Open Government Data

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Feasibility Study in Chile

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Developed by: In partnership with:

WORLD WIDE WEB FOUNDATION   CTIC Centro Tecnológico

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This document is the result of the feasibility study conducted in Chile to assess its readiness for adopting an Open Government Data program.

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Executive Summary

The study presented in this report investigates the applicability and potential impact of an Open Government Data (OGD) initiative in Chile. With inputs from a Reference Group of 23 experts, we carried out desk research, literature review and data collection inclusive of a country visit. Thirty people were interviewed over a week and their overarching views on aspects related to OGD were collected.

The dimensions explored included political willingness, public administration readiness, and the role of civil society organizations.

The study revealed that Chile presents a very compelling case in terms of OGD readiness. It is expected that the first step in this direction to be initiated in the near future. The Government of Chile is looking forward to partnering with international organizations to make this possible. The summary of the evaluation of Chile's readiness as well as suggested actions for implementation is presented here.

Readiness of Chile

> ### Executive Level

- The political momentum is clearly present, and there are perceived interests and needs. Government's willingness to adopt an OGD initiative is very clear at the executive layer.

- There is a strong possibility of a statement of support in favour of OGD by the President of Chile in the near future. It would be followed by a presidential directive to regulate the reuse of information in public administration.

- The first strategic steps towards OGD are being taken. The administrative vision of the government includes new technologies as a facilitating tool within the overall strategy.

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Public Administration Level

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- Government's interest on OGD extends to the middle layer of public administration.

- Presence of an active group that would strongly support any initiative taken in favour of openness of information.

- Quantum of information available in digital format is significant and current data set is not limited to topics required by the Transparency Law.

- Pioneering pilot initiatives on information openness in Public Administration have been implemented.

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Civil Society Level

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- Media has played a prominent role in promoting the reuse of information, especially during the initial implementation of the Transparency Law.

- Interest shown by potential donors related to benefits they perceive can be obtained.

- Existence of several reuses of information initiatives carried out by groups of civil hackers. Other emerging initiatives aim to find ways to generate profits, in order to achieve economic return on investment.

Executive Level

- Establish an institutional roadmap related to OGD. Put in place necessary regulations for implementation.

- Incorporate OGD as one of the key objectives of the digital agenda of the country.

- Reduce bureaucratic procedures and establish cooperation agreements that improve exchange of information within agencies.

Public Administration Level

- Raise awareness about social and economic benefits of an Open Data Strategy for the public sector, with the objective of attracting new recruits and identifying key players within the government.

- Use the existing coordinators network, whose current role is the organic coordination of Transparency Law, and expand its functions to include reuse of information at the agency level.

- Develop a common methodology for Open Data. Select and adopt open standard formats for data to facilitate reuse, supported by a convenient user experience.

- Analyze and properly classify information available within the administrative layer, and assess the level of interest from the standpoint of usefulness to society and private sector.

- Improve the means, processes and channels used to disseminate information. Centralize access to a single common point or nodal agency.

Civil Society Level

- Increase awareness of reuse initiatives promoted by civil society and learning from good practices.

- Improve technical awareness and provide training to the managers of existing initiatives.

- Initiate a dialogue on information sharing between administration, civil society organizations and the private sector.

- Encourage active and continuous monitoring of private sector needs, and the potential benefits that could be obtained.

The investigation led us to the conclusion that any movement related to Open Government Data in Chile should be inclusive of the group of people involved in transparency. Such initiatives cannot only come from interventions by the civil society. In the case of Chile, it would be necessary to identify key actors within civil society who can in turn act as opinion makers to support OGD and help in its dissemination and promotion.

Introduction

Over the past few years, a paradigm shift has been emerging around how governments work and their use of the Web and Information and Communications Technology (ICT) to deliver better services to their constituencies. The new approach is known as Open Government. It means rethinking governance methods and how administrations should adapt their procedures to meet the demands and necessities of their citizens. Open Government means a cultural, organizational, procedural and attitudinal change in how public servants relate to citizens.

Open Government Data (OGD) is a pillar of an Open Government strategy where Ministries and Public Agencies put their raw data on the web in readable formats. The general public can then review and download the data, and even create new applications around it.

The governments of the United States[1] and United Kingdom[2] are so far the most prominent practitioners of this new approach, both offering data and information that is usable and freely exploitable by Non Governmental Organizations (NGOs), activists, developers, IT companies, etc. to build and deliver services to people and organizations.

Till date, OGD programs have demonstrated multiple benefits such as:

- Increased transparency of governments
- More types of services to people due to increased base of potential service providers
- New business opportunities and jobs for application and service developers as well as for companies in general
- New synergies between government, public administration and civil society organizations
- Increased citizen participation and inclusion through extended offers of services closer to people's needs
- New, innovative uses of data

Given the apparent benefits of OGD programs, it would make sense to consider the development of similar programs all over the world, and particularly in low and middle-income countries.

The objective of this report is to take the next step by assessing the feasibility of implementing an OGD program in Chile.

Methodology

The objective of this report is to enable the definition of OGD readiness in the given country on the basis of different levels. These levels have been suggested based on our experiences and the Open Data Study published earlier this year[3].

The different levels include political willingness, public administration readiness, and civil society interest and readiness. The steps we followed were:

a) Desk Research: We conducted extensive desk research in two phases to provide quantitative and qualitative data about the country. As a first step we analyzed the key indicators in the various fields related to OGD. This required

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[1] US Open Data portal: http://www.data.gov/

[2] UK Open Data portal: http://data.gov.uk/

[3] Open Data Study:
http://www.soros.org/initiatives/information/focus/communication/articles_publications/publications/open-data-study-20100519

analysis of the country's economic, social and political systems, as well as its technological environment.

b) As part of the second phase of research, we developed a questionnaire (Annexure B) and conducted in-country interviews. The target group comprised of people and organizations that may be the key to any future success (essential in any OGD initiative) and are representatives of the three layers - top political level, public administration level and civil society level. The main focus was to validate or correct the desk research, identify potential threats and opportunities that might have been missed, and identify champions at the three layers who may lead a future OGD initiative. The questionnaire was used as a baseline for conducting the interview; however, in majority of the cases, it was a conversation with lot of anecdotal data and some very useful examples of OGD type of activities thrown in by the respondents.

c) From the desk research and the in-country research, we provide a case for stimulating a discussion for a possible future OGD strategy in the country, and potential interventions/actions that may help in bootstrapping this process.

Project Origins

The project was developed by the Web Foundation[4] in partnership with CTIC Technology Centre[5]. In drafting the methodology for this report, the Web Foundation sought the advice of a diverse group of Open Data and Transparency/Accountability experts. The views in this report are the Web Foundation's alone and are not representative of the views of the experts listed below.

Experts Consulted: *Beth Noveck, Tom Steinberg, Jonathan Gray, William Perrin, John Wonderlich, Ethan Zuckerman, Yamini Aiyar, Jay Kruuse, Toby Mendel, Barun Mitra, Ori Okolloh, Tulika Pandey, Fran Perrin, Rakesh Rajani, Vivek Ramkumar, Rajiv Ranjan, Andrew Stott, Nathan Torkington, Janet Haven, Nishant Shah, Pranesh Prakash, Glover Wright and Helen Darbishire.*

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[4] Web Foundation: http://www.webfoundation.org/

[5] CTIC Technological Centre: http://ct.ctic.es/web/contenidos/en

Desk Research

As the first step to initiate our research, we undertook a readiness study for the implementation of an OGD program in Chile. It included the preliminary analysis of a complex set of variables, since such projects require a set of minimal conditions in terms of development level, investment capacity, capacity and/or quality of governance, etc.

We analyzed the key indicators in various fields related to OGD: the country's economic, social and political systems, as well as its technological environment. Below is a summary of the desk research, highlighting the key findings and elements. The in-depth detailed analysis is available in Appendix A.

Social Context

It is essential to know the quantity and quality of human resources in the country, both as potential data consumers as well as a possible labour force involved in OGD projects. That knowledge is based on the analysis of key issues related to the country's social welfare such as health and education, as well as literacy and availability of appropriate technical human resources to implement and provide support to OGD initiatives.

One of the main social problems of the country is the high inequality among the different population demographics. This problem relates directly to the existing barriers in the education system, defined by the National Innovation Council for Competitiveness in Chile itself as the "two gaps in education". These two gaps consist of the low coverage of preschool and tertiary education and the poor quality of training at all levels, compared to other countries with similar incomes.

The Innovation and Competitiveness Agenda 2010-2020, prepared by the National Innovation Council for Competitiveness, highlights the need to focus on tertiary education and training as "*when the country is compared in these areas, the greatest deficits can be observed, even with regard to Latin American nations. An example of this is the number of engineers and advanced human resources working in companies, where Chile is behind Brazil, Argentina and Mexico, in proportion to population size.*"

Economic Context

One of the key parameters of economic and technological progress is the private sector. When defining an OGD strategy, firms are an important stakeholder to consider as they are one of the main producers of services for citizens.

The various academic studies conducted on the country's economy indicate that the Chilean growth potential is mainly due to its capacity to articulate and maintain macroeconomic policies, to the significant opening of its economy to the outside world, to its institutional strength recognised by the major international institutions, and to the stable financial system[6].

Taking all this into account, we can conclude that Chile is one of the most liberalised economies in Latin America and shares many of the basic characteristics of more developed countries.

The combination of the current economic situation and the 2009 earthquake has hampered an important growth and sustainability trend, but the Organization for Economic Co-operation and Development (OECD) and the International Monetary Fund (IMF) agree in estimating a recovery of the Chilean economy in late 2010 and a return to growth in 2011.

A positive factor is that the degree of trade openness in Chile (the sum of exports and imports with respect to GDP) is one of the largest in Latin America and even in emerging countries. In addition, Chile has been able to maintain a more or less stable productive structure in recent years. Industries specialize in higher added-value services and have managed to position themselves on the global market.

Political and Institutional Context

For the general feasibility of an investment project in any given country, and especially for projects where government transparency is integral, as in the case of an OGD project, the quality of the country's institutions has a strong influence on the control of corruption, as well as the existence of control mechanisms for the respect of civil rights and intellectual property.

Chile is a unitary, democratic country, governed by the national Constitution which came into force in March 1981. The executive power is headed by the President of the Republic, as Head of the State and Government, who designates both the Ministers and the Governors in charge of its regional governments.

The last presidential and parliamentary elections took place on December 13, 2009 and required a second presidential round held on January 17, 2010, which was won by Sebastián Piñera, candidate for the political party *'Coalición por el*

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[6] These ideas can be extended at the Economic Policy Paper No. 20, 2007 of the Central Bank of Chile: http://www.economiamascerca.cl/2010/wp-content/uploads/2010/05/dpe20.pdf

Cambio'. The current president has selected a government team with a highly technical profile coupled with international experience in business and academic fields, in order to focus on its mandate of achieving desired results.

Government Short Term Goals

The new government's programs revolve around two fundamental goals:

1. **Reconstruction of the country** after the earthquake that left two million people homeless and over $29 billion estimated property damage.

2. **Convert Chile into a developed nation by 2018**, and to make the per capita income exceed $22,000 per year. To achieve these developmental objectives, the government will promote the following measures:

   - **Job creation**, through the development of labour market intermediaries, creation of a National Employment Exchange, introduction of apprenticeship contracts, promotion of employment for young people and women and promotion of teleworking.

   - In the field of **fiscal policy**, it will retain the structural balance rule which, since 2000, aims to maintain a structural surplus of 1% of the GDP.

   - Improvement of **capital markets** designed to facilitate financing of new investments and businesses.

   - For **business creation**, multiple measures will be promoted to eliminate bureaucratic obstacles and facilitate funding.

   - Promotion of **free competition** in all markets, carrying out reforms to facilitate the entry of new agents and exit of those companies in difficulties.

   - Major investments in **Energy Policy**, aimed at increasing the availability of energy in terms of the amount supplied and the security of supply.

Also, it makes a commitment to the promotion of Research and Development activities, by increasing investment levels in R&D.

Scientific-Technological Context

OGD projects have an important technological component and therefore require a suitable environment in terms of availability and use of ICTs to serve as a basis for project development. Moreover, being a project related to an emerging economy, the existence of an innovative environment augurs well for its development.

Chile's innovation system is undergoing great challenges and the work done so far is encouraging. Chile, therefore, deserves its place on the global map of innovation, enhancing its endogenous potential resources. And in this context,

ICT is one of their most prominent tools.

Chile's government promotes the country's digital development through implementation of public policies that guarantee success based on the contribution of all sectors: public, private and civil society.

The **Digital Agenda**, a program that provides guidelines for ICT development in Chile, presents a list of 34 strategic initiatives, grouped into six priority areas: mass access to Internet, education and training, online state, digital development of national industry, development of the ICT industry and definition of a legal framework. In 2010, the Digital Agenda embarked on its objective to make Chile a digitally developed country.

While Chile is the best positioned within Latin America, there are areas that are still lagging behind most developed countries, especially with regards to the **connectivity and infrastructure** variables. Chile is still behind countries like Finland and New Zealand; countries with similar size and characteristics.

The improvement of access to infrastructure and connectivity are critical to digital development, so it is necessary that Chile improves these variables, ensuring equitable and inclusive access for all actors.

Legal Context

The Chilean government has developed a set of laws, presidential decrees and regulations which have encouraged the development of information technologies, e-government, transparency and accountability. This section describes the main laws developed so far:

Law on Access to Public Information

Law No 20.285[7], known as the Transparency Law, came into force in April 2009 and aims to regulate the principle of transparency in the public sector and the right of access to information from the departments of the state administration. It is based on six principles – relevance, freedom of information, openness and transparency, maximum disclosure, opportunity and free access to information. These principles are also articulated by two models, active transparency and passive transparency.

Active Transparency implies the obligation of agencies of the state administration to permanently maintain availability to the public, through their

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[7] National Congress Library. Law No. 20.285: http://www.leychile.cl/Navegar?idNorma=276363

web sites, and ensure certain information is updated, at least monthly. Regarding **Passive Transparency**, citizens can request the minutes of administration meetings and decisions of the state administration departments, their arguments, the documents which support or are an essential complement and the procedures used to develop them, with the exceptions established by this law and under other laws.

Law on Privacy Protection

Law No. 19.628[8] on Privacy Protection, in force since October 1999, was subsequently amended in 2002 into law 19.812[9]. This law seeks to regulate the use of personal data stored in data bases or data banks by public bodies and individuals. The objective of both laws is to provide a real guarantee of protection to citizens.

It is also remarkable the Law No. 17374[10], that regulates the statistical management and the census. This Law establishes the statistical secrecy, whereby it is not possible to disclose the facts relating to persons or entities that have been carried out during the course of their activities.

Law on Intellectual Property

Law No 17.336 on Intellectual Property, in force since October 1970 and amended in January 2010 with number 20.435[11] aims to protect the rights that, solely because of the creation of a work, the authors in the literary, artistic and scientific field acquire whatever their form of expression may be and the related rights implied. With the modification of the standard, the limitations and exceptions to copyright are extended among other questions. It also describes how intellectual property affects computer products and makes a detailed description of the responsibilities and rights of Internet service providers.

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[8] National Congress Library. Law No.19.628:
http://www.leychile.cl/Navegar?idLey=19628

[9] National Congress Library. Law No. 19.812:
http://www.leychile.cl/Navegar?idLey=19812

[10] National Congress Library. Law No. 17.374:
http://www.leychile.cl/Navegar?idLey=17374

[11] National Congress Library. Law No.20.435:
http://www.leychile.cl/Navegar?idLey=20435

Law on Net Neutrality

In August 2010 the bill on net neutrality was approved, which modified Law 18.168[12] (General Telecommunications Law, that is amended in article 24) to protect consumers from abuses committed by operators and from the limitations or blocking of Internet content by public agencies. It is a pioneering law and, if carried out, will make Chile the first country in the world to have an ambitious law guaranteeing net neutrality, and which is agreed upon by the different political groups.

As the Telecommunications Under Secretariat is currently drafting the regulations, it is not known in detail how this will be implemented.

Interoperability Framework

Chile has an interoperability framework, consisting of three parts: the Standards Committee for electronic documents, the Layout and Metadata Manager and the State Electronic Services Integrated Platform.

The framework is based on different technological laws and regulations of the Chilean government.

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[12] Biblioteca del Congreso Nacional. Ley 18.168: http://www.leychile.cl/Navegar?idNorma=29591

In-country Research

In-country research forms a critical component of this report. The motivation behind this was to identify OGD related activities (if any) being undertaken in the country, the role of the government, bureaucrats and the civil society and also to identify champions who could lead or bootstrap such initiatives.

Open Data Study published in April 2010 by B. Hogge finds that a three-tiered drive is crucial to an OGD project success:

    a) A top-level mandate motivated by either an outside force or a refreshed political administration hungry for change

    b) An engaged and well-resourced "middle layer" of skilled government bureaucrats

    c) The civil society, and in particular a small and motivated group of "civic hackers"

Learning from the previous study, it is apparent that anyone attempting to mirror the successes of the UK and US projects should not neglect any of these three layers of influence.

As Tim Berners-Lee observed, *"It has to start at the top, it has to start in the middle and it has to start at the bottom."*

Based on this fundamental assertion, we conducted series of interviews with a selection of domain and regional experts. The idea being that for an effective study of the OGD landscape in a country, we need to cover all the layers and get their overall impressions about the topics that not only relate to their own domain, but also estimate and understand the linkages with other layers as well.

Persons and Organizations Interviewed

Below is the list of people and organizations interviewed during the field visit to Chile. The aim of these interviews was to collect first-hand views on the importance and feasibility of an OGD initiative in the country. As a standard methodology, we classify the interviewees according to the three layers.

