	The housing map visualization tool is developed in Python and includes, among others, information regarding: location of works, progress, houses planned, data on the constructor and images, allowing to download the information in XLS, JSON and CSV formats. The update is currently made manually once each quarter. An evolution is being prepared to achieve an enhanced reintegration with the backoffice systems and extending the scope of the published information (among others, data on beneficiaries, characteristics of the houses). The implementation of BI tools (Tableau) is being studied, along with the use of GDL to validate the data. The use of SII has been planned to exchange information with Cadastre and Identifications. They require information from INDERT.
BENEFITS OF THE OPENING		SENAVITAT is achieving citizen involvement in a social audit process by incorporating a channel, within the housing visualization maps, for reporting inconsistencies between the forecasted plans and that which has been physically observed. It also serves to consult upcoming social housing programs. It is interesting to incorporate into this type of project programmatic data access mechanisms (APIs) to facilitate interaction with the cooperating agents, which will lead to greater efficiency in the management of supply and demand.
RECOMMENDATIONS		• Explore the use of GeoJSON and GeoRSS formats. • Integrate the geospatial information in the future spatial data infrastructure. • Increase the use of open formats in active transparency. • Monitor the use of the data platform. • Incorporate open statistical data on social housing programs • Automate the update process. QUICK WIN
DATASET PUBLICATION		• SENAVITAT publishes its Open Data portal.[231] • SENAVITAT publishes 3 datasets[232] in the government catalogue.

231 - Housing maps: http://www.senavitat.gov.py/mapaviviendas/
232 - https://www.datos.gov.py/organization/secretaria-nacional-de-la-vivienda-y-el-habitat-senavitat

DATASET	ENVIRONMENTAL MONITORING (CONTAMINATION LEVELS, AIR QUALITY, WATER,...)	
RESPONSIBLE INSTITUTION		Secretaria del Ambiente (SEAM)
OPENING FEASIBILITY	INSTITUTIONAL	Environment Secretariat (SEAM) There is a project to control air quality (including measuring stations and management software) which depends on funding from Korea. Data availability is the outcome expected of this collaboration (via App and Web). The Law mandates the publication of data relating to river levels and flows. The SEAM measures flows and the Meteorology Directorate measures the levels. The institution has not planned to hinder the publication of Open Data; however, it has admitted its ignorance on the subject.
	TECHNICAL	Data on fire sources[233] is available in JPG format; data on river flows[234] is available in PDF format and the location of areas for environmental services is available in JPG format. There is a geoportal that to date lacks data layers.[235] The publishing of environmental licenses and the download of files in JSON, CSV and SHP formats have been planned.
BENEFITS OF THE OPENING		Data on environmental impacts interests the people, NGOs and journalists. There are few information requests via OAIs, some are made on site, and they all request processable formats. Information that is of special relevance to civil protection is being published in non-reusable formats: river flows and fire sources. As previously stated in the meteorological data dataset, the value of this type of information lies in its provision in real time, which entails a great service availability that may be activated using the cloud. Furthermore, the environment has gained strategic relevance in international Open Data agendas. The subject of the environment was one of the core issues of the latest edition of the International Open Data Conference IODC 16, and was given a specific slot.[236]
RECOMMENDATIONS		• Provide technical assistance and training to the SEAM to achieve data opening. • Follow up on the availability of air quality data. • Publish data on river flows, fire sources and air quality in open formats. • Activate automatic data Access (API). • Geoportal evolution to geospatial web services • Link environmental data to the government Open Data catalogue. **HIGH PRIORITY**
DATASET PUBLICATION		• SEAM does not make any contribution to the government Open Data catalogue.