Top Layer: Organizations/Departments/Individuals responsible for policy formulation and decision making at the political/administrative level on behalf or for the government

- **Mr. Claudio Seebach,** Head of Division, Inter ministerial Coordination (Ministerio de Secretaría General de la Presidencia), Santiago, Chile

- **Mr. Alvaro Bellolio,** Advisor

The Inter Ministerial Coordination Division (DCI) of the General Secretariat of the Ministry's objectives are:

- Advise the President of the Republic and the State Ministers on political, legal, administrative and government relations with the National Congress, political parties and social organizations

- Ensure effective achievement of overall program coordination

- Participate in developing the legislative agenda and to monitor the processing of bills

- Conduct research and analysis relevant to decision-making

- Coordinate the implementation of Law No. 20.285 on Access to Public Information, by proposing and promoting standards of probity and transparency

- **Mr. Alfredo Barriga,** Executive Secretary, Estrategia Digital de Chile. Santiago, Chile

- **Mr. Edgardo Pino Kempowski,** e-Government coordinator

Estrategia Digital is an agency under the Ministry of Economy, which aims to contribute to the economic and social development through the use of ICT to improve the quality of education, increase transparency, productivity and competitiveness and to ensure better governance through citizens' participation and commitment.

It has developed and led the creation of the Interoperability Framework and has participated in the creation of the main laws and Supreme decrees related to ICT and in the coordination of investments in these technologies.

- **Mr. Felipe del Solar,** Executive Secretary, Commission of Integrity and Transparency, Santiago, Chile

- **Mr. Leonardo Sandoval Guzmán,** Advisor

- **Mr. Felipe Mancini Ruiz-Tagle,** Advisor

The Commission of Integrity and Transparency[13] is a body that supports the

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[13] Comisión de Probidad y Transparencia: http://www.leydetransparencia.cl/

General Secretariat of the Ministry of Presidency in the monitoring, review and analysis of the Agenda for Integrity and Transparency. It was originally responsible for putting into practice the Law, for creating tracking applications and content transformation of active transparency and for training state officials. It currently monitors compliance with the Law.

In this context, the Commission has the following tasks:

- Review and analyze national and international legislation in force

- Propose legal and administrative adjustments or changes in the field of probity, transparency and modernization of administrative procedures

- Assist in the study, analysis and proposals of measures to strengthen integrity and transparency

- Support implementation of laws that form the so-called Agenda for Probity and Transparency

- **Ms. Soledad Ferreiro,** Director of the Congress Library (Biblioteca del Congreso Nacional) Santiago, Chile

- **Mr. Christian Sifaqui,** Head of Systems and Networked Information Services

- **Ms. Marialyse Délano**, Head of Information Resources Production

- **Ms. María Angélica Fuentes**, Coordinator of Digital Resources

- **Ms. Roxana Donoso**, Chief of Information Architecture Area

- **Mr. Eridan Otto**, Coordinator of Technological Projects

- **Mr. Patricio Pastor**, Information Architect

The Chilean Library of Congress serves the National Congress of Chile, promoting the activities carried out by the Senate and the House of Representatives, to update legislation and to collect and provide all citizens with the information gathered from multiple sources.

The Library provides knowledge and information in public policy issues to MP`s, and actively collaborates as a link between Parliament and civil society. The Library has a very important role in providing up to date legislation and

promoting the comprehension of the laws to all citizens, and provide support to Congress in oversight, legislative representation activities. The Library is responsible of the historical information about the legislative process.

The managing board of the Library has been successful in making it one of the most innovative institutions in Chile, through its commitment to new technologies, the contents licensing policy and the use of social networks to offer citizens the content thus generated.

Middle Layer: Skilled government bureaucrats/agency heads

- **Mr. Juan Carlos Camus,** Head of the Internet and Publications Unit, Superintendencia de Bancos e Instituciones Financieras, Santiago, Chile.

Juan Carlos Camus is a usability expert, co-editor of the "Web Guide of Chile"[14]. He is responsible for publishing content from the Superintendence of Banks and Financial Institutions of Chile. He is promoting the opening of data within the Superintendence, beyond the requirements of the Transparency Law.

- **Mr. Claudio Loyola,** Head of Public Market, **ChileCompra**, Ministry of Finance, Santiago, Chile

ChileCompra[15] is the institution that manages the Public Procurement System in Chile, through which state agencies independently make their purchases and contracts and companies can offer their products and services. The system is based on a single regulatory framework that ensures gratuity, universality, accessibility and non-discrimination. It is a decentralized public service under the Ministry of Finance and subject to the supervision of the President of the Republic.

The public procurement market generates transactions that exceed 6 billion dollars a year and, thanks to this open system, there are business opportunities for companies of all sizes, especially micro and small companies, which have doubled their participation in the market when compared with the national economy (38% of public market contracts have been awarded to micro and small enterprises).

Civil Society Layer: The civil society, civic hackers, donor agencies, media, ICT companies and entrepreneurs, etc.

- **Mr. Roberto López**, Manager of the eGovernment Leaders of Latin

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[14] Chile's Web Guide: http://www.guiaweb.gob.cl/

[15] ChileCompra: http://www.chilecompra.cl

America and the Caribbean Network (GEALC network), Montevideo, Uruguay

GEALC Network is a systematic cooperation mechanism that supports the processes of institutional development and the promotion of e-Government in the region. This network is comprised of representatives of institutions that work and design policies to transform and modernize the public administration in their countries, by promoting e-Government.

The network is funded with the support of the Organization of American States (OAS), the International Development Research Centre (IDRC) and the Inter-American Development Bank (IDB).

Transparency Organizations

- **Mr. Felipe Heusser,** Executive President at Vota Inteligente, Santiago, Chile

- **Mr. Juan José Sordo,** Manager

- **Ms. Montserrat Lobos,** Head of Web Area

- **Mr. Carlos Martínez,**. Head of Development.

Vota Inteligente[16] is a project of the 'Ciudadano Inteligente' Foundation, a civil society organization that seeks to inform the public and promote the accountability of politicians taking advantage of ICT, especially using the data published by the different agencies in their Web pages.

Vota Inteligente was initially created to track the election process of the President of the Republic, and, due to the success of the initiative, it has been extended to monitor parliamentary activities.

- **Mr. Moisés Sánchez,** Executive Director, Fundación Pro Acceso, Santiago, Chile.

Pro Access Foundation is a non-profit organization created by the initiative of a group of people from diverse disciplines that seek to promote access to public information and the continuous improvement of institutional and legal mechanisms on the access to Public Information, incorporating the vision of civil society. Its main objectives are:

- Promote a cultural transformation that changes the perception that public sector

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[16] Vota Inteligente: http://www.votainteligente.cl

information is property of the state

- Encourage civil society, media, journalists and private sector to be active information seekers to the state, and to be collaborative agents in the process of institutional improvement

- Promote the recognition of this right in all countries of America

- **Ms. María Inés del Ferrari,** Executive Director, Corporación Participa, Santiago, Chile

Corporación Participa is a private corporation that promotes public purposes. It has been working at the global, regional and national level since 1988. It advocates a responsible government and to improve the quality of democracy by promoting citizens' participation in public affairs. It seeks to ensure citizens are informed, organized and participative about democratic values and rights. It also creates awareness about transparent practices and accountability in governance.

NGOs

- **Mr. Claudio Ruiz,** Director of Derechos Digitales NGO, Santiago, Chile

Derechos Digitales is a non-governmental organization in Chile, dedicated to the protection and promotion of fundamental rights in the digital environment. Founded in 2004 by a group of lawyers linked to the Faculty of Law at the University of Chile, it focuses on issues such as copyright, privacy, free expression, free software, eGovernment, etc.

Derechos Digitales has carried out the implementation of Creative Commons Chile, working actively with the Digital Strategy in creating a specific license for the administration software, as well as participating in the Consultative Council of this organization.

- **Mr. Pedro Fuentes,** President of Digitales por Chile NGO, Santiago, Chile.

- **Mr. Aldo Bucci,** Expert in semantic technologies (Collaborates with NGOs)

Digitales por Chile was created to facilitate the implementation of social projects promoted by organizations, coordinating volunteers and businesses around ICTs, thus achieving a greater social benefit. Its specific objectives are:

- Coordinate Corporate Social Responsibility (CSR) in ICT companies creating added value for society and for business, and a social recognition through ICT

projects

- Coordination of professional and college volunteers to support social initiatives

- Prepare reactive ICT plans for local or remote crisis based on experience

- Promote awareness and use of ICT and development of new technologies as a tool for achieving social welfare

ICT companies and entrepreneurs

- **Mr. Patricio Gutiérrez,** e-Goverment Consultant, Former Executive Secretary of Chile's Digital Strategy, Santiago, Chile

Mr. Gutiérrez was CIO of Chile during the launch of the interoperability model and before that he was e-Government Coordinator at the Ministry of the Presidency. He works as an e-Government and ICT policy consultant for various governments in Latin America and the Caribbean.

He currently collaborates with the governments of Costa Rica (Technical Secretariat for Digital Government), Panama (United Nations Program for Development – UNDP and National Authority for Government Innovation), Peru (Consultant for the National Bureau for Electronic Government) and the Organization of American States (OAS) as Advisor on the monitoring model of the development of electronic government in Latin America and the Caribbean.

- **Mr Luis Stein,** President of the Guild of Chilean Software Companies (**GECHS),** Santiago, Chile

GECHS is a consortium of software and ICT services companies in Chile, with the mission to promote development of software industry and related services. It strives to have its affiliated companies position their products and services nationally and internationally. Their associated companies are engaged in software products, engineering software, IT staff outsourcing, IT consulting and process consulting. It brings together small and medium-sized enterprises in Chile, but is linked to various ICT clusters in Latin America.

Most member companies are administrations service providers and have recently started their expansion in America, building relationships with other business associations.

University Education & Research Institutes

- **Mr Claudio Gutiérrez,** Professor, **Universidad de Chile,** Santiago, Chile

He coordinates various work groups linked to semantics. He has won several awards for his research related to Semantic Web by FONDECYT (National Fund for Scientific and Technological Development) and has participated as a guest on several occasions at the International Semantic Web Conference. He collaborates with various associations, NGOs and international working groups. He advises on various projects to various entities (Digital Strategy and Congress Library) on interoperability and semantics.

Press and Media

- **Mr Nicolás Luco, Journalist,** Director at the Siglo XXI magazine and editor of Diario Mercurio, Santiago, Chile

He is a journalist with a long career in science and technology. He has experience of more than thirty years in the sector and has been felicitated with numerous awards and national and international recognitions.

He is currently the Editor, Science and Technology, at Diario el Mercurio, one of the leading newspapers in Chile.

Interviews' Disclosures

Here we collected the impressions of key people and organizations on several OGD related topics through interviews conducted during the country visit. For consistency in approach we have distributed these along the lines of the three layer model described in the methodology wherever possible. In addition to this classification, we also introduce other related factors as part of interview disclosures.

Democracy and Government

Government forms the top layer of our OGD model. An OGD project is by nature linked with the political and institutional development of a country. The quality of the country's institutions has a strong influence on the control of corruption, as well as the existence of control mechanisms for the respect of civil rights and intellectual property. That is why we began analysing the respondents' opinion about the democratic situation in the country and the transparency of its governing bodies.

The general feeling within the country is that democracy is well established, although there are some comparative studies showing that levels of citizen participation in the discussion of government plans is lower than in other nearby countries such as Bolivia or Peru. Nicolas Luco mentions that the specific data about abstention in the last elections was about 12%.

Based on their activism experiences, several persons like Felipe Heusser and Roberto López, say politicians are quite close to citizens and that some politicians are even willing to collaborate in open data projects and could play the facilitators role in the creation of legal initiatives to foster it.

Major confrontation between the two existing political groups is not perceived and citizen participation in the institutions is exemplary.

If we take into account the government top layer opinion, citizens are participatory and there is a good assessment of politicians. In the words of Patricio Gutiérrez, there is a culture of information transparency and there has been a democratic process built on the basis of a strong consensus after the previous dictatorship period. Moisés Sánchez believes that lack of transparency associated with the previous dictatorship regime may also make any initiative that involves disclosure of information perceived as positive.

According to Claudio Ruiz, in recent times there has been a slight downward trend in the level of citizens participation in voting, and although this is not a positive fact, similar trends are also noted in other well-established democracies.

Transparency and Corruption

The government and civil society in general agree in affirming that there is not a problem of corruption perception in Chile, with the exception of some isolated cases in the lower level of administration. In the opinion of Nicolas Luco, absence of corruption perception is genuine. Except for some specific cases that are concentrated in the lower strata and the municipalities, there is no allegation against the new government.

Civil society opinion regarding politicians is favourable and, according to Moisés Sánchez, this may also be one of the reasons why information requests through the medium of the Transparency Law are not very high, and this too contributes to the general perception.

According to Luis Stein, Chile is a very attractive location for companies, as it is a country with very low levels of corruption compared to other Latin American countries, where companies have their incomes burdened by certain local taxes difficult to justify. It could be said that Chile is in general a country where employers feel safe and protected by law.

Roberto López also highlights the fact that perception outside the country also supports the general perception of absence of corruption and political scandals are uncommon in the international press either, as it may occur with other

countries in the region.

Legislation

Civil societies need to have a minimum set of rights in order for an OGD project to succeed. To put it bluntly, a citizen cannot discuss or complain about a given topic if it is not possible to get the minimum amount of information required to have an informed opinion on the topic. Likewise, a private company cannot be confident enough to build a commercial product based on OGD if it does not know what licensing and copyright restrictions apply, if any. Our purpose here is then, to understand the legal framework in a given country and whether it has the minimum features to be considered OGD-ready.

As Patricio Gutiérrez indicates, Chile had an established culture of secrecy as a consequence of the previous dictatorship, and therefore was the penultimate country within Latin America to have a Transparency Law. However, the law exists today – it is proactive and generally well developed. Transparency is active for the thirteen themes that are described in the Law; an independent body is responsible for enforcing the law, the Council for Transparency[17], which has the power to make changes to the Law (for example if Open Data was to be included), and there is also a punishment mechanism for those Heads of Services (Deputy Ministers) who do not comply with the law. Prior to this Law another body was also established, the Transparency Committee[18], whose mission was to implement the Law.

In terms of passive transparency, for example regarding the specific queries made by citizens to the institutions on a particular topic, the Law is a useful tool, since it has been shown that there is demand for the said information. This demand came initially from media organizations, then from the private sector which uses information to generate business using data obtained from studies, reports, etc. and finally from civil society organizations.

All opinions agree that the Law is positive and it is considered a breakthrough for the country's democracy. Also citizens' perception about the state has improved thanks to it, although there are some drawbacks too.

Felipe del Solar noted that it was possible to operate the Law on Transparency in just eight months thanks to the great support and consensus of the political

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[17] The Transparency Council is an autonomous public body with legal status and equity capital, created by the Transparency Law of the Public Function and the Access to Information managed by the State Administration: http://www.consejotransparencia.cl

[18] The Transparency Committee: http://www.leydetransparencia.cl/

layer and involvement of mid-level management. It was also the key to the creation of coordinators of transparency in each of the agencies, which served as law coordinators, and discharged other functions such as dissemination, identification of training needs, etc.

In the words of Edgardo Pino Kempowski, thanks to the existence of the Transparency Law, a change in paradigm is perceived and publishing information is no longer viewed as an uncomfortable matter. Prior to the Law, each department handled information as if it was exclusively theirs; they shared neither with any other body nor with the civil society.

We can point out some drawbacks, as for example, the fact that the time to develop the law has been very short and technological development limited. Due to time constraints and low systems homogeneity among different government agencies, the necessary effort has not been done to improve the technological infrastructure and efforts have focused solely on creating models for converting Excel templates into CSV and then into HTML. Regarding this gap, Alfredo Barriga agrees that the Transparency Law enjoys wide political support but lacks the necessary technical resources for its implementation. Though political will exists, both the state and the municipalities have encountered technical problems to carry out active transparency, which is currently being done with the best intentions but without adequate resources.

Moreover, the release of information has been limited to certain specific data which relate to public employees, such as salary, office location, level of training, the department they belong to, etc. but it has not been extended to other types of data.

A transparency thematic search engine has been created, from which information about various public places can be obtained. There is also a methodology that defines the workflow to be followed in processing information requests.

Claudio Loyola commented that due to this Law significant milestones have also been achieved. For example, each entity's public procurement could be accessed by redirecting information requests from search engines to the website "ChileCompra", where these consolidated data is gathered. The goal is to provide information to all departments that make some type of economic contract.

Claudio Ruiz also highlights that the current Transparency Law has certain limitations, as there already exists in Chile other laws relating to documentation or data protection that have become obsolete and therefore hinder the proper

performance of the law. For example, the Archive Law, dating from the 1920's, mainly deals with aspects such as the type of paper or the stamping of the documents, although it also defines a set of documents to be transferred and stored in the National Archives. There is also a lack of legislation in certain legal issues that may affect successful implementation of the Transparency Law.

Felipe Heusser mentions another weak point, which is that the Law does not cover the Congress, since they are under a kind of a protective umbrella that restricts access to certain information. Claudio Seebach also reminds us that the Law does not involve or cover private entities.

María Inés de Ferrari also points out that active transparency works reasonably well at the executive level, but not at municipalities' level, as there is great disparity of information and the way it is offered is not standardized, the result of which can be confusing for the public.

However Moisés Sánchez gives us a not-so-optimistic vision noting that several organizations' consider that, regardless of the Law, state behaviour involving information flow towards the citizen is still deficient. Making a request for information is considered a political act, due to the possible sanctions from the corresponding Head of Service. This makes the process difficult for citizens, who instead of applying through a normal administration service, must deal with legal services.

Access is also not equal to all citizens and the use of the Law is biased towards the inhabitants of large cities who have Internet access. Furthermore, the system works only for those who understand the logic of the procedure and most requests are made via the Internet.

Hence, there exists some risk of exclusion, especially in the municipalities, since implementation for them is not easy as they do not have the training or the resources needed. Moreover, their offices are the citizens' first point of contact.

Finally, in Louis Stein's opinion, the Transparency Law has been a good political action, that has portrayed a vision of Chile, both nationally and internationally, as a democratic participatory country, with very little corruption, which is positive to attract foreign investment and to strengthen businesses, regardless of the final performance rating.

Felipe Heusser also offers interesting data about the way the Law worked at the beginning, when citizens' requests were answered adequately and in

acceptable time limits. Specifically, during the first year there were more than 32,000 requests for information[19], a considerable number if we take into account the total population. According to Patricio Gutiérrez, this caused some problems to properly manage the requests, since the Law has not been accompanied by increase in resources.

However Moisés Sánchez also reminds us that this is not only a quantitative problem but that equal access should also be guaranteed. It is currently estimated to reach only about 18-20 per cent of the population and there is no interest in making this public because of fear that the system might collapse. It must also be added that usage statistics only provide absolute numbers and they do not specify, for example, the information requested or the response received.

In conclusion, in the words of Juan José Sordo, the creation of the Law was an important milestone, but more progress is required to ensure that both the information published on the Web and the information supplied upon request becomes easier for citizens to understand and can be published in open formats.

Reuse of Information in the Public Sector

Juan José Sordo indicates that no legislation exists regarding reuse of information and it is not in the list of planned initiatives, as confirmed by Alfredo Barriga. Nevertheless, it would not be difficult to find a politician who can raise the possibility of such a law. In general politicians are very close to the public, and some also have very good relationships with organizations like "Vota Inteligente". If the need is adequately explained to them and they are helped in drafting the proposal, there would not be difficultly getting it to the Congress.

Juan Carlos Camús suggests that the state only publish required information, and if a Reuse Law is not created, it will not be possible to expand the amount of information available. In addition, everything that is published is not generated in an easy-to-use format.

As Alfredo Barriga said, another option would be to replace the Law by an institutional declaration accompanied by a presidential directive which would

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[19] During the first year of operation of the Law, 34,482 requests for information were made to the administrations. In 2009, 24,680 requests for information were placed, of which, on January 1st, 2010, 23,141 were completed (93.76%) and the rest were in process. More information:

http://www.leydetransparencia.cl/documentos/Reporte_anual_2009.pdf

indicate how to carry out the OGD process. For the moment, and according to the actual Transparency Law, you can do what you want with all data already published, but regarding what is not published yet, there is no obligation.

On the other hand, people like Patricio Gutiérrez or Moisés Sánchez believe that the Law is not necessary. The state produces many technical studies and reports that each entity preserves but does not share with other entities. This is mainly due to two limitations: first, they say data affects third parties, for example because they have used external consulting methodologies that are subject to trade secret, and secondly, they are also subject to intellectual property rights. According to this opinion, it would be enough if the Transparency Law was made more precise and the work done by the Transparency Council was improved, to make information available through the instructions taught in the law itself.

Pedro Fuentes elaborates on the serious problems that could arise in the absence of this Law, especially for some NGOs, as without it they would be unable to access information required to perform their work. For example, if information about hospitals was available, NGOs could make the greatest effort in those areas with fewer hospital beds in case of natural disasters. If this information was available in real time, assistance could be more intensive and timely in those areas with a greater need, as it would not be necessary to wait for the fieldwork reports generated by each organization, since not even among the NGOs this information is shared.

In general, it can be concluded with what Edgardo Pino Kempowski said: The Transparency Law as it is currently articulated is not sufficient by itself to ensure Open Government Data. As it is now, the Law says that all information generated with public money is public, but does not detail under what conditions.

According to Patricio Gutiérrez it would be necessary to have a more active dissemination of the reuse policies. Alfredo Barriga thinks that it would be important to have a similar project to the Spanish initiative "Aporta[20]". At the

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[20] The "Aporta" Project (http://www.proyectoaporta.es) is an initiative of the Spanish Government which aims to promote reuse of public sector information for government, businesses and citizens. The main contributions are:

- Training and awareness programs on the social and economic value of reuse of public sector information.

- To facilitate authorities and public bodies in the provision of information available, taking advantage of market potential for the reuse of public information in Spain and promoting transparency in government.

moment there is nothing similar, but it is likely to be undertaken.

Privacy Protection

Like in the case of the Archive Law, the actual Data Protection Law is inadequate, confused and obsolete, and therefore it should be modified or otherwise it could cause a major conflict when trying to conciliate data protection with data opening. As Claudio Ruiz told us, neither the author's rights nor the licensing forms of private information are specifically taken into account.

Felipe Heusser shared some weaknesses of the current law, which is mainly oriented to protecting citizen's privacy; mainly, that there is not an agency that ensures compliance with this law, nor is there any penalty regime. Claims must be made through ordinary courts, making the process slow and ineffective and therefore making claims unattractive. Activists largely consider this to be a bad law and so have communicated their views to the political establishment in order to strike up dialogue that could result in change.

In the same way, there is an issue, as Claudio Seebach says, related to the uncertainty of the process which gives the power to a state official to finally decide on the degree of sensitivity of the information. Some ministries such as health, education or the army departments are reluctant to release information that they considered inherently sensitive, so in these cases the lack of motivation is connected to the scarcity of resources.

Pedro Fuertes affirms that the law is insufficient because it does not provide adequate protection to users, but, at the same time, prevents the use of personal information. One example of where this could have been an issue was when information about the location of missing persons could not be published during the last earthquake. Despite the fact that the Law does not allow personal information to be published on a website, in this particular case, it was allowed for location mapping given the magnitude of the disaster and the large number of missing or deceased people.

The law is being reviewed for amendment because, as Patricio Gutiérrez and Alfredo Barriga remind us, it is necessary to meet the requirements for entry into the OECD[21]. However, they do not envisaged to be the creation of a

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■ Dissemination of experiences, initiatives and projects originated in Spain or promoted by citizens, businesses, organizations and Spanish institutions in this field.

[21] The Organization for Economic Cooperation and Development (OECD) is an international cooperation organization, composed of 33 countries, which aims to coordinate their economic and social policies. It was founded in 1960 and headquartered in France. In the OECD, representatives from member countries meet to exchange information and harmonise policies with the objective of maximising

regulatory body similar to the Data Protection Agency that exists in other countries; this role could be assumed by the Transparency Council.

Licensing and Copyright

According to those interviewed, the general situation is that each institution has its own copyright policies.

Claudio Ruiz comments that Chile lacks a regulatory framework in this regard. There is no regulation or unification, so each agency or university uses different policy and licensing schemes, even for individual research component.

According to Soledad Ferreiro, the legal situation can be summarized as follows: there is no specific law about it (licensing schemes), nor are there updated laws about keeping data as the current law refers only to physical files and does not specify anything about digital files. In her opinion, this problem has a simple solution though no initiative to address this is currently under way. Such is the current uncertainty that, in general, the administrations are concerned about publishing information given the risk of future modification. As a result, they often opt to lock the document in PDF format. This means a greater burden is placed on administrations, since the original information should be available in more usable formats like XHTML or CVS. If there is a specific law addressing these issues, it is reasonable to expect that more data would be published in more formats and that it would be of a better quality from the user's perspective. Another example of the current uncertainty is the existence of additional legal problems surrounding the sharing of information among different agencies. The current practice is to request authorization from citizens using digital certificates for sharing information between agencies.

Juan José Sordo thinks that the current Transparency Law is not helpful in this respect, since: a) it doesn't clarify what is considered a public document b) it does not specify what can or cannot be done with the information, and c) there is a "total lack of coherence within the licensing schemes used today."

However, the vast majority of respondents believe there is some interest from the academic world and groups like the Chilean Library of Congress to use Creative Commons licenses. At present, the Chilean Library of Congress is using variants of this with some rights reserved. As the agency director says, its capability to adopt other licenses is very limited due to the type of content and their sources.

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economic growth and help its own development and that of other non-member countries. Chile belongs to the OECD since 2010: http://www.oecd.org/

Other examples were given of government departments who use "all rights reserved", such as the Ministry of Economy. In doing so, they ensure that the data cannot be reused.

Rapprochement between the government and Creative Commons exists and is observable through an active query on different types of licenses available. This is thought to be generating debate and reflection within the different administrations.

Claudio Ruiz believes that the problem of not having a clear licensing system is due to the lack of legal certainty involved. It is not currently possible to know for sure if certain data can be published or not, because the conditions to use information are not well defined.

Another problem is that some government agencies have exclusive agreements with some companies. One example is the case of the "Editorial Jurídica de Chile", which is a private publisher of legal issues that is the only one authorised to publish official government information. Soledad Ferreiro thinks that this is a major problem, since the result is that not even the Congress Library, which is the one storing and keeping all the pronouncements, laws, etc., has the power to say that this information is official.

A particular case that serves to illustrate the current situation is that of "ChileCompra." As Claudio Loyola says, ChileCompra's initial terms of use included a clause stating that the information used by the public market could not be used for commercial activities. This clause was challenged by a company and initial terms of use were modified, but still no specific usage license has been established.

On the other hand, according to Claudio Gutiérrez, the situation in the university is quite similar. Each university has a different licensing scheme, which is not regulated. As a rule, licenses tend to be restrictive, especially in private universities.

Although papers and articles resulting from a grant carry an obligation to be published, these documents are issued with restrictive licenses. Therefore, while it may be useful for some researchers, reproduction is prohibited and the material is not reusable.

Importance of ICT to Government

In this section, we shall analyze in detail the importance of ICT to the government in order to get a proper understanding of available ICT infrastructure, its maturity and readiness to initiate an OGD project.

In the opinion of relevant experts like Claudio Seebach or Patricio Gutiérrez, ICT is a very high priority for the government. This is an important issue for the President because the benefit of using ICT is considered to be high. This perception is also propagated by the existence of a generational change in the new state configuration, which has been named as the "Google generation" and which has also been transmitted to the lower administrations.

It is considered that access to information is very important for political analysis and decision making, so it is necessary to have data, although obtaining reliable data is expensive. The objective is to become a reference for other countries in terms of interoperability and e-Government. There is a pending proposal for Open Data to be included as a priority within the Digital Strategy plan.

According to Alfredo Barriga, the main focus of interest for the government lies now in everything related to interoperability. In order to prepare a future strategy for OGD, the intent is to standardise types of data exposure, identify best practices, detect what state agencies should adopt it, and the time required for implementation.

Claudio Gutiérrez states that although the government has spent much money on technology and has a Digital Strategy department, during the last years the process of innovation has stalled. All the work, which had enabled Chile to be noted as a reference for e-Government in the past, has slowed down during the last legislature.

The universities are not perceived to have a special interest in ICT either, except regarding making Internet connection accessible to all citizens. However, this objective is not being fulfilled currently as, apart from the big cities, access to Internet is quite limited.

Roberto López pointed out that Chile together with Colombia and Brazil are the countries that have opted for e-Government, and they are upheld as examples for other countries in the region. In the specific case of Chile, it is noteworthy that it was the first to create a specific unit within the administration, the Digital Strategy office, to deal with issues related to e-Government.

In addition, it is also considered that any innovative e-Government initiative that has its origin in Chile will have an immediate effect in all Latin America and Caribbean countries, as Chile is considered a leader in this field. However, Nicolas Luco draws our attention to an important fact, which is that the last constitutional reform set the four-year presidential term with no possibility of re-election, which in his opinion has hampered long-term vision and directly affects ICT development, which is being deprioritised, with the consequent risk of

losing the ICT lead in the region.

e-Government Services

Luis Stein says that compared to other Latin American countries, Chile has more electronic reference services, as there are several electronic services and transactions available online for business, especially in the field of taxation.

However, the general feeling of respondents like Claudio Loyola or Felipe Heusser is that implemented electronic services are not many (approximately 400) and they can all be found on the "Chile Click" portal. While it is true that major tax-related services work and have a high level usage by citizens, they constitute only around 20% of total services, representing a low percentage. So for Patricio Gutiérrez it is clear that some efforts must be made to improve dissemination.

Edgardo Pino Kempowski believes the reason for this is the variation of the degree of modernisation depending on the sectors prioritised. For example, on some issues such as procurement, citizens' identification and taxes, Chile is globally competitive, whereas in other respects it is far behind.

An additional problem that María Inés de Ferrari points out is that, although there are some good services with a high degree of satisfaction, services are currently provided online and its use is not easy for citizens, especially in the rural environment. This is primarily because there are many cultural gaps and the literacy rate is low. To alleviate these problems it would be desirable to make the leap to mobile, especially in rural areas, where this technology is common communication tool making it a well-known and understood device.

Finally, we can also note that the data published in a recent survey states that all public bodies, from the largest to the smaller ones, have a website available. This is because all of them are required to have a website where they must show some internal information required by the Transparency Law, as well as other information about the services they offer.

On a positive note, Roberto López again says that in the e-Government Leaders of Latin America and the Caribbean Network (Red GEALC), which has a global vision for all countries of Latin America and the Caribbean, Chile is not only one of the countries with the largest number of electronic services, but also has an infrastructure that allows Internet penetration in almost any part of the territory.

Government Interoperability Framework

Juan José Sordo explains that though there is an interoperability framework, there is no unique figure who can take consistent decisions on technological questions. Patricio Gutiérrez also clarifies that there is an Interoperability Platform for the Electronic Services of the State that has a metadata and schemes manager and uses XML as a standard for interoperability.

However, it seems that this framework is not mandatory. In practice, it operates only in five or six of the most important entities (of a total of more than 200) because they are the ones with the necessary resources and knowledge, which allows them to be highly interconnected. The other agencies do not have the necessary means to implement the framework, but many of them are willing to use it to be able to enjoy the benefits of the platform.

Web standards are also taken into account through the formalization of development guidelines, although compliance is not audited. Furthermore, each administration is free to use the formats they want when publishing information and, if proprietary formats are used, it is necessary to bind to the required plug-in for viewing.

For Claudio Seebach the excessive bureaucracy is a problem that is holding back the development of interoperability since it is necessary to come to agreements among the different departments when they need to exchange information. An additional problem, in Claudio Gutiérrez's opinion, is that there is also a lack of training in administration. In general, this means that there is a very limited culture of innovation and they are not proactive in usually adopting the advances coming from, for example, the universities.

According to Juan José Sordo, the current Digital Strategy is not working properly due to lack of consistency in the criteria, and in practice this results in each department deciding arbitrarily what technology to use, the data model applicable, interfaces, etc. Claudio Seebach feels that although the current framework is not mandatory, the benefits to the user are recognized and so it would be necessary to adequately disseminate it.

Notwithstanding the above, it is not perceived that the government is intentionally putting up obstacles when providing information, but rather the current problems come from the convenience or even the ignorance of those responsible for publication.

It should also be highlighted that the project mentioned by Alfredo Barriga, still in draft, on the standardization of presenting information, defines two main components:

1. The metadata scheme that should be used
2. Data Bus for interoperability

Regarding these components, a common data repository for the State will be generated in a standardized format, so that it can be used later to develop tools for government intelligence.

At this stage the priority is to define the metadata to be used. Interoperability is not mandatory, but it is required that at least all information related to administrative procedures is managed through the interoperability platform, which means the continuance of related metadata. This requisite is mandatory by the General Law on Administrative Rules and Procedures of the State, which provides that information already available with the state, cannot be requested from the citizens.

Finally, it is also noteworthy that the new government is interested in enhancing interoperability strategy because of the cost savings involved. Based on the Chilean proposal, other countries in the region are also incorporating their own interoperability schemes. Chile can thus be considered as a reference within the area.

Roberto López thinks that Chile is clearly a pioneer in this field and the interoperability framework created by its government has been a reference point for all countries of the Southern Cone, where it is being replicated with varying success.

Government Data Collection

OGD advocates have reiterated that if data is not made available in electronic formats, then an OGD project cannot be started. The more proactive the government is in divulging information, the easier it is for the demand side to access that information better. That is why we spoke with interviewees about the current level of cataloguing of information within government, as well as about the quality of information available and the existing facility for reuse.

Edgardo Pino Kempowski tells us that the government already possesses considerable amount of public data, not only those that are bound by the Transparency Law, but also other information shared by various departments.

However, a significant portion of the data published in various portals, about 20-30 per cent comes from institutions other than those that generated such information, say for example the website "ChileCompra", which publishes all information available on public contracts regardless of the agency/organization executing the contract, or the Chilean Library of Congress, which does the

same with legislative information.

Also, as Alfredo Barriga says, it is only now that there is awareness about the enormous amount of data generated by the state. Currently the highest priority is to comply with the Transparency Law in force, and they are aware that the amount of data made visible should be expanded. They are also in an identification phase trying to structure the data sharing methodology. In the specific case of "ChileClick[22]" it is intended to incorporate more than 7,000 new sheets of services, which will increase the number of available data on procedures, some of which were not even known.

Claudio Seebach mentions that there are some problems regarding data de-segregation as the current granularity is very low. In general, access to routine data is not a major problem, but when applying for non-routine data, especially potentially sensitive information, it is not possible to obtain the information.

An additional problem which is indicated by both Alfredo Barriga and María Inés Ferrari is that there is no strategy for the new information that will be produced. It is not clear what happens with the new information generated each day, so the existing management problem keeps growing. According to Moisés Sánchez, it is precisely the absence of obligations with respect to the new information generated that makes it plausible for the authorities to deny access or share the information.

Moisés Sánchez also thinks that the optimal level of information that the State should have to make decisions about public policy is not well defined and that's something important because that level will also be the one that defines what will be the upper limit of information to be made open to citizens.

Quality of Data

Many of the interviewees, such as Juan Carlos Camús, Claudio Gutiérrez, Edgardo Pino Kempowski and Alfredo Barriga, have said that information made available to citizens is not processed in any form and presented the way it is in the source systems. Hence, the data is not very homogeneous and the diversity of end formats decreases the possibilities for reusing it. This makes it very complex to try to catalogue information, so that it can be extracted and analyzed to enrich it with semantics.

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[22] The site ChileClic is a procedures aggregator of all government portals. ChileClic gathers today more than 1.700 sheets with guidance on benefits, programs and procedures and more than 420 services that can be done through Internet: http://www.chileclic.gob.cl

Claudio Gutiérrez and his team at the University have just launched the initiative "Chile Data" with the goal of implementing standards to facilitate interoperability of data in the publication of Open Data, but it is still a very new initiative.

Felipe Heusser adds that the data is often incomplete and seldom in the right format for automatic processing. In his experience, data is collected from many sources, and it is this multiplicity of sources that gives rise to a multiplicity of formats. In the case of "Vota Inteligente", one would have to use many human resources to convert the existing documents into usable formats.

Another problem that Moisés Sánchez highlights is that there is little granularity in the information obtained through the Transparency Law. It is not possible to access disaggregated information and, when it is not routine information, the procedure gets exponentially complicated.

María Inés de Ferrari notes that there are even cases where the information is not delivered in any format, but you have to transcribe it yourself, as you will not get a photocopy. According to Edgardo Pino Kempowski, it is also common to find cases involving passive transparency in which the documents requested can be delivered in any physical format: paper, CD, etc.

In general, the overall perception is that there is no accountability to ensure the information is delivered in a way that can be easily interpreted by the public. The progress of the Transparency Law is being handled by the Transparency Agency, but they are not concerned whether the information is really accessible.