233 - Fire sources: http://www.seam.gov.py/sites/default/files/users/editor/Focos%20de%20Incendios%2001-06-17sa.jpg
234 - River status: http://www.seam.gov.py/sites/default/files/users/comunicacion/310317cuenca%20alta%20y%20media.pdf
235 - http://geo.seam.gov.py/
236 - The environment at IODC 16: https://internationalopendataconfer2016.sched.com/event/7PUf/data-environment?iframe=no&w=&sidebar=yes&bg=no

ANNEX

2

Participating institutions

Institution	INTERVIEWEE
Central Bank of Paraguay	Rodrigo Ruiz
Central Bank of Paraguay	Cesar Yunis
Central Bank of Paraguay	Gustavo Cohener
Central Bank of Paraguay	Bernardo Rojas
Central Bank of Paraguay	Miguel Mora
Central Bank of Paraguay	Gerardo Meza
Central Bank of Paraguay	Pablo Rodríguez
SENACSA	Santiago Cáceres
Central Bank of Paraguay	Lucia Jara
Central Bank of Paraguay	Hugo Centurión
Ministry of Finance	María Teresa Agüero
Ministry of Finance	Oscar Lovera
Ministry of Finance	Juan Carlos Ferreira
Ministry of Finance	Laurent Giannina Díaz
Ministry of Finance	Viviana Casco
Ministry of Finance	Amada Silguero
Ministry of Finance	María Benítez
National Anti-Corruption Secretariat	Ariel Ojeda

National Anti-Corruption Secretariat	Emilce Gaona
Central Bank of Paraguay	Sonia Gómez
Central Bank of Paraguay	Verónica Duarte
Central Bank of Paraguay	Fernando Rivarola
Technical Secretary for Planning	Jorge Galeano
Technical Secretary for Planning	Federico Sosa
National Directorate of Statistics, Surveys and Censuses	Gladys Benítez
National Directorate of Statistics, Surveys and Censuses	Marcelo Amarilla
National Directorate of Statistics, Surveys and Censuses	Marta Torres
Civil Registry	Walter Torres
Civil Registry	Jhons Da Silva
Supreme Court of Justice	Karina Frutos
Ministry of Public Health and Social Welfare	Enrique Espinoza
National Institute for Food and Nutrition	Augusto Vaesken
Ministry of the Interior	Lourdes Galeano
Ministry of the Interior	Braulio Morales
Ministry of the Interior	Juan David Basile
Ministry of the Interior	Alberto Gauto
National Institute for Technology and Standardization	Rogney Caballero
National Institute for Technology and Standardization	Franz Saldivar
National Institute for Technology and Standardization	Victoria Estigarribia
National Institute for Technology and Standardization	Guadalupe Giménez
Ministry of Education and Sciences	Alice Escobar
Ministry of Education and Sciences	Marcos Rotela
Ministry of Education and Sciences	Luis Atilio Ruiz
Ministry of Education and Sciences	Stella Sánchez
Ministry of Education and Sciences	Manuel Arce
National service for Career Advancement	Lida Rosa Benítez
Consumer Protection Secretariat	Sara Irún
Consumer Protection Secretariat	Fernando Fernández
Fundación Amcham	Daniel Parodi
GEN Paraguay	Roberto Urbieta
Koga Impact Lab	Santiago Campos Cervera
Paraguayan Association of Entrepreneuses	Ana María Ortiz
IDEA	Ezequiel Santagada
National Council of Science and Technology	Diego Fabián Alderete