Juan José Sordo thinks that there is also little consistency in the format the information is published. Some are published in Excel, some in PDF, etc. so the processing becomes quite complex. There is no regulation on the proper way to publish content and both the middle managers and the state officials do not have the necessary training to do so.

Finally, as a case study, Claudio Ruiz mentioned the platform "Analiza", created by the Government of Chile, as a Business Intelligence system for government procurement. The data used in this system are of high quality, and they are obtained in real time from several different sources within the Ministry of Finance. The platform is not public at present, but some of the data contained is public and can be accessed through the portal ChileCompra.

Also, all procurement databases are available in Excel format and when this platform becomes open to the public, it will allow for exporting information in XML format.

According to Claudio Seebach there was also another case of Open Data in the

past, such as the Planning Directorate that in 2003 uploaded all their reports on the web. For him, the more data that is publicly available, the better. A very valuable source of information, including for the state itself, is the National Institute of Statistics, which currently does not publish any of the data it manages.

Ease of Data Re-use

The Transparency Law requires the publication of certain information proactively, even forcing some agencies to update them monthly. However, Felipe Heusser stated that although there is not any organization unifying data, there is a structure in the contents of the websites, which makes easy to find and claim access for this data although open formats are not usually used.

The information requested on the basis of passive transparency may result in additional costs being charged to the applicant for information.

However, as Edgardo Pino Kempowski says, data is delivered in the original format and is not processed, so it exists in multiple formats. To comply with the Transparency Law a system that converts Excel into XHTML files has been created, so that they can be published directly on the Web pages. The problem is that conversion is not always done correctly and it is conducted only for the 13 themes required by the proactive site of the Transparency Law.

Claudio Ruiz thinks that the problem today is not at all technical, but legislative, since a reuse model for the public information published by the state will not be able to be developed unless usage conditions are properly regulated. The legal vacuum that currently exists makes it unlikely that a company would invest on business models based on the government data, without having enough legal certainty to ensure the investment.

It is also remarkable to note that there are no standards or open formats for presenting information and there is no obligation to comply with the Accessibility Guidelines (WCAG[23]), although there is a Web guide where the standards to be followed are defined.

An exception may be the Chilean Library of Congress where, as Soledad Ferreiro says, data is being published in the existing formats, but they are also opening up databases and Web services while exporting Sheet Excel into CSV

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[23] WCAG (Web Content Accessibility Guidelines) are standards created by the W3C (World Wide Web Consortium) that explain how to make Web content accessible to people with disabilities. More information: http://www.w3.org/WAI/

format.

The Library has also undertaken a pioneering project to study the semantics of the contents related to all the historical documents they own and where links are being made to Wikipedia[24] and Wikisource[25]. Either way, as the Library manager explained, it is clear that this is an exceptional case and not the general trend, as it is probably the only institution that carries out this type of project work.

Government Disposition towards an OGD Initiative

A national government is a large organization and, as such, it has many challenges to face: mission, strategy, communication, capability, etc. There might be no or low interest to face all these challenges at the Public Agencies or Government level. Within this section we try to evaluate the government's willingness in facing those issues and the investment in setting up an OGD-based culture within the government and more broadly, in society.

The Committee on Integrity and Transparency is interested in exploring the possibility of releasing public data from a single centralized Web catalogue - similar to those of the US or UK governments - and has communicated this with the government at large. As a result, a feasibility assessment is being conducted, in consultation with universities and contacting other state and civil society institutions who would be responsible for designing the project.

Relevant persons like Alfredo Barriga, Soledad Ferreiro, Claudio Seebach and Patricio Gutiérrez are clear that there is willingness and political will for transparency and, by extension, anything that involves Open Data. For them it is also evident that different laws and regulations are helping in the process. There is willingness amongst the upper levels of the administration as well as from politicians of all parties who have proposed and supported the Transparency. There are also several state institutions and agencies that consider the idea of an Open Data strategy to be both appropriate and feasible.

The President has been made aware of the interest in an Open Data strategy as well as its merit. Furthermore, the Executive views this as largely beneficial

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[24] Wikipedia is a project to communally write a free encyclopaedia in every language. It was developed based on the wiki concept, which allows to collectively create web documents without the need to review the content prior to acceptance for publication on the web: http://www.wikipedia.org

[25] Wikisource is an online library of original texts that are in the public domain or have been published with a GFDL or Creative Commons license. Wikisource site is part of the Wikimedia Foundation and is a sister project of Wikipedia: http://www.wikisource.org

thanks to the Transparency Law which has also helped to overcome any initial reluctance. As Nicolas Luco said, there are several distinguished politicians such as Alfredo Barriga, Senator A. Horvarth[26] and the Ministers of Education, Economy, Transportation and Telecommunications, each of whom have a distinctly open attitude.

In their opinion, the problem is that most of these people do not have a complete idea of what Open Data exactly means. However, political leaders do understand the main concept of transparency and its deep-rooted implications. They are aware that new technologies can help a lot in the process; this is why it is now necessary to make politicians see beyond the Transparency Law and become aware of the additional benefits and return on investment that opening of data can provide.

According to Maria Ines de Ferrari, although the government has been very recently established and its strategy is not yet clearly defined, some minor gestures have been adopted for information openness. One significant case is with regards to sharing information about Ministers' salaries. Moreover, according to Patricio Gutiérrez, the new government aims to promote new ways of governance and considers transparency and the disclosure of the information they manage a positive gesture. Accordingly, Open Data can be a clear strategy to follow in strengthening the existing digital strategy, which would see a marked improvement in interoperability.

A clear example of this predisposition is outlined by Patricio Gutiérrez. It focuses on the work of the Chilean Library of Congress in particular because it is part of the legislative power and is led by a director who promotes Open Data and is influential among senators and deputies.

Alfredo Barriga thinks that OGD is not a priority for the Digital Division Management at this time, although it can be the inspiring body needed to make the OGD strategy a success, as it will always support such a move. However, there are other institutions that may be better prepared to tackle the project, such as the Transparency Committee, chaired by Felipe del Solar, or the Ministry General Secretariat of the Presidency.

Finally, it is worth noting that some inter regional bodies, such as ECLAC[27] or

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[26] Senator Antonio Horvath Kiss: http://www.antoniohorvath.cl/prontus_ahorvath/site/edic/base/port/portada.html

[27] The Economic Commission for Latin America (ECLAC) is one of the five regional commissions of the United Nations and is headquartered in Santiago de Chile. It was founded to contribute to economic development in Latin America, to coordinate actions focused on promoting and strengthening economic relations among these countries and with other nations in the world. Later, its work was expanded to the Caribbean countries and joined the aim of promoting social development: http://www.eclac.org

OAS[28], may include Open Data in their strategic plans, but cooperation among countries in Latin America is weak, and therefore Chile is more likely to promote its own strategy alone.

ECLAC proposes specific commitments for 2015, but there is no unique dialogue on this issue and these commitments may not be accepted by all countries.

Middle Layer Disposition

Felipe Heusser comments that the middle layer **politicians** are predisposed to carry out OGD initiatives because they have the necessary expertise and the infrastructures are sufficiently advanced. Also it seems that these middle layer **politicians** are interested in the potential data opening can provide in the framework of interoperability and that this is why it is being promoted within the country's digital strategy itself. Furthermore, in the opinion of Patricio Gutiérrez, middle layer **politicians** are interested in this because this would mean they are the natural promoters of such an initiative and they already have the experience acquired with the Transparency Law.

There are some technical experts in the ministries, especially advisors, who are very capable given that most of them have been spent time at universities' engineering departments as teachers or while earning a PhD. However Claudio Gutiérrez reminds us that most of them lack the necessary knowledge and interest, because if they take into account previous experience with the Transparency Law, they realize they are assuming an extra workload. They also have to prioritise responses to those requests against other tasks assigned, as the penalties system punishes them by reducing the salary of those head of services who do not deliver on time the required information. As a result, they put much pressure on their technicians to quickly resolve requests for information.

Therefore, in the opinion of Juan José Sordo or María Inés del Ferrari, it is necessary to create incentives so that state officials do not perceive the law as simply a workload, but as something positive and necessary. At present, this is not a task that is highly valued and this would require a greater awareness of the benefits of transparency.

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[28] The Organization of American States (OAS) is a Pan-American regional organization with the goal of being a political forum for multilateral dialogue, integration and decision making in the American environment. The organization statement says it works to strengthen peace and security, consolidating democracy, promoting human rights, supporting the social and economic development and promoting sustainable growth in America: http://www.oas.org

Another problem noted by Moisés Sánchez is that those services which have greater proximity to citizens are more likely to provide the information requested. However, they are generally more reluctant within the ministries as they have a more marked political nature. It even gives rise to some incongruities, such as refusing to provide information that has already been published on the Web. In general, the final criteria when providing the information is quite subjective and there is a general tendency to embrace obscurantism based on national security grounds. These are the main reasons of the complaints reaching the Transparency Council.

Claudio Seebach also emphasizes that, despite the willingness of the middle managers, there may be problems regarding the coordination of efforts due to the existence of fiefdoms within the administration that may be reluctant because of the loss of power this might mean for certain state officials.

However, according to Soledad Ferreiro, there are also very positive signs because all the technical managers of the Chilean Library of Congress and all the agencies they have direct relationship with, are already talking about Open Data. Furthermore, there is great interest in the subject as well as in other new trends. Possible ways of relevant training for technical experts and officials are already being studied and, although it is proving problematic, interest exists and it is perceived.

A very important fact that Edgardo Pino Kempowski reminds us of is that an initiative of this kind has been included in the draft Digital Agenda of Chile 2010-2014 precisely because of these intermediate layers.

However, as Alfredo Barriga indicates, training on what Open Data means and its immediate consequences is required, i.e. issues related to formats, licenses, costs, etc.

Management Structure for Open Data

For Edgardo Pino Kempowski it is clear that technical, technological and regulatory elements already exist in the administration that would facilitate Open Data, such as the Transparency Law, the Administrative Procedure Law[29], various Supreme Decrees and the Interoperability System.

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[29] The Administrative Procedure Law (May 2003) Law No. 19.880, establishes and regulates the bases of the administrative procedure of the State Administration Acts, which enshrines the principle of transparency and openness, noting that the administrative procedure is performed with transparency, so as to enable and promote knowledge, content and basis of decisions taken in it, providing guarantees and specific resources.

In his opinion, to promote OGD it will be necessary to have the support of an institution with a vision that goes far beyond transparency. However, given the current characteristics of the public administration in Chile, it is unlikely that an institution related to transparency finally assumes that responsibility.

Both Alfredo Barriga and Soledad Ferreiro agree with Edgardo Pino Kempowski and other respondents: that it would be useful and interesting to have a reference and support office. However, Alfredo Barriga is not sure whether the creation of this office would be necessary before the strategy is implemented, as the general rule is that the function may determine if a body needs to be created, but not vice versa. Other respondents believe that this role could be assumed by an entity that already exists. For example, it might be the Transparency Committee, as Claudio Seebach suggests, or the Ministry of Development, as Juan Carlos Camús suggests.

Patricio Gutiérrez thinks that there is no clear institution, although there are some individuals who may have an important role due to their privileged position and interest in the subject. One example might be Claudio Seebach who is in charge of the Inter-ministerial Coordination Division within the Ministry of the Presidency. This body is responsible for monitoring the commitments discharged by the different agencies and they have created a special unit whose task is to report public sector management and to monitor the progress of public policy.

The conclusion drawn by Claudio Loyola is that in each country the major shortcomings that limit the opening of data are different and, if the main problem in Chile is legal or regulatory, there should be an entity related to this area which should lead the Open Data project in conjunction with other agencies involved.

It is also interesting to note what Juan Carlos Camus points out, referring to the specific case of the Banks and Financial Institutions Superintendence, which is already working on ways of publishing data, based on international experiences. Felipe Del Solar said that the Commission of Integrity and Transparency is developing software to enable publication, in standard formats, of any information regarding the reconstruction of the country after the earthquake associated with the metadata for geo-localisation. This project will engage the various ministries involved (Presidency, Health, Housing, Education, etc.), so that all the information, which is currently dispersed and disaggregated, can be consumed by citizens in a centralized way in a similar format to that used by the

US Government[30].

Finally, Soledad Ferreiro does not believe this is only a matter of agencies. She feels that as a result of the current status regarding documentation management in the administrations and how inefficient these systems are, it is difficult to implement an Open Data Initiative without being supported by the appropriate legislation that promotes reuse and standardisation.

ICT Development Level and Evolution

OGD projects have an important technological component and therefore will require a suitable environment in terms of availability and use of ICT to serve as a basis for project development. Here we complete the previous desk research about ICT infrastructures with in-country impressions.

Luis Stein thinks it is clear that Chile is a rich country with good infrastructure and very high Internet penetration, especially in the capital. Most people are not experts in technology, but most have a computer and are users of popular applications like Facebook or Gmail. According to Nicolas Luco, there is a widespread digital culture, especially among the young people living in urban environments and with a higher level of education.

The use of mobile phones is widespread and it is even difficult to find a restaurant that does not have a WiFi connection open to the public. Buying tickets online is a fairly common process and e-commerce is moving very rapidly in sectors such as tourism.

The general feeling is that Chile is well connected, since the vast majority of public services such as universities, libraries and museums have online connection. Large companies have a high ICT culture and this culture is now penetrating medium and small businesses. We could also say that ICTs are a profitable business for both operators and technology distributors.

However, this view is in contrast with the data seen in the previous analysis on the situation of the country that was more in line with the views expressed by Patricio Gutiérrez, who says that approximately 50% of the population have Internet access and over one-third has a computer at home, but there are no recent statistics. There is also public support and subsidisation policies to promote their use, especially in rural areas where communities are less developed than the rest of the population. However, the issue, as Nicolas Luco

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[30] recovery.gov is the U.S. government's official website that provides easy access to data related to Recovery Act spending and allows for the reporting of potential fraud, waste, and abuse.

said, is on the still high connectivity costs.

It should also be mentioned that the central state has a good level of modernization, but the municipalities have problems and are still far from achieving optimal levels. For Claudio Seebach, a technological effort has been made in some areas to implement the Transparency Law, for example with the unification of the portals. The weak point in terms of ICT may be the existence of an optimization problem of resources, which currently are concentrated in certain "technological fiefdoms" made by departments that are leaders in the field of ICT.

For example, Felipe Mancini, in charge of the technological development of the platform for implementation of the Transparency Law, understands the challenges faced by administrations to achieve the objectives that were imposed by active transparency. There were only a few resources to handle the publishing work on the websites, but the work comprised reviewing lots of documents and Web system modifications in order to make the monthly updates. The resources also had to connect their systems with those of the Commission to report requests for information or access to published documents, etc. Despite these limitations, the degree of compliance is 85% from amongst the agencies depending on the government (just over 300).

Perhaps the final conclusion is in line with what Roberto López commented: compared to other countries that are part of the e-Government Leaders of Latin America and the Caribbean Network (Red GEALC), Chile has the highest level of citizenship access to technology, although it is still below other developed countries. This has encouraged the development of e-Government faster than in other countries in the area.

Internet Connectivity Level

Pedro Fuentes suggests that Internet communications are good, especially in the capital and major cities. This has enabled NGOs like Digital Chile to have very large user communities and their volunteers to perform the work at home from anywhere in the country.

However we must not forget that, according to Patricio Gutiérrez, in rural areas there are still significant gaps.

Mobile Penetration

Luis Stein says that almost everyone has at least one mobile phone and every day there are more people who use it to connect to the Internet. But even so,

the star service today remains the SMS, and as an example of this, Luis Stein mentions a project[31], which aims to provide critical information to farmers in the country, making use of SMS technology.

Patricio Gutiérrez confirms that feeling, arguing that there are only basic services via SMS. In addition, most mobile phones, about three-fourth of the total, are prepaid and, it is considered that development of services for smart phones is possible.

For Pedro Fuentes, mobile phone usage is widespread and, at least in the case of NGOs, it is usually the only communication means in disaster areas. For example, during the recent earthquake, systems for locating victims were put in place thanks to mobile and 3G technologies when phone lines were out of service.

Capacity for Innovation

OGD projects are considered as an emerging area, and this is why it is also important to debate about the existence of an environment with some innovative nature, because that will be helpful for its development.

As Claudio Gutiérrez said, the School of Engineering at the University of Chile is pursuing a general policy, which promotes the publication of all papers, articles and publications they produce. All these materials are being indexed by ISI (Institute for Scientific Information) and made available to interested people. The list of documents has been updated till the year 2000 and the endeavour continues.

Unfortunately, this is an isolated case within the universities, despite that 90% of all research funds coming to the universities are public and therefore results should be available for everyone, as the law provides that all that is financed by state funds should be distributed free of charge, excluding the reproduction costs. There are many universities and researchers, who cannot access the studies conducted by other universities, and they are not aware of the studies being carried out in other centres, and because of this sometimes the state pays twice for the same job.

A consortium named CHISEL (Partnership for Access to Scientific Information Electronics) has been created through CONICYT (National Commission for Scientific and Technological Research), which aims to make public all material published by the universities which has been funded by CONICYT and other

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[31] DatAgro - Supporting Agricultural Production with SMS: http://www.datadyne.org/programs/mip/datagro

similar international institutions. However, most of what is published is of foreign origin and not from the universities in Chile.

As for the ICT industry, the situation seems to be quite similar. Claudio Gutiérrez repeats that the ICT business environment in Chile is not considered to be very innovative as their knowledge is focused on limited products belonging to big companies or on Web development. Luis Stein admits that generally Chile is a country not predisposed to innovative research. The reason is that the university students are not trained with the necessary entrepreneurial spirit, nor instilled with the importance of research, resulting in few entrepreneurs.

This is a major problem for the ICT industry in Chile, which places some responsibility on the state for failing to promote and fund innovative projects. According to Alfredo Barriga, ICT companies in Chile are not good code generators, but have strength in integration. Discussions with Heads of Ministries are about business environment and not technology.

Another major collateral problem affecting the ICT industry is that all the public tenders that are published through "ChileCompra" are awarded to the lowest estimates in order to maintain the image of transparency and responsibility. Edgardo Pino Kempowski agrees that the real technological cost is not assessed, so the government usually awards projects based on price rather than quality, since quality and innovation are not seen as important factors. This leaves quality of work as a secondary consideration.

According to Juan Carlos Camús, there are leading Small and Medium Enterprises (SMEs) in the specific field of Web development but they lag behind with regard to other technologies. On the other hand, there is a widespread culture in terms of quality certification and international alliances.

However, despite all the above factors, Chile's e-Government initiatives are upheld by other countries of Latin America and the Caribbean as a reference.

The key question for Patricio Gutiérrez is the fact that Chile can be considered primarily as an early adapter that has a culture of rapid implementation of all initiatives carried out successfully from its territory, but there are no major innovations carried out by local companies, except in isolated cases.

The ICT sector is small and devoted almost exclusively to the provision of services. It is committed to innovation and development only through five sectors in which Chile is considered to be competitive, among which we do not find ICT.

Pedro Fuentes confirms that very few companies are innovative, except for

some particular initiatives that demonstrate greater creativity. The University does not have an especially active attitude either. According to Nicholas Luca, work is being done to try to remove some existing barriers when exporting ICTs, such as the problems of double taxation. Currently, import is much larger than export; companies buy and adapt technology, although there are some exceptions like research on copper, fish farming, fruit growing and winemaking that has been developed within the country.

Alfredo Barriga agrees with the perception that the private sector is not particularly innovative, because services are developed primarily based on what can be sold to the administration and not in terms of what the administration has to offer. It would be necessary to analyze the interests of the private sector in terms of how information is consumed. He said Chile is changing from being an ICT buyer to becoming a services buyer, which means a total change of scheme, since now the Chief Information Officers (CIO) of the organizations must be experts in Service Level Agreements (SLA). Chilean companies are not generating good source code, but they are good integrators. Discussions with officials of the Ministries are about business environment and not about technology fields.

In the specific case of "Digitales por Chile" it is being proved that the developments that some companies refused to carry out, claiming major problems of feasibility or disproportionate costs, were finally carried out by volunteers who had very few resources but were very creative.

So it seems that the general conclusion, as discussed with Claudio Loyola and Juan José Sordo, is that in some agencies there are middle managers with advanced and innovative knowledge who have developed some leading projects, but overall it is difficult to find innovative projects in the administration. Also, some universities are opening up their publications, but in general we can say that there is very little innovation in the country, with the exception of some developers and some university departments.

A practical example that clearly depicts this situation was the "BCN Innova" project of the Chilean Library of Congress[32] that, as Soledad Ferreiro describes,

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[32] Innova is a project conducted by the Chilean Library of Congress funded by the Interamerican Development Bank. The project's objective was to strengthen their capacities to better fulfil the tasks of supporting the role of Parliament and rapprochement between the Congress and citizens. The specific objectives were:

- Designing and implementing a management and positioning strategy that fits the organisation and the internal capabilities of the Chilean Library of Congress according with the institutional vision.

- Building the necessary information architecture to provide digital information services

it was a project developed by employees of the Library themselves. Companies in the sector participated in a limited way, because the Library has a very advanced ICT department with knowledge regarding new trends, techniques and technologies.

As a final point to this section, we can mention Claudio Seebach's reflection, who believes that the opening of data will make a more innovative administration possible.

User Base for Data Consumption

Just like making the data publicly available is important, so it is to create a potential user base for such information. If civil society, including citizenship, media, business, etc., is not prepared to receive, analyze and exploit the information received, then it may not be considered to be a successful OGD project.

In Alfredo Barriga's opinion, it is not certain whether there exists a market of potential re-users, although it is clear that the data managed by the administration may be useful, for example, to university researchers. From his point of view, the necessary market maturity is missing, which could have detected the potential uses of information, but it is expected to have a demand if we consider pioneering experiences such as "ChileCompra", which aroused the interest of the private sector.

Till date, the sensitivity of the private sector in terms of Open Data is quite low and published information so far has not generated much interest.

Pedro Fuentes thinks that in general, and also from the NGOs' point of view, a great demand for sharing the information is not perceived except in exceptional cases, like when a disaster occurs and it is necessary to coordinate aid managed by NGOs. In his opinion, this approach could be extended to other sectors of the country, which generally do not understand the enormous potential from the sharing of information.

Soledad Ferreiro also agrees with him that there is no great demand at present, and it is not expected too while people do not know exactly what Open Data is. The Chilean Library of Congress publishes large amounts of data in multiple formats, but people are not using them because probably they are not aware of

- ▪ Rethinking knowledge and information services for the legislative power.
- ▪ Strengthen the relationship between Congress and society.

the possibilities and opportunities on how to use them.

However it seems that in other areas the perception is somehow different as, in Claudio Ruiz's opinion, multiple queries regarding copyright of the documents published by public portals have been made through the Digital Rights Initiative.

Many of the interviewees agree that these queries initially came from the press, who requested the information in the absence of response from some agencies, when they were asked about the possibility of publishing salaries information identifying the names of the workers. At present, queries come from other re-users, for instance, people who want to publish information obtained from the administration Web pages on their personal blog or companies that want to use tenders data to sell this information once treated.

Edgardo Pino Kempowski says that some small innovative development businesses have been detected to use "ChileCompra" data directly, creating even new views of the available databases and using them regularly.

The more widespread perception is that some citizens' initiatives use data published by different media, as Felipe Hausser or Patricio Gutiérrez say, among others. The main re-users today are therefore mainly organised groups of civil society.

However for María Inés de Ferrari, there are many other potential re-users like enterprises, entrepreneurs and citizenship leaders, including some NGOs who have already made the first reuse examples.

Soledad Ferreiro quoted a concrete example of groups that use information and generate a commercial benefit, specifically insurance agents, who each morning get the accounting data and stock quotes from different agencies, which has been published by the Superintendent and then they process them to be able to offer insurances on better terms for their users.

In universities, according to Juan José Sordo, it seems that there are some entrepreneurs who want the data to generate their own developments. This happens also with some civil groups such as "Vota Inteligente", but in general people need to know and be aware of the possibilities offered to citizens, businesses and the administration by the use of public information. With the right information the number of re-users would grow exponentially.

The government is studying the possibility of an "innovation competition" to promote the use of published data and make the resulting applications public. For Moisés Sánchez, it is clear that for the proper development of Open Data it would be essential to count on the developers' work and the private sector to

become the great reuse. Leonardo Sandoval also says that if the Government encourages an initiative by the publication of public information in an orderly manner, in standard formats and which can be processed by machines, demand will surely be activated, since in his meetings with various stakeholders he has detected a growing interest for Open Data.

Education and Literacy Level

In the opinion of Louis Stein, Chile is a country with a very high literacy rate in relation to its neighbouring countries, with many universities, both private and public, and a good academic standard. For him, the problem remains the lack of entrepreneurial culture and university students without entrepreneurship initiative.

However María Inés de Ferrari thinks that, although a significant effort has been made to go forward, there are still some problems regarding the right to education, especially in rural areas. This viewpoint is closer to the result emerging from our previous study of the country.

According to Patricio Gutiérrez, another relevant problem is also the dissociation and lack of closeness between academic and private organizations.

It is interesting to note the existence of the "Participa" initiative that, according to its Executive Director, aims to promote the training of citizens to raise awareness on the Transparency Law, what it stands for and how it works. To this end, practical workshops are conducted in which specialized technicians help participants to be able to request access to information themselves, and if the request is denied they also advise them on the appeal process.

Initiatives from the Civil Society

There are several reuse initiatives, but in view of Moisés Sánchez they have not been analyzed in detail, so it would be interesting to conduct a qualitative study on the potential demand.

María Inés de Ferrari thinks that civil hackers' organizations are useful for the government, as they hold a critical attitude that allows the government to be aware of its own limitations.

In the particular case of the Chilean Library of Congress, as Soledad Ferreiro said, some activist groups such as "Vota Inteligente", request a lot of parliamentary information. The Library provides them with all the information they can, but the law needs to be more stringent to facilitate publishing certain information.

Felipe Hausser and Juan José Sordo think it is important to also note that the cooperation of government and civil hackers is good; we could even say they are very well considered from all sectors. In general, there are no penalties, but in some cases, warnings have been issued so usually activists seek only information they know for certain that can be used. This aspect may also pose a major constraint to access to information with the intent of reprocessing or using that information for building business models.

Media Sector

Almost all interviewees were unanimous that traditional media has a government/centre inclined editorial stance, so political discussion is not very constructive in the country. According to Claudio Ruiz, only some digital media are truly plural and active, which encourages participation.

According to Nicolas Luco, freedom of press exists, but not fully as, although there are laws on journalistic privileges, journalists may be subject to complaints from those authorities who believe that their honour has been damaged. Most media are linked to national or international groups, so there are few media that are not linked to political or economic groups and their diversity is not in keeping with the diversity of existing ideas. However, the press is active in its demand for transparency and information from the government.

Felipe Heusser insists on press freedom being well rooted despite this, and the Transparency Law further enhances this neutrality. In general the press promotes political understanding and is not a "tabloid" in the field of politics.

One positive fact is that it was the media who was initially interested in the information made possible by the Transparency Law and were the first to demand information about it.

Donors

According to Juan José Sordo, there are no major donors, as most focus their efforts on other less developed countries, because somehow all NGOs seek resources from the same donors. Local donors mostly focus their efforts on the disasters caused by the earthquake, and available funds are really limited. María Inés de Ferrari thinks that the only relevant donors who currently invest in the country are the European Union and the Internet Society. In the opinion of Patricio Gutierrez, eLAC[33] can be the driving force at the regional level.

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[33] The eLAC is a regionally coordinated strategy that views the Information and Communication

Moisés Sánchez says that some donors frequently carry out prospective intervention models as they do not know where to invest, but usually the investments made are minor.

However, it is revealing that in the particular case of the activities carried out by "Vota Inteligente", Felipe Heusser says that the majority of the funding, around 90%, comes from donors, particularly from the Open Society Institute (OSI). This has allowed the foundation to develop the project without relying on local institutions, thereby maintaining total independence to possible political interferences.

Technologies (ICT) as tools for economic development and social inclusion. It comprises all the countries of Latin America and the Caribbean: http://ww.elac.org

Final Conclusions

Here we present the final results of the assessment; potential challenges and threats for an OGD project as well as the groups of key actors in the implementation of an OGD project that can lead it to success.

Government

Firstly, it can be concluded that the overall situation in terms of democracy, transparency and freedom seems appropriate to carry out a strategy for OGD. Although there is no general agreement on the end of the transition, one could say that democracy is well established in the country, citizens are participatory and feel politicians are engaged and responsive. There is no perception of corruption in the country, and there is a general feeling of security and legal protection.

Legislation

Regarding the legal situation, although Chile has been one of the last countries in their environment to have legislation on transparency, the law currently exists, is proactive and has been very well received by the citizens. This legislation has also lead to a paradigm shift within the government; leading to transparency being no longer a taboo subject and being assumed naturally. There is also a very active group around transparency, which would strongly support any initiative that is taken in favour of openness of information.

However, the current legislation on transparency also has several limitations as, although there is some uniformity in the way information is published, it does not emphasize that such communication is made according to standards that favour their reuse. Furthermore, the proactive part of the Law is quite limited regarding the type and amount of information that is published while the passive is ambiguous and often faces legal gaps in other areas, such as everything related to the newly created information which results in this practice not being carried out efficiently. The degree of compliance is also uneven, higher in Executive power, but rather low in the municipalities, which generally have fewer resources.

The Transparency Council makes a series of recommendations in the last Institutional Memory[34], to improve the law and thus ensure transparency and

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[34] Transparency Council – 2009 Institutional Memory:

access to information.

Another weakness is that the Law does not extend to all public administration bodies. The ones that are excluded from the purview of the Law are: *"Contraloría General de la República"* (which is the highest department for Administration control), the Central Bank, the public companies created by law, state companies and societies in which the government has a shareholding above 50%, courts that are part of the judiciary power, special courts, bodies exercising jurisdiction, the Public Ministry, the Constitutional Court, the Electoral Justice and the National Congress.

Both the absence of specific legislation for the reuse of public information and the shortcomings in the Transparency Law advice opting for new legal arrangements are necessary in order to provide the legal cover needed for an Open Data initiative.

The current legislation on data protection and privacy is perceived as outdated, confusing and inadequate to support an OGD strategy. Regarding the publishing licenses, there are no common schemes defined, so that each agency decides final license, leading to confusion among users and interoperability problems among agencies, which are forced into internal agreements to share information.

Finally, there have been several limitations in the application of the Law at administrative and logistical level, since the administration has been overcome by the number of requests received, and the mechanisms and procedures are not clearly defined. Also, there has not been made enough investment in the training of state officials and staff who have not been equipped with the necessary technological elements. The lack of an entity to centralize training in the administration is also a problem, as each agency finally has to find its own resources.

Government Disposition

However, Government's willingness and interest when conducting an Open Government Initiative is very clear in the upper layers. In fact, there might be the possibility of an institutional statement in favour of OGD made by the President, which would be accompanied by a presidential directive to regulate the reuse of information in public administration.

http://www.consejotransparencia.cl/consejo/site/artic/20100831/asocfile/20100831104546/memoria_cplt_2009_web.pdf

This interest also extends to the middle layers, with the exception of some reluctance of the most politicised bodies, who keep a distance from the public. Therefore, the political momentum could not be more appropriate as it is perceived that there is interest and need. In fact, the first strategic steps in that direction are being carried out, like for example trying to get the maximum number of institutions to join the interoperability project. However, it is still necessary to see the different government agencies beyond pure transparency and to expand the potential benefits of OGD and return on investment.

ICT and Government

The government's view on OGD also clearly includes the new technologies as a facilitating tool for the strategy to follow. In fact, the Transparency Law was accompanied by a major effort in ICT to support it, but technological infrastructure development within the administration is irregular, leading to a group of organizations that characterises its leadership in this area and leaving municipalities clearly in the background.

However, Chile is considered a leader in the field of e-Government, especially notable being its current efforts on interoperability and the results that materialise through the implementation of the current Interoperability Framework. It cannot be denied however that the framework is undergoing a slow implementation; it is not enforced and the necessary resources to carry it out are not available to all organizations. In addition, there is still a way to go on matters related to Web standards -- standardization, knowledge and use of standards, lack of accessibility, potential use of mobile for electronic processing, etc.

The technological infrastructure of the country is also the most developed one if compared with nearby countries, although it is still far from the levels in other relevant countries. It could be considered to meet the minimum requirements to carry out an effective OGD strategy, although in rural settings there are still significant gaps that must be solved.

Data Collection, Quality and Standards

In relation to the current level of collection and publication of information done by the government, it is noteworthy that the level of information digitalization is relatively high, and that the publication of data is not limited to topics required by the Transparency Law but goes beyond it. There are various pioneering pilot initiatives on public information openness, among which should be noted the case of the Congress Library, though obviously there are still large opportunities for action.

Also there is not a single record, which would allow monitoring the requests coming from the Law itself. This is because the Transparency Council, which is responsible for monitoring the Law, carries out only a mere statistical control and the breakdown of the information is insufficient. This does not allow interdepartmental coordination on the questions asked and responses received, so a unique opportunity to analyze the interests of information coming from civil society is lost. This would be very valuable information that could be used to optimise the queries on workflow performance.

Particularly noteworthy is that one of the most obvious current problems being faced is the lack of homogeneity in terms of publishing formats, as well as the absence of open standardized formats to facilitate the reuse of information by third parties. Another problem that limits the usefulness of the information is the lack of granularity in the data shown in some cases.

Data Consumers

Finally, as to the existence of potential information reuse market; current initiatives carried out by various groups of civil hackers must be highlighted. However, these groups are usually led by experts in legal matters who lack technological knowledge and therefore they are not aware of the possibilities that technology can offer. Therefore, greater motivation and relevant training in this field would be vital.

Also relevant is the role that media has played as a pioneer promoter in the reuse of information during the beginning of the Transparency Law, as well as the interest shown by potential donors due to potential benefits they perceive they can obtain. Initial initiatives are also emerging which aim to find ways to generate profits in order to achieve an economic return on investment (ROI) that allows them to be profitable.

On the negative side we can find, with few exceptions, the lack of motivation of private initiative, fuelled partly by the lack of business potential that exists around OGD and by the existing legal insecurity and uncertainty about all aspects involving reuse of information, due to the lack of or even absence of clear licensing conditions. There also exist the problems in education and literacy faced by some sections of society, which can directly affect the dissemination of information to effectively reach every single citizen.

Recommendations

Here we identify the required steps to bootstrap an OGD initiative in Chile, its strengths, major challenges and risks that could impact the project and

associated strategic actions to address those barriers.

Current Strengths

There are several factors that make Chile a good candidate for an OGD strategy:

- Democracy is well established, citizens are participatory and politicians are conceived as close and responsive, with no perception of corruption and a general feeling of security and legal protection.

- Government's willingness and interest when conducting an Open Government Initiative is very clear in all the layers. The political momentum could not be more appropriate.

- There is a transparency legislation which is proactive and has been very well received by the citizens. There is also a very active group around transparency which would strongly support any initiative taken in favour of openness and transparency.

- The technological infrastructure of the country is also the most developed one if compared with nearby countries. The government's view on Open Government Data also involves new technologies as a facilitating tool.

- The level of information digitalization is relatively high, and publication of data goes beyond the topics required by the Transparency Law.

- Chile is considered a leader in the field of e-Governance in its environment, especially notable being the current efforts on interoperability.

- There are several working openness initiatives carried out by various groups of civil hackers. There are also various pioneering pilot initiatives on public information openness coming from the government itself.

Opportunity

There are also some close in time specific events that may increase chances of success of an OGD initiative in the present scenario. We have identified the following ones:

- Possibility of an institutional statement in favour of Open Government Data by the President of Chile in the near future.

- Elaboration of the next Digital Agenda of Chile 2010-2014, currently in draft stage, where the OGD strategy might be included.

- Recent incorporation of Chile to the OECD, which imposes some changes with regards to the current privacy treatment and legislation.

- Plans to extend the current interoperability framework to a bigger number of agencies within the government, creating an interoperability network that would benefit and facilitate later OGD efforts.

Potential Barriers

As we have seen, there are several potential barriers in developing an OGD strategy:

- The Presidency's digital strategy focuses solely on interoperability.