National Council of Science and Technology	Roberto Delgado
Universidad Nacional de Asunción	María Elena García
Ministry of Agriculture and Livestock Breeding	Carmen Cabral
Universidad Nacional de Asunción	Héctor Ratti
Ministry of Agriculture and Livestock Breeding	José Duarte
Ministry of Agriculture and Livestock Breeding	Oscar Ocampos
Ministry of Agriculture and Livestock Breeding	Antonia Lugo
Ministry of Agriculture and Livestock Breeding	Carlos Benítez
Vice Ministry of Transportation-MOPC	Fernando Haidar
Vice Ministry of Transportation-MOPC	Guido Benza
National Bureau of Traffic and Road Safety	Justo P. Domínguez
National Bureau of Traffic and Road Safety	Rubén D. Escobar
National Bureau of Traffic and Road Safety	Arturo Rodríguez A.
National Transportation Directorate	Fernando Riveros
National Transportation Directorate	Carlos Rivas
National Transportation Directorate	Miguel Ayala
National Directorate of Transparency and Citizen Participation	José PerHIGH
Vice Ministry of Transportation-MOPC	Víctor Sánchez
City of Asunción	Zoilo Benítez
City of Asunción	Domingo González
City of Asunción	Sergio D. Mongelós
National Directorate for Public Procurement	Ítalo Casaccia
National Directorate for Public Procurement	Melinna Vázquez
National Directorate for Public Procurement	Natali Delgado
National Directorate of Civil Aeronautics	Roberto Fernández
National Directorate of Civil Aeronautics	Oscar H. Rodríguez
National Directorate of Civil Aeronautics	Carlos H. Zaracho
National Cadastre Service - Ministry of Finance	Anastacio Torres
National Cadastre Service - Ministry of Finance	Atahualpa Ayala
Technical Secretariat for Planning	Rafael Palau
National Secretariat for Information and Communications Technologies	Fernando Mancia
National Secretariat for Information and Communications Technologies	Leticia Romero
Environmental and Social Studies Center	Mirtha Rodríguez
Information and Communication Secretariat	Celia Urbieta Peña
Supreme Court of Justice	Julia Centurión
Universidad Nacional de Asunción	Luz María Martínez

Universidad Nacional de Asunción	José Coronel R.D.
Universidad Autónoma de Asunción	Cristina Dinatale
Universidad Nacional de Asunción	Yohanna Lisnichuk
Universidad Nacional de Asunción	Diego Torres
Universidad Paraguayo Alemana	Emanuel Torres
Universidad Paraguayo Alemana	Briam Falcó
Universidad Paraguayo Alemana	Agustinus Vander Urogt
National Secretariat for Housing and Habitat	Adolf Sauer
National Secretariat for Housing and Habitat	Juan Carlos Frutos
Environment Secretariat	Amelia Ramírez
Environment Secretariat	Rafael Sosa
Environment Secretariat	Gustavo López
Environment Secretariat	David Fariña
Environment Secretariat	Fernando Britez
National Electricity Administration	Carmen Velázquez
National Electricity Administration	Hugo Tarabini
National Electricity Administration	Cesar Caffarena
National Service of Animal Quality and Health	Cristina Vitale
National Service of Animal Quality and Health	Shirley Chamorro
National Service of Animal Quality and Health	Carlos Cáceres
National Service of Animal Quality and Health	Carlos Meza
National Service of Animal Quality and Health	Osvaldo Quintana
Military Geographic Service Directorate	Juan Meza
Military Geographic Service Directorate	Sindulfo Colman
Military Geographic Service Directorate	Mónica Platon
Military Geographic Service Directorate	Ana Medina
Technical Secretariat for Planning	Rafael Palau
National System of Professional Training	Cristian Cordero
National System of Professional Training	Reinaldo Aguilera
Ministry of Industry and Trade	Celso Bareiro
Ministry of Industry and Trade	Diego González
Ministry of Industry and Trade	Javier Villamayor
General Directorate of Public Records	Magno Amaus
General Directorate of Public Records	José Ramón Duarte
Ministry of Finance	Viviana Benítez
Secretariat for the Prevention of Money Laundering	Ignacio Céspedes
Secretariat for the Prevention of Money Laundering	Jorge Benítez
National Forest Institute	María Gloria Ramírez
DATO	Roberto Rubín
Fund for Excellence in Education	Carmen Romero