- Some current laws, like the Transparency Law and the Data Protection Law, are limited and do not possess all the necessary elements for an Open Data strategy.

- Lack of definition and consistency in the processes of government

- Lack of standards and lack of enforcement of the few standards that are already established.

- Lack of training for state officials and of a government agency to centralize the training of public employees.

- Existence of integration problems with municipalities

- Technological development within the administration is focused on some privileged "fiefdoms" in terms of resources in this regard.

- Some agencies sell their information and others have exclusive agreements with some companies.

- The existing gap between urban and rural areas at various levels, such as the development of ICT and education and literacy issues.

- Reusers lack awareness about the benefits of Open Data

- Limited technological vision of most current reuse initiatives

Strategic Actions

To address these barriers, the first thing to note is that almost all interviewees have put the spotlight on the Transparency Law. There is clearly a very active group involved in transparency, so any movement in relation to OGD in Chile should be built in cooperation with that group.

It does not seem possible that the initiative can only come from civil society or business, although it would be necessary to identify the key actors in civil society who can in turn act as opinion makers to support the project and help its dissemination and promotion.

It is necessary to start from a strategic political vision, to clearly define the objective and the strategy that should be followed. An initial support provided by the Presidency through an institutional declaration, in which the project is supported and emphasizing its importance, would be fundamental when aligning all those agents involved in making the necessary decisions to carry out the project.

To make the strategy effective, it is also essential to address the current legal gaps and provide the necessary coverage. The solution may be to complement and extend the current Transparency Law and other related laws, such as those affecting privacy, but this law was designed to recognize the right to public information, not to promote reuse by third parties, therefore too many changes would be needed and the best solution would possibly be the creation of specific legislation on the reuse of information in the public sector. Another option may be to use the current Administrative Procedure Law, and the laws and decrees related to electronic government, to drive the transition between the old and incomplete legislative model and a new perspective focused on Open Data.

Either way, it is necessary to open the debate, and involve all parties to achieve final consensus, with special emphasis on the private sector, which is currently under represented. This has occurred mainly due to the imbalance resulting from the way the Law has been developed, since it leans more towards accountability and not on aspects of economic and social development.

To summarize, the actions that should be carried out by the different actors to conduct an effective Open Data strategy are:

- Carry out an institutional statement as soon as possible. This would give the green light to all technical studies and necessary regulations for implementation.

- Raise awareness about the social and economic benefits of an Open Data Strategy for the public sector, through its relationship with interoperability and efficiency, to attract new recruits and to identify key players within the government.

- Initiate dialogues on information sharing, both within the administration and with different civil society organizations and the private sector.

- Explore partnerships with universities already working in these areas

- Use existing coordinators network, whose current role is the organic coordination of the Transparency Law and expand its functions to fulfil the same role with regards to reuse of information in each agency.

- Incorporate the project as an objective of the Digital Agenda of the country

- Regulate and legislate adequately to protect private data from individuals, including the results of any possible combination of data sources, as well as the necessary basis to enable reuse of information openly.

- Reduce bureaucratic procedures, based on the establishment of cooperation agreements that improve the processes of exchange of information among government agencies.

- Develop a common methodology for Open Data

- Select and adopt open and standard formats for data and metadata, to facilitate subsequent reuse and a convenient user experience. Also to adjust such standardization to ensure harmony with other global initiatives and compliance, including requirements for accessibility to information.

- Improve the means, processes and channels used to disseminate information, and centralise access in a single common point.

- Take advantage of those bodies with major technological development to feature in the first pilot experiences in reusable formats.

- Improve state officials training and awareness regarding transparency and reuse initiatives.

- Analyse and properly classify the current situation regarding identification of information available in the administration and assess their level of interest from the standpoint of usefulness to society and the private sector.

- Increase awareness of actual reuse experiences and initiatives promoted by civil society and learn from best practices obtained from such initiatives.

- Encourage an active and continuous monitoring of private sector needs and

Once the prerequisites needed to lay the foundations for an OGD Initiative are in place, it is also necessary to provide appropriate technical solution to implement it effectively. To do this, the procedures and technical instructions must be first clearly specified, so that afterwards a single access point to information can be created. This will facilitate adaptation and transformation procedures needed to finally use the appropriate formats to facilitate reuse.

Finally, a major challenge is to bring Open Data that produce benefits to all citizens, and it is therefore necessary to develop applications that are clearly perceived as useful by them.

Citizens will also need information from several additional sources they can use to make decisions about their own lives and livelihoods; such as market information, NGOs, health organisations, donors, agricultural research information and, especially, from local government.

To achieve this, it is also necessary to find a sustainable model for companies and a wide range of other potential intermediaries, such as NGOs and civil society representational groups that want to reuse the public information to support and develop its own work. It is not enough to hold competitions for promotion, although this could be a good initial strategy to encourage early developers. It is necessary to have a long-term model through continuous dialogues, which will encourage companies to analyze the data to decide what interests them from a business angle and, at the same time, the administration can propose the type of value-added services it wants to offer to its citizens.

In the early stages it is also important to bet on entrepreneurs, whether social or from the private sector, encouraging those initiatives that have proved useful, and encouraging the creation of new initiatives.

The main issue should be not simply promoting OGD, but doing so in such a way that creates a well used and sustainable open data environment.

Key Players

A key person for the development and coordination of such a strategy would be Claudio Seebach, due to his role at the Inter Ministerial Coordination of the General Secretariat of the Presidency, which is the executive body of the

President and has the power to prioritise the most relevant projects.

Other key players in the development of the project are:

- Felipe Del Solar, as Executive Secretary of the Committee on Integrity and Transparency, is a key player in all matters related to Transparency, and his goal is to propose efficient and effective improvements for implementation of the Law.
- Pablo Matamoros, who as the main Webmaster of the government would be an important authority to improve user experience and homogenise all matters related to presentation of information, including standards and formats.
- Soledad Ferreiro as Director of the Chilean Library of Congress. The project that she has executed can serve as an example and as tractor mechanism for other bodies.

From the civil society point of view, we can highlight Felipe Heusser as a possible interlocutor between both the layers (civil and administration), because of his cordial relationship with different levels in the government and also because he stands out within the group of activists thanks to his technology vision.

It is also worth noting that Chile's Government is considered an early adopter, and the involvement of an international figure with experience in the OGD field can help to bootstrap the strategy in a similar way as the previous visit of Vivek Kundra[35], Chief Information Officer (CIO) of the US Government, did in relation to interoperability efforts.

On the other hand, it would be convenient to create an entity that works as a catalyst and serves to articulate and coordinate the strategy, or to decide which of the current authorities could assume that role. There should be specific developments without trying to immediately publish all the data in bulk, giving priority to those organizations which already have a high degree of technological development, while helping the rest to acquire the level required.

Another added responsibility of the coordinating body would be to adopt steps to fill the gap of a centralized training agent and to coordinate information dissemination and staff training processes.

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[35] Government Heads of Technology from the United States and Chile share experiences in Washington:
http://www.estrategiadigital.gob.cl/node/458

Appendix A: Country Description

In order to perform a readiness study for the implementation of an OGD project in a given country, a preliminary analysis of a complex set of variables is required, since those projects require a set of minimal conditions in terms of development level, investment capacity, capacity and/or quality of governance, etc.

We will analyse the key indicators in the various fields related to OGD. This requires analysis of the country's economic, social and political systems, as well as its technological environment.
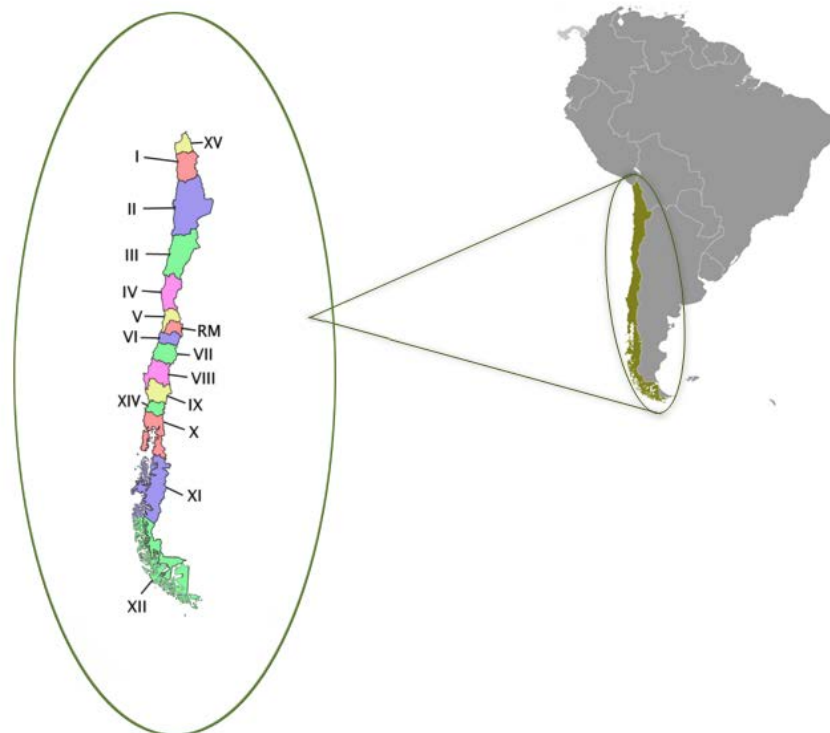
The Republic of Chile is located along a narrow strip of land that runs between the Pacific Ocean and the Andes mountains, in the south western coast of South America. According to recent data published by the National Institute of Statistics of Chile, the population in 2010 was close to 17.1 million people, with an average age of 31.7 years, and working-age population around 68% and 9.2% aged over 65 years. It has also experienced a continuous population growth since the early 90's, with an estimated population of 20.70 million by 2050.

Although the State Administration is centralized, there has traditionally been 12 administrative regions, plus the metropolitan one. With the addition of two new regions (Los Rios and Arica-Parinacota) in 2007, the total number of regions

now stands at 15. There is no exact data available regarding the population of the 15 regions, since the estimates still follow the 2002 census patterns. However, the January 2010 estimation of the distribution, in population percentage, of the 13 former regions is as follows[36]:
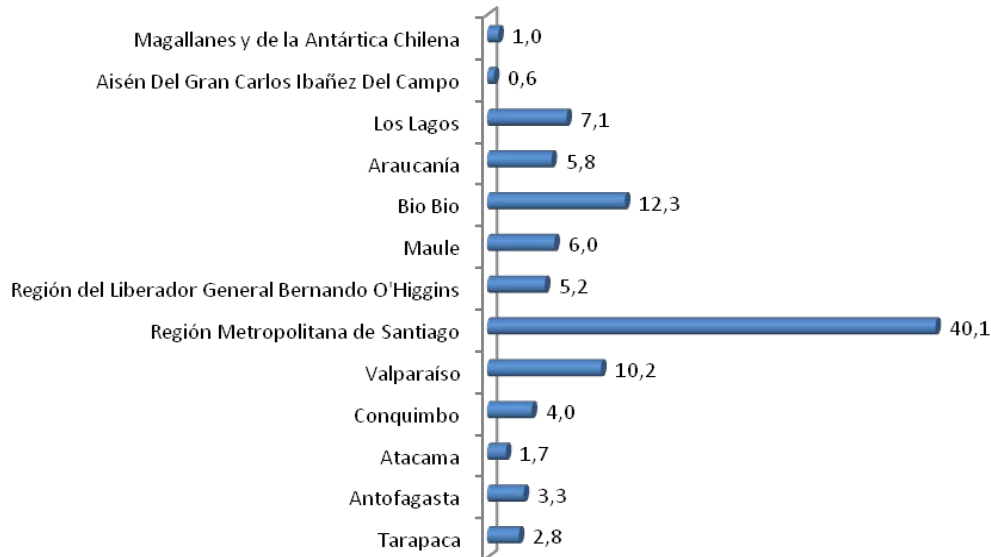
As it can be seen here, 40% of the population in Chile lives in the Metropolitan Region of Santiago, which is the largest industrial, commercial and financial core of the country. Mining operations are concentrated in northern Chile, whereas farming and timber are more often found in the South. Overall, 11.56% of the population lives in rural areas, which is nearly 10 points less than in the whole of Latin America.

Social Context

There are still about seven indigenous groups in Chile. The most populous is the Mapuche group, which constitutes about 4% of the country's population. There are other ethnic minorities such as the Alacalufes, the Atacameños and the Quechua. The so-called "Mapuche conflict[37]", which recently intensified, has existed in Chile for decades. The reason for the conflict is judicial independence, land restitution and cultural identity for this ethnic group.

Spanish is the language spoken by almost all Chileans; the vast majority of the population uses a variant known as Chilean Spanish and a few uses the Andean Spanish or Chilote Spanish. There are several indigenous languages

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[36] National Statistical Institute: http://www.ine.cl/home.php

[37] The Mapuche conflict: http://en.wikipedia.org/wiki/Mapuche_conflict

spoken in Chile, such as Mapudungun, Quechua, Aymara and Rapa Nui, the latter mainly in the Pascua Island, but they have become minority languages, now extinct or close to extinction.

There are also certain geographic features that define and determine the country, such as the fact that 80% of its territory is mountainous or the active seismic activity that exists in the country. For example, on February 27, 2010, Chile,[38] was struck by the fifth largest earthquake in its history, which measured 8.8 degrees on the Richter scale. Earthquake damage has been estimated to be greater than $29 billion by the Chilean government.

One of the main social problems of the country is the high inequality among the different population demographics. This problem relates directly to the existing barriers in the education system, defined by the National Innovation Council for Competitiveness in Chile itself as the "two gaps in education." These two gaps consist of the low coverage of preschool and tertiary education and the poor quality of training at all levels, compared to other countries of similar income.

Regarding education, it is interesting to see the quote by OECD in the "Economic Survey of Chile, 2010" which says that: *"The quality and equity of primary and secondary education have to be improved further. Notwithstanding impressive progress in school enrolment, much remains to be done if Chilean children are to reach OECD standards in learning outcomes. Better qualified teachers and improved initial education and training are keys. More equal conditions for schools to compete are needed and the government has started to address this with the prohibition on selecting pupils up to sixth grade. The increased school voucher for poor pupils is an important opportunity to help these children improve their results, which would enhance both the average level and the equity of outcomes"*.

The Innovation and Competitiveness Agenda 2010-2020, prepared by the National Innovation Council for Competitiveness, highlights the need to focus on tertiary education and training as "*when the country is compared in these areas, the greatest deficits can be observed, even with regard to Latin American nations. An example of this is the number of engineers and advanced human resources working in companies, where Chile is behind Brazil, Argentina and Mexico, in proportion to population size.*"

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[38] 2010 Chile earthquake: http://en.wikipedia.org/wiki/2010_Chile_earthquake

Economic Context

The recent OECD's 2010 report on Chile begins by saying[39]:

"Sound fundamentals and strong macroeconomic management have provided a buffer against the global economic recession, which nevertheless hit Chile both through a sharp deterioration in its terms of trade and the collapse of world trade. There was room for decisive macroeconomic stimulus thanks to sound monetary policy and prudent fiscal policy during the boom years. This, together with the rebound in copper prices – Chile's main export – and the revival of global trade, has contributed to a turnaround in activity. The economy is now coming out of recession, yet unemployment is projected to remain initially high and inflation is likely to stay low."

The various academic studies conducted on the country's economy indicate that the Chilean growth potential is due mainly to its capacity to articulate and maintain macroeconomic policies, to the significant opening of its economy to the outside world, to its institutional strength recognized by the major international institutions, and to the stable financial system[40].

Taking all this into account, we can conclude that Chile is one of the most liberalized economies in Latin America and shares many of the basic characteristics of more developed countries.

The OECD sums up the situation regarding the country's macroeconomic stability by stating that:

"The economy of Chile has performed strongly since the early 1990s, establishing a track record of robust growth, rising living standards, well contained inflation and recurring budget surpluses. This enviable outcome owes a lot to the sound macroeconomic framework implemented by successive governments. However, despite its strengths, the economy was not immune to the global financial and economic crises. As a small open economy relying on exports, particularly of copper, Chile was hit hard by the meltdown of international trade and the plunge in commodity prices, which exerted negative effects on domestic demand and activity. The government rapidly introduced counter-cyclical policies and, with the help of a rebound of copper prices, the economy is coming out of recession. Once the upturn is under way, the challenge will be to return to a path of rising living standards on a sustainable

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[39] Economic Survey of Chile, 2010: http://www.oecd.org/dataoecd/24/3/44464700.pdf

[40] These ideas can be extended at the Economic Policy Paper No. 20, 2007 of the Central Bank of Chile: http://www.economiamascerca.cl/2010/wp-content/uploads/2010/05/dpe20.pdf

basis. Although income per capita on a purchasing power parity basis has increased sharply over the past two decades, it remains at only 44% of the OECD average. To foster convergence, key policy reforms require further enhancing product market competition, improving the conditions for entrepreneurship and innovation and improving the quality of education. Despite fast growth of per capita GDP and a reduction in poverty, income inequality has not declined markedly over the past 20 years and remains very high by OECD standards, notwithstanding some recent improvement. Sustained growth will need to be accompanied by the right social policies to further reduce poverty and improve income distribution."

The combination of the current economic situation and the 2009 earthquake has burdened an important growth and sustainability trend. As shown in the table below, Chile has grown during the last years over 3.5%, but in year 2009 its GDP plunged by 1.5%. Nowadays Chile faces a deficit of 4.5% of GDP, representing a nearly 10 point fall compared to 2008.

	2006	2007	2008	2009
PIB	4,6	4,6	3,7	-1,5
Surplus (+)/ Deficit (-):: % GDP	7,9	8,7	5,2	-4,5

*Source: Central Bank of Chile*

Future Perspectives

The OECD and the IMF agree in estimating a recovery of the Chilean economy in late 2010 and a return to growth in 2011.

According to the IMF[41], financial systems in Latin America have not been immune to the global financial crisis. Chile, like other emerging economies with globally integrated financial systems and capital markets, has been affected by the situation of the global financial markets. Despite this, the Chilean financial system has remained resilient, in part due to the measures taken by the authorities to maintain stability and to minimise the associated problems that may have affected its economy.

A positive factor is that the degree of trade openness in Chile (the sum of exports and imports with respect to GDP) is one of the largest in Latin America and even in emerging countries. In addition, Chile has been able to maintain a

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[41] The Global Financial Crisis and its Impact on the Chilean Banking System:
http://www.imf.org/external/pubs/ft/wp/2010/wp10108.pdf

more or less stable productive structure in recent years. Industries have specialized in higher added-value services and have managed to position themselves on the global market.
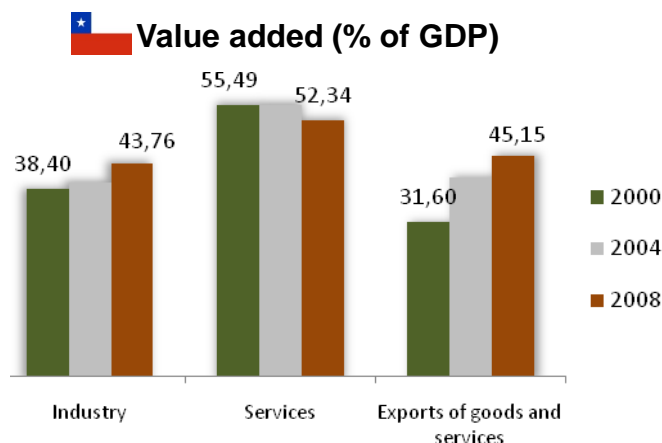
Source: World Bank report

Finally, it is worth noting that the World Bank[42] ranks Chile 49th out of 183 countries in terms of favourable business climate for business development. Its core strengths are: investments protection in terms of legal security, property rights and tax treatment. Despite this, Chile does rank poorly with regard to business start-up bureaucracy, and access to qualified workers. However, overall the Chilean economy shows the strongest indicators throughout Latin America when it comes to new business creation.

Political and Institutional Context

Chile is a unitary, democratic country, governed by the national Constitution which came into force in March 1981. The executive power is headed by the President of the Republic, as Head of the State and Government, who designates both the Ministers and the Governors in charge of the regional governments.

According to the Constitution, the country has a bicameral Congress, whose members are elected every four years, while the senators have eight-year terms. On the other hand, the Chilean judicial system is independent and includes a system of Military Courts, a Court of Appeal, a Constitutional Court and a Supreme Court.

The last presidential and parliamentary elections took place on December 13,

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[42] Doing Business 2010 Chile: http://www.doingbusiness.org/Documents/CountryProfiles/CHL.pdf

2009 and required a second presidential round held on January 17, 2010, which was won by Sebastián Piñera, candidate for the political party *'Coalición por el Cambio'*, which achieved 51.61% of the vote compared to 48.38% obtained by Eduardo Frei, candidate for *'Coalición de la Concertación'*.

The main political parties in the country are grouped into two big coalitions, *'Coalición por el Cambio'* and *'Coalición de la Concertación'*:

- Coalición por el Cambio *(Coalition for Change),* a centre-right political party, is formed by Unión Demócrata Independiente *(Independent Democratic Union)*, Renovación Nacional *(National Renewal)* and Chile Primero *(Chile First)* parties.

- Coalición de la Concertación *(Coalition for Concertation)*, a centre-left political party, is formed by Partido Demócrata Cristiano de Chile *(Christian Democratic Party of Chile*, Partido por la Democracia *(Party for Democracy)*, Partido Socialista de Chile *(Socialist Party of Chile)* and Partido Radical Social Demócrata *(Social Democratic Radical Party)*.

The current President, a member of 'Coalición por el Cambio', has selected a government team with a technical profile and international experience in the business and academic field, in order to focus on its mandate of achieving results.

Government short term goals

The new government's program revolves around two fundamental goals:

1. **The reconstruction of the country** after the earthquake that left two million homeless and over $29 billion estimated property damage. To carry out the reconstruction, the "Levantemos Chile[43]" Plan has been presented, which is based on four main objectives:

- Address public emergency

- Restore the country's production and trade capacity

- Reconstruction of damaged infrastructure

- Design funding sources for the Reconstruction Fund

2. **To convert Chile into a developed nation by 2018**, it is considered that the per capita income should exceed $22,000 per year. To achieve this goal, it is estimated that over the next eight years, Chile's GDP should grow an average of 6% per year and a million jobs should be created. To achieve these development objectives the government will promote the following measures:

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[43] Levantemos Chile Plan: http://www.levantemoschile.cl/

- **Job creation**, through the development of labour market intermediaries, the creation of a National Employment Exchange, the introduction of apprenticeship contracts, the promotion of young people and women's employability and the promotion of teleworking.

- In the field of **fiscal policy**, it will remain the structural balance rule which, since 2000, aims to maintain a structural surplus of 1% of GDP. It is estimated that this aim will not be met in 2010 due to funding needs for reconstruction after the earthquake, but it is expected to be met in 2012 and 2013.

- Improvement of **capital markets** designed to facilitate the financing of new investments and businesses. To achieve this, people and businesses access to financial services will be encouraged and it will foster the necessary conditions to facilitate the issuance of financial instruments.

- **Business creation**, multiple measures will be promoted to eliminate bureaucratic obstacles to business creation and to facilitate their funding with the aim of launching 100,000 new businesses.

- Promotion of **free competition** in all markets, carrying out reforms to facilitate the entry of new agents and facilitate the exit of those companies in difficulties.

- Major investments in **Energy Policy**, aimed at increasing the availability of energy in terms of the amount supplied and the security of supply. It is also proposed to diversify energy sources to reduce dependence on imported fossil fuels, and to analyse the possibilities of adapting different energy technologies in Chile.
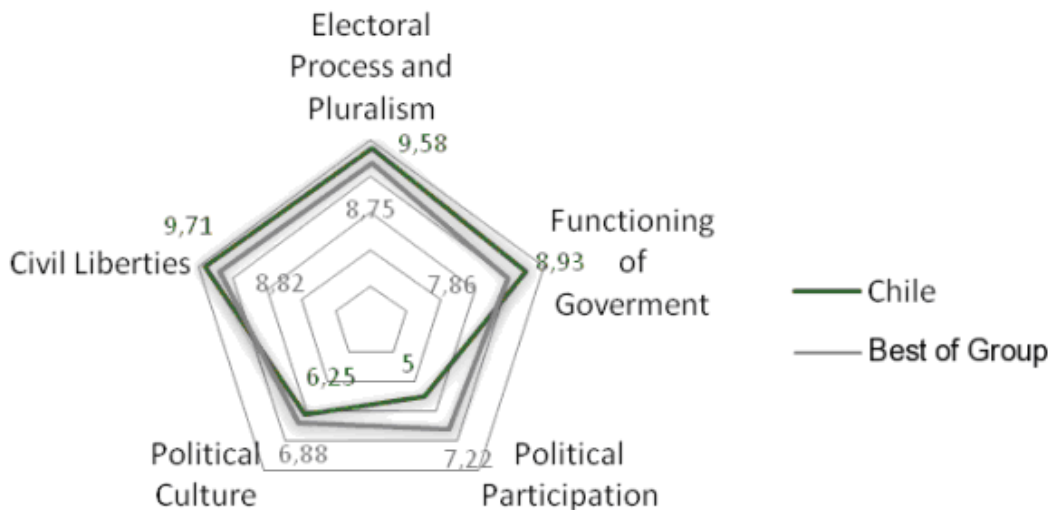
Also, it makes a commitment for **promotion of Research and Development activities**, increasing the level of R&D investment, from the actual 0.7% of GDP to 1.2%.

Finally, note the government gives particular importance to the **modernisation of telecommunications**, so as to boost the rapid introduction of technological changes occurring in this field. In this sense, the regulation will be amended to obtain a better use of telecommunication networks and to encourage competition and new investment.

Democracy and Civil Liberties

Regarding the quality and transparency of government, freedom, protection of individuals and businesses, it is remarkable that the situation in Chile ranks in some categories as the best country of its group, according to the Economist Intelligence Unit Democracy Index (DI) of 2008[44] data, as shown in the following graphic:

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[44] The Economist Intelligence Unit's DI 2008: http://graphics.eiu.com/PDF/Democracy%20Index%202008.pdf

Electoral Process and Pluralism — 9,58 / 8,75
Functioning of Goverment — 8,93
Civil Liberties — 9,71 / 8,82
Political Participation — 7,22
Political Culture — 6,88
6,25 / 5 / 7,86

Chile
Best of Group

Specifically, we can highlight the indicators regarding civil liberties, election procedures and pluralism, and the functioning of the government itself. Only those related to culture and political participation obtain a lower rate than their reference group.

In this context, the Corruption Perception Index[45], in which Chile is ranked 25 out of a total of 180 and holds a privileged position within Latin America, is also significant. The fact that only 2.66% of the surveyed companies consider corruption as one of the main obstacles in Chile for development of its activities, confirms that corruption is not perceived as a major problem.

On the other hand, it should also be noted that Chile is one of the best countries in terms of Press Freedom across Latin America, according to the 'Press Freedom Index' elaborated by Reporters without Borders[46].

Scientific-Technological Framework

In 2000, Chilean innovation policy began to assume a prominent role. In nova Chile (CORFO[47]) was created in 2005 followed by the Innovation Fund for Competitiveness (IFC) in 2006. All this has been consolidated with the establishment of the Innovation Council (2005-2006) and the Ministerial Committee on Innovation in 2007. Similarly, the classical innovation structures

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[45] CPI 2009: http://www.transparency.org/policy_research/surveys_indices/cpi/2009/cpi_2009_table

[46] Press Freedom Index 2009: http://en.rsf.org/press-freedom-index-2009,1001.html

[47] Corporation for Production Development: http://www.corfo.cl

have been strengthened through, for example, the National Commission for Scientific and Technological Research, which was founded in 1967[48]. Currently works are carried out in coordination with the Regional Productive Development Agencies to link development with innovation.

In this framework, the main axis, in coordination with other agents/agencies and partners of the Chilean National Innovation System, is the National Innovation Council for Competitiveness (CNIC) which, as indicates on its website[49]: "*It is a public-private entity that acts as permanent adviser to the President of the Republic. Its purpose is to advise the authority on the identification and formulation of policies relating to innovation and competitiveness, including the fields of science, human resources training and development, transfer and dissemination of technologies.*"

The political and institutional commitment of Chile towards innovation, technology and productivity is evidenced by the creation of a fund, the IFC, which is also endowed with budgetary resources. From a budgetary perspective, the Chilean Ministry of Economy publishes the Fund's resources and its growth has increased significantly since 2005[50]. This financial commitment from the public sphere is what has led to increase the expenditure on innovation and competitiveness by a 14% annual average between 2005 and 2010, which resulted in a GDP rise from 0.69% to 0.90%. In 2010, increased innovation and competitiveness of public resources increased again by 17% over the previous year. Considering as a whole Chile's public resources allocated to the Science, Technology and Innovation, between 2005 and 2010, there has been an annual average increase of 20%, which allowed them to go from 0.20% to 0.43% of GDP in these areas.

These figures and ideas, as well as the country strategy for 2020 were obtained from one of the documents that define the road map of Chile, regarding innovation, technology and competitiveness. This is the *Agenda for Innovation and Competitiveness in Chile 2010-2020*[51]. It describes in great detail the historical efforts made by the Chilean economy in science and technology, its challenges, its strategic areas of action and great goals. This is a very significant synthesis that allows detailed knowledge of various areas and needs of the Chilean economy. Therefore, below are summarized some of the ideas

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[48] Comisión Nacional de Investigación Científica y Tecnológica: http://www.conicyt.cl

[49] National Innovation Council for Competitiveness: http://www.cnic.cl

[50] Fondo de Innovación para la Competitividad de Asignación Personal:
http://www.conicyt.cl/573/propertyvalue-74526.html

[51] Innovation Agenda 2010-2020:
http://www.cnic.cl/media/users/3/181868/files/18144/Agenda_Innovacion_2010-2020.pdf

that are considered most relevant in this document.

The strategic vision of the Agenda is based on three main pillars:

- Development of a quality and accessible **lifelong learning system**, which provides the country with the human capital needed to meet the challenges of a Knowledge Economy.

- Setting up of a **platform for the generation, dissemination and application of knowledge**, based on a continuous and strong effort in scientific and technological research, consistent with the productive and social problems of the country.

- Promotion of an **innovative business system**, aimed at creating value as a competitive strategy in global markets, with companies willing to assume the lead role in R&D.

All the above will be carried out by focusing on priority sectors and clusters, such us: biotechnology, water resources and environment, information and communication technologies, non-conventional renewable energy, bio fuel and energy efficiency.

Chile is betting on an ambitious goal from a budgetary and strategically point of view: the creation of an ecosystem that encourages entrepreneurship and innovative efforts. Specific programs for entrepreneurs are supported and designed, with activities like "curriculum changes in higher education to develop skills and interest in entrepreneurship (mainly engineering and science); access to counselling and mentoring for entrepreneurs; further development of knowledge transfer from universities to leverage the technological spin-offs; creation of institutes, technology parks and incubators to strengthen university-industry relations and access to global networks of innovation without neglecting the need for robust financing mechanisms for entrepreneurship".

It is also important to consider the recommendations of the OECD[52] in terms of innovation. Many of them have already been adopted in their own Agenda for Innovation and Competitiveness which is in force, and whose expected impacts are long term. These recommendations/actions are:

- Develop strategies to encourage a robust early stage venture capital sector around a critical mass of innovative SME.

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[52] Innovation strategy, Chile: http://www.cnic.cl/media/users/3/181868/files/18144/Reporte_PANEL.pdf

- Develop a framework that allows for cluster creation and diversification with evolving areas of industrial strength.

- Analyse needs and develop strategies, policy and regulatory frameworks to encourage investment in, and development of, effective transversal platforms, particularly in respect of communications networks to link research institutions and businesses.

- Further stimulate the emergence of regional capacity for development, creating 'learning regions' that can more actively contribute to a more differentiated innovation strategy in future.

- Develop strategies and implement programs to integrate the increasing groups of advanced human capital into the research and business sectors.

In short, Chile's innovation system is undergoing great challenges and the work done so far is very encouraging. Chile, therefore, strives to be placed on the global map of innovation, enhancing its indigenous potential resources. And in this context, ICT is one of its most prominent tools, as illustrated below.

The Chilean National Statistics Institute itself records businesses to have a greater commitment to R&D, though at a relatively lower level when compared to reference countries in the OECD. Thus, companies have gone from financing 38.9% of spending on R&D in 2007 to almost 44% currently. Similarly, in Chile, over 40% of R&D is concentrated in higher education institutions, and 40.4% within the companies themselves. Innovation, engineering and technology account for 80% of the expenditure on R&D by Chilean companies. The state devotes proportionally more research resources to agricultural science while higher educational institutions concentrate on further R&D related projects in the field of natural sciences.

Technological Development

Chile's government promotes the country's digital development through the implementation of public policies that guarantee success, based on the contribution of all sectors: public, private and civil society.

In 1991 Chile began to get connected to the Internet, and since then digital networking has grown steadily. Since 1992, there has been an on-going effort to connect schools in Chile. The first ATM network (Asynchronous Transfer Mode) became operational in 1994. In 1999 the State Intranet was created. Subsequently, the procedure for measuring and publishing the quality of service indicators was established for Internet Service Providers (ISP).

Data obtained from the book *eGovernment in Chile, Challenges, Prospects and Opportunities (2005)* show the most important technological milestone in the

development of electronic government in Chile until 2004:

- Internet provider's interconnection, together with privacy and digital data security
- Government Intranet
- Chile government portal
- "Trámite fácil" *(Easy Procedures)* portal
- Electronic signature
- "ChileCompra" *(Chile Purchases)* Public Procurement portal
- Electronic billing
- Standardization of Electronic Document (XML)

In order to modernize the management of public services that make up the State Administration, the government issued the Supreme Decree No. 5996, of September 24, 1999. This document entrusts the Ministry of Interior **with implementation and commissioning of a high speed data network that interconnects Ministries and Public Services of the Metropolitan Region (State Intranet).** The initial objective of this network was to connect government institutions safely and with high availability using IP protocol. Once achieved, the objective of the State Intranet focused on the exchange of multiple types of information and networking of databases of different government agencies, to provide better services to citizens and the government.

The first step towards the development of Electronic Government in Chile has been a Presidential document delivered in 1998, which proposes a major simplification of procedures to eliminate dependency and redundancy. Since then, the government began to provide basic information online to the public through an official web portal. The next step was the development of a web portal called "Trámite fácil" *(Easy Process)*. This site was created in 2000 to provide information about the procedures that should be followed when making arrangements with different government departments. Some procedures are available online, and refer the user to the corresponding site.

Also, in 2000, a comprehensive policy on technological development in the area of ICT began to be defined. By creating the **Blue Book**, the Government announced the status of ICT in Chile and the prospects for the future. In this book, twelve initiatives were initially identified that would help Chile stride forward in three main areas: **equity in access to the Internet, development of citizens' competitive skills**, **and State modernisation**.

The next step came in 2003 with the development of the **Digital Agenda**, a program that provides guidelines for ICT development in Chile, and presents a

list of 34 strategic initiatives, grouped into six priority areas: mass access to Internet, education and training, online State, digital development of national industry, development of the ICT industry and definition of a legal framework. The ultimate goal of the Digital Agenda is to make Chile a digitally developed country in 2010.

Network Readiness Index (NRI) Data for the period 2009-2010[53], conducted by the World Economic Forum that determines the readiness of a country to participate and benefit from the incorporation of ICT in different spheres of society, ranks Chile 40 among the 133 countries around the world under study, making it the highest ranked Latin American country.

As a result of this study, it can be concluded that the government is the actor with more capabilities and competencies in the use of ICT (rank 18) and the one that makes a greater use of ICT (rank 11) compared to other actors (business and individuals).

On the other hand, in terms of individuals, businesses' and State's capacity and capabilities to take advantage of ICT effectively, the ranking elaborated by the Intelligence Unit of The Economist (e-readiness ranking)[54] places Chile in 30th place with an overall index of 6.47 out of 10, in a list of 69 countries (developed and developing countries). Within Latin America, Chile remains the best among those evaluated, over Mexico and Argentina.

While Chile is the best positioned within Latin America, there are areas that are still far below most developed countries, especially with regards to the **connectivity and infrastructure** variables. Chile is behind countries like Finland and New Zealand, countries with similar size and characteristics.

The improvement of access to infrastructure and connectivity are critical to digital development, so it is necessary that Chile improves these variables, ensuring an equitable and inclusive access for all actors.