Polytechnic School	Fernando Espínola
UNA School of Engineering	Julio Paciello
CEAMSO	Nathalia Ochoa
CEAMSO	Gabriela Gaona
Facto S.A. TOPA	Gustavo Riart
Facto S.A. TOPA	Juan Puerto
Fiweex	Esteban Torres
Centro Cultural Melodía	Félix Fariña
Diario 5 Días	Alfredo Schramm
Diario 5 Días	Santiago Zavatiero
Information and Communication Secretariat	Ministro Fabricio Caligaris
Information and Communication Secretariat	Celia Urbieta
National Secretariat for Information Technologies	Benjamín Díaz
SENATICS	Herman Mereles
SENATICS	Javier Quiñonez
SENATICS	Nilda Cuevas
SENATICS	Giuliana Galli
SENATICS	Carlos Olmedo
SENATICS	Leticia Romero
Social Action Secretariat	Oscar Lauro
Social Action Secretariat	Cynthia Arrua Gómez
Social Action Secretariat	Amanda Velázquez
CADEP - Center for the Analysis and Development of the Paraguayan Economy	Fernando Ovando
CADEP - Center for the Analysis and Development of the Paraguayan Economy	Belén Servin
Public Administration Secretariat	Edgar Maezono
Public Administration Secretariat	Juan Ramírez
Ministry of Labor	Gloria Acosta
Social Security Institute	Mónica Vargas
Social Security Institute	Sonia Paez
Social Security Institute	Hugo Diarte
Social Security Institute	Maureen Eisenhut
Ministry of Finance	María Teresa Aguero
National Secretary for Tourism	María Elena Barboza
TEDIC	Jazmín Acuña
SEAM	Amelia Ramírez
DGEEC	Marcelo Amarilla
BCP	Darío Sarubbi
SENATICS	Manuel Páez

STP	Federico Sosa
STP	Jorge Galeano Paredes
DINAC	Roberto Fernández
DINAC	Carlos Zaracho
IPS	Diana Acosta
USAID	Federico Recalde
IPS	Mónica Vargas
IPS	Sonia Páez
IPS	Hugo Diarte
CSJ - PJ	Karina Frutos
MSPBS	Enrique Espinoza
MSPBS	Anabell Brítez
MSPBS	Gilly Katiana Colmán
SENAVITAT	Patricia Quintana
SENAVITAT	Walter Insfrán
SENAVITAT	Néstor Morel
SENAVITAT	Nancy Cohener
SENAVITAT	Aida Garcete
SFP	Francisco Riveros
SFP	Juan R. Ramírez
SFP	Edgar Maezono
MAG	Oscar Ocampos
MAG	José Duarte
ANTSV	Justo Domínguez
ANTSV	Rubén Escobar
SENACSA	Osvaldo Quintana Vian
SENACSA	Cristina Vitale
SENACSA	Shirley Chamorro
SENACSA	Carlos Meza
CONACYT	Diego Alderete
CONACYT	Roberto Delgado
CONACYT	Nathalie Alderete
DGRP - CSJ	José Duarte Borja
DGRP - CSJ	Magno Ayala
MOPC - VMT	Víctor Sánchez
MOPC - VMT	Guido Benza
MOPC - VMT	Fernando Haidar
SEDECO	Sara Irún
INTN	Victoria Estigarribia
INTN	Guadalupe Giménez

INTN	Franz Heber Saldívar
INTN	Rogney Caballero Ferreira
DNCP	Italo Casaccia
DNCP	Natali Delgado
DNCP	Melinna Vázquez
ANDE	Hugo Tarabini
ANDE	César Caffarena
MH - AT	Viviana Benítez Saiz
MH - DGCP	María Teresa Díaz de Agüero
MH - DGIC	Juan Carlos Ferreira Matto
MH - DGIC	Laurent Díaz
MH - DGP	Amada Silguero
National Police	Juan David Basile
National Police	Alberto Daniel Gauto
National Police	Braulio Morales
National Police	Lourdes Galeano
DGRC - MJ	Walter Torres
DGRC - MJ	Jhons Da Silva
DINATRAN	Fernando Riveros
DINATRAN	Carlos Rivas
DINATRAN	Miguel Ayala
MIC	Celso Bareiro
MIC	Diego González
INAN	Augusto Vaesken
UNA - FP	María Elena García
Municipality of Asunción	Sergio Mongelós
CEAMSO	Margarita Rojas
CEAMSO	Mirtha Rodríguez
GEN GLOBAL	Cristina Fernández
GEN PARAGUAY	Roberto Urbieta
UNINORTE	José Diarte
DATO	Roberto Rubín
Núcleo S.A.	Gabriela Gaona
SNPP	Lida Bareiro
ARP	Rodolfo Grau
Ministry of Finance	Miriam Gómez
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