With this objective, the "**Ministers Committee for Digital Development**" was created in February 2007. This body is responsible for designing and implementing public policies that allow developing actions towards a deeper and more intensive use of ICT by citizens, businesses and the State itself.

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[53] The Networked Readiness Index 2009–2010:
http://www.weforum.org/pdf/GITR10/TheNetworkedReadinessIndexRankings.pdf

[54] The 2007 e-readiness rankings: http://graphics.eiu.com/files/ad_pdfs/2007Ereadiness_Ranking_WP.pdf

Digital Strategy

This Committee presents the **Development Strategy for Digital Chile 2007-2012**, whose main objective is to contribute to economic and social development through the potential offered by the use of ICT to improve quality in education, increase transparency, enhance productivity and competitiveness and ensure better government through greater citizens' involvement and engagement.

The specific objectives set are:
1) Increasing companies' competitiveness by using ICT intensively
2) Creating and fostering a new culture in ICT to increase transparency and citizen participation
3) Promoting development of a quality digital government
4) Increasing intensity and depth of use of ICT by students and civil society

Looking to the effective achievement of these four objectives, the Strategy is divided into four courses of action that, at the same time, form the **Information and Communication Technologies National Strategic Plan**. These courses of action are:

1) **Projects and Programs for Digital Development**: The design, implementation and monitoring of a new portfolio of projects and programs will be coordinated. This will be the operational expression of the desired impact associated to ICT policies.

   a. **Education and development of aptitudes:** Action areas**: P**edagogical contents and use models, educational infrastructure, digital capabilities for teachers and students, educational management

   b. **Electronic Government,** Developments: Service schedules, management of medical appointments and procedures, patient management, information system for urgencies, drug delivery management

   c. **Adoption of ICT in Businesses:** Initiatives to undertake: The search, in collaboration with relevant players in the area of business promotion, for incentive mechanisms to encourage the incorporation and adoption of ICT

   d. **Connectivity and access infrastructure: P**rovide high quality Internet access at affordable prices. The policy associated to info-centre development will be deepened and reoriented

2) **Technological Policy for Digital Development:** The objective of this Policy is to face social and economic issues originating as a consequence of the introduction and use of ICT, such as computer security, use of standards, updating of legal framework, use of open source software, among others.

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a. **Innovation and ICT Development:** The link between university and business is an area to be greatly strengthened. It will also be stimulated by the development of more experts, technicians and professionals in the area, with capabilities for entrepreneurship and innovation.

b. **Legal framework:** Establishing an appropriate legal framework that accounts for technological changes

c. **Standards:** The challenge is to promote the widespread use of standards in other areas of society

d. **Open Source Software:** A public-private working group will be created and commissioned to elaborate specific policy proposals directed at the public and private sectors in this area.

e. **Networks and security:** Network infrastructure must be reinforced in particular in relation to the Internet backbone.

3) **Development Strategy for the ICT Industry:** A group of initiatives to promote and develop the local ICT industry will be developed: Provide funding mechanisms to support entrepreneurial activity; increase competitiveness and productivity of the national ICT sector; increase the comparative advantages of Chile to be a platform for off-shoring technological business; make the most of the comparative advantages of Chile in leading productive sectors worldwide: astronomy, mining, wine production, salmon farming, tourism, amongst others.

4) **Institutional Framework:** The institutional framework necessary to ensure the development of digital policies that will have more sustainability over time will be studied.

ICT Infrastructure

In terms of ICT infrastructure, Chile obtained the position 54 out of the 159 countries surveyed in the ICT Development Index (IDI) [55]. The IDI covers ICT access, use and skills, and it measures the level and evolution over time of ICT developments, taking into consideration the situations of both developed and developing countries.

If we analyse more closely the available ICT infrastructures and the level of access to them, we find Chile in position 27, well situated within its environment, but still with enough margin for improvement compared to other countries like Argentina, especially with regard to the availability of computers and Internet access at home (40% and 23.8% respectively). On the other hand, penetration and availability of mobile phones is high (88.1 per 100 inhabitants and

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[55] IDI 2010: http://www.itu.int/ITU-D/ict/publications/idi/2010/Material/MIS_2010_without%20annex%204-e.pdf

increasing).

Regarding the use of ICT, Chile is in position 27, again well placed compared to its environment, having Argentina as a reference to follow. In this case it is noted that Internet penetration (32.5 per 100 inhabitants) is still low compared to other developed countries, especially with regard to fixed and mobile broadband connections, where there is still margin for improvement, as there are now subscriber ratios of 8.5% and 2.4% respectively.

Legal context

The Chilean government has developed a set of laws, presidential decrees and regulations which have encouraged the development of information technologies, eGovernment, transparency and accountability. This section describes the main laws developed so far:

Law on Access to Public Information

Law No 20.285[56], known as the Transparency Law, came into force in April 2009 and aims to regulate the principle of transparency in the public sector and the right of access to information from the departments of the state administration. It is based on six principles and has two policy areas, active and the passive transparency.

Fundamental legal principles

a) **Principle of relevance**: It assumes as relevant any information held by bodies of state administration, whatever its format, support, creation date, origin or classification.

b) **Principle of freedom of information**: Everyone has the right to access information held by bodies of the State administration, only with some exceptions or limitations established by quorum laws.

c) **Principle of openness and transparency:** All the information held by bodies of the state administration is presumed public unless it is subject to the exceptions noted.

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[56] National Congress Library. Law No. 20.285: http://www.leychile.cl/Navegar?idNorma=276363

d) **Principle of maximum disclosure:** The departments of the State administration should provide information in the broadest terms possible, excluding only information which is subject to constitutional or legal exceptions.

e) **Principle of opportunity**: The departments of the State administration should provide answers to requests for information within the legal deadlines, as quick as possible and avoiding any dilatory procedures.

f) **Principle of free access to information**: Access to information from administrative bodies is free, without prejudice to the provisions of this law.

These principles are also articulated by two models, active transparency and passive transparency.

Active Transparency implies the obligation of agencies of the state administration to permanently maintain available to the public, through their web sites, certain information updated, at least monthly. The information should include: its organizational structure, capacities, functions and attributions, regulatory framework, personnel and related salaries, contracts for the supply of goods, procedures and requirements to be met by the applicant to access the services provided by the body concerned, mechanisms for citizen participation and information on allocated and executed budgets.

Events and documents that have been published in the Official Journal, as well as those that relate to the role and responsibilities of the agencies of the State administration should also be permanently available on its website.

Regarding **Passive Transparency**, citizens can request the minutes of administration meetings and the decisions of the departments of the state administration, their arguments, the documents which serve them as support or as an essential complement and the procedures used to develop them, with the exceptions established by this law and under other laws.

Transparency Council

The Transparency Council[57] has also been created under this law. Its role and attributions are:

a) To monitor compliance with the provisions of the law and apply sanctions if they are not met.

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[57] Transparency Council: http://www.consejotransparencia.cl/

b) To resolve claims, presented in accordance with this Law, for denial of access to information.

c) To promote transparency in the public sector, the dissemination of information about the state administration departments and the right of access to information, by any means of publication.

d) To carry out dissemination and public information activities on matters of its competence.

Sanctions

To ensure compliance with the Law, the following "general rule" has been defined: The authority, upper body or head of a service of the state administration, which has unreasonable denied access to information, shall be punished by a fine of 20 % to 50% of his salary.

Law on Privacy Protection

Law No. 19.628[58] on Privacy Protection, in force since October 1999, subsequently amended in 2002 into law 19.812[59]. This law seeks to regulate the use public bodies and individuals make of personal data stored in data bases or data banks. The objective of both laws is to provide a real guarantee of protection to citizens.

Fundamental legal principles

a) The processing of personal data can only be done when authorized by this or another law or when the data owner expressly agrees to it.

b) Personal data should only be used for the purposes for which they were collected, unless they come from public sources.

c) Information should be accurate, current and respond truthfully to the real situation of the owner of the data.

d) Sensitive data cannot be processed, except when authorised by law, when the owner consents, or when they are necessary for determining or granting health benefits to the person.

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[58] National Congress Library. Law No.19.628:
http://www.leychile.cl/Navegar?idLey=19628

[59] National Congress Library. Law No. 19.812:
http://www.leychile.cl/Navegar?idLey=19812

e) Everyone has the right to demand whoever is responsible for a database, or is engaged in public or private processing of personal data, information on data relating to his person, his origin and destination, the purpose of storage and the identification of the persons or bodies to which data are regularly transmitted.

f) If personal data is incorrect, inaccurate, misleading or incomplete, and thus proved, the data owner will have the right to modify and also to require their removal, if their storage lacks legal basis or if they are obsolete.

g) The people in charge of personal data banks may only communicate information which deals with economic, financial, banking or business obligations when they appear in the documents determined by the law.

Law on Intellectual Property

Law No 17.336 on Intellectual Property, in force since October 1970 and amended in January 2010 with number 20.435[60] aims to protect the rights that, solely because of the creation of a work, authors in the literary, artistic and scientific field acquire whatever their form of expression may be and the related rights implied. With the modification of the standard, the limitations and exceptions to copyright are extended among other questions. It also describes how intellectual property affects computer products and makes a detailed description of the responsibilities and rights of Internet service providers.

The law also recognises the existence of a common cultural heritage (equivalent to what is called "Public Domain" in other legislations). These common cultural heritage works can be used by anyone, provided that authorship is mentioned and integrity is respected. The law is also "permissive" with adapted documents to be consumed by people with disabilities.

Regarding the Internet service providers, the law says that they will not be responsible for the transmission through their networks of material which infringes copyright, provided that, among other measures, the company does not modify or select contents of the transmission, does not initiate the transmission and does not select the recipients of information. They will not be held responsible for storing information, files or hyperlinks in their system that provide access to "pirate" works, provided that they have no actual knowledge of such information, they do not receive an economic benefit and they remove it immediately when ordered by a court.

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[60] National Congress Library. Law No.20.435:
http://www.leychile.cl/Navegar?idLey=20435

Law on Net Neutrality

In August 2010 the bill on net neutrality was approved, which modified Law 18.168[61] (General Telecommunications Law, that is amended in article 24) to protect consumers from abuses performed by operators and from the limitations or blocking of Internet content made by public agencies. It is a pioneering law which, if carried out, will make Chile the first country in the world to have an ambitious law guaranteeing net neutrality, and which is agreed by the different political groups.

This amendment to the Telecommunications Law is intended not only to ensure the neutrality of the Internet among operators or government agencies, but also to promote competitiveness of the telecommunications sector, to ensure access to Internet to all citizens, and to give them a tool that allows them to defend their rights.

As the Telecommunications under Secretariat, is currently drafting the regulations, details on how this will be implemented are still unknown. It is scheduled to come into force in late November 2010.

Interoperability Framework

Chile has an interoperability framework, consisting of three parts: the Standards Committee for electronic documents, the Layout and Metadata Manager and the State Electronic Services Integrated Platform.

The framework is based on the different technological laws and regulations of the Chilean government:

- Law No. 18.168 of telecommunications regulation
- Law No. 19.799 of electronic signature
- Law No. 19.880 of administrative procedures
- DS No. 77/2004 of electronic communications
- DS No. 81/2004 of electronic documents
- Law No. 19.628 of privacy protection
- DS No. 83/2005 of electronic security
- DS No. 100/2006 of public websites development (including a web development guide[62], a guide about the privacy policy model[63] and the accessibility guidelines for persons with disabilities[64])

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[61] Biblioteca del Congreso Nacional. Ley 18.168: http://www.leychile.cl/Navegar?idNorma=29591

[62] Web Development Guide: http://www.guiaweb.gob.cl/

[63] Privacy Policy Model: http://www.estrategiadigital.gob.cl/files/guia_modelo_privacidad.pdf

[64] Accessibility Guidelines for Persons with Disabilities:

Model Strengths

The main strength of this model is the availability of an important set of defined schemes and web services that allow on the one hand, the automation of procedures and their integration with existing modules, and on the other to meet most of the requirements that organizations may have (including authentication, electronic signature, payment gateway, connection with the Ministry of Presidency, Interior, Finance, Economics, Housing, etc.).

Moreover the system is very simple to implement and incorporates technologies that are widely used in the administration (XML), and has an extensive documentation, guides (style and development) and reference material that is available for both the authorities and the companies that work for them.

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http://www.estrategiadigital.gob.cl/files/guia_accesibilidad.pdf

Appendix B

Questions and interviewees profile mapping

Developed by: With the partnership of:

16 September 2010

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Status of This Document: This document contains the complete OGD Questionnaire with questions that need to be answered for the assessment of OGD readiness in a given country.

Introduction

This document defines an OGD readiness Questionnaire that summarises all the questions that need to be answered to assess the OGD readiness in a given country. Questions are divided into four thematic groups that represent the different stages of an OGD project:

- **Situation:** Learning about the context on which the project would be developed

- **Analysis:** ICT infrastructure and the way government archives and handles information

- **Operations:** Ways and facilities to expose the information

- **Reuse:** The view from the outside world and facilities provided by the government to consume information

Methodology

Feedback received so far shows that the total number of questions in previous versions of the questionnaire was too high, so this new approach groups them using much higher level questions and came up with less than 30. There are also a higher number of more detailed sub-questions that will be used only as guidance for the interviewer, who would be able to select subgroups as necessary depending on how the interview progress.

Additionally, as not all questions are pertinent for all the profiles we plan to interview, the top level questions have also been mapped to the different profiles; thus, every profile will only answer relevant questions.

The answers to the high level questions could be very elaborated and difficult to compare and integrate in the final report, so answers will be also normalised. The general approach is that when the interviewer is in front of the interviewees, he will guide them to answer each of the top level questions using the more detailed ones as needed and, at the end, will select one out of three of the normalised answers.

For example, given the question *"05 - Does the country have legislation related to reuse of Information from the Public Sector?"*

The normalized answers can be:

05	Answers
	The law exists and it is proactive.
	The law exists but it is not proactive, or it is under development.
	The law does not exist.

Specific answers from interviewees will be nonetheless also collected by the interviewer in order to enrich the final report with some quotes and more specific information.

Profiles of the Interviewees

The different profiles that will take part in the interviews process will be identified in the following way:

Government and institutions

- Top level – **T**

- Middle layer - **M**

- International institutions - **I**

Civil society

- Civil hackers and activists - **C**

- Private Business - **B**

- Press and Media - **P**

- University - **U**

- NGO, non-profit - **N**

- Donors - **D**

SITUATION

T M I C P U N D

01	**Is democracy well founded in the country?**

Are human rights well respected and protected in the country?

Are legal rights well respected and protected in the country?

Is there sufficient democratic representativeness in the country?

Do citizens frequently vote in elections?

Do citizens respect politicians?

I C B P U N

02	**Is there a perception of corruption in the country?**

What is the policy environment with regards to international anti-corruption law?

Regionally, could the country be described as lagging behind

neighbouring countries in terms of openness and transparency?

Is corruption an important concern for private companies?

Do allegations of serious corruption reach the highest levels of government, or are they restricted to middle and lower levels of government?

Is there an anti-corruption movement in the country, and could it be an effective ally?

Has corruption decreased or increased over the last several years?

T B

03	What is the importance of ICT to Government

How much priority does the government in the country place on information and communication technologies?

Is there a specific strategic plan for ICT deployment or is ICT present in more general strategic government plans?

How well, in ICT infrastructures connectivity terms, is the country linked to other countries? Was there any improvement over the last years?

T M I C P U

04	Does the country have legislation related to transparency? (e.g. Freedom of Information or Right to Information)

Is the government in a strong pro-FOI phase or does it rather regret having FOI – for instance, does it have a strong track record of appealing against FOI using legitimate judicial means?

What are the political and bureaucrats perceptions towards FOI laws? What do they see as constraints and challenges to implementing FOI laws?

Is it delivering on transparency and social outcomes?

What is the type of information affected? (Geospatial, legal, weather…)

Does a national authority enforce it?

Have there been any significant amendments since the implementation of the FOI laws? And if so have their strengthened or weakened FOI?

Have the implementing authorities received any training for implementing FOI?

Do sanctions per non-compliance exist?

Is there evidence showing that agencies/public bodies are complying with them?

How frequently do departments get requests for information through FOI laws (# of applications)

How often information is provided i.e. what is the percentage of incidents when information is denied under FOI? And is there an appeal process?

Does the political opposition have a track record of using FOI?

Does a claim process exist? What is the annual amount of sanctions per claim?

Does an appeal process exist?

Has the judiciary been active in upholding Freedom of Information obligations?

What is the annual amount of positive responses to FOIA requests?

Do citizens need to register and give personal data to get the information?

Is the process proactive or reactive?

Are civil societies informed about their privacy rights? To what extent?

Who are the primary users of the FOI laws?

If the country does not have a Freedom of Information law, is there an active movement advocating for one?

If the country does not have a Freedom of Information law, are there sectorial freedom of information laws, transparency provisions within the country's constitution, or applicable international standards (e.g. Aarhus convention) that are relevant and implemented?

T M C U

05	**Does the country have legislation related to reuse of Information from the Public Sector?**
	What is the type of information affected? (Geospatial, legal, weather…)
	Does a national authority enforce it?

Do sanctions per non-compliance exist?

Is there evidence showing that agencies/public bodies are complying with it?

Does a claim process exist? What's the annual amount of sanctions per claim?

Does an appeal process exist?

Do citizens need to register and give personal data to get the information?

Is the process proactive or reactive?

Are civil societies informed about their PSI reuse rights? To what extent?

If the country does not have a PSI reuse law, is there an active movement advocating for one?

If the country does not have a PSI reuse law, are there sectorial PSI reuse laws, transparency provisions within the country's constitution, or applicable international standards (e.g. EC Directive) that are relevant and implemented?

T M C U

06	Does the country have legislation related to privacy protection? (e.g. Privacy Act)

What's the type of information affected?

Does a national authority enforce it?

Do sanctions per non-compliance exist?

Is there evidence showing that agencies/public bodies are complying with it?

Does a claim process exist? What's the annual amount of sanctions per claim?

Does an appeal process exist?

Are civil societies informed about their privacy rights? To what extent?

T M C B U

07	**Is the Government middle layer ready to facilitate an Open Government initiative?**

How empowered is the middle layer by the current political environment? In which departments and at what level?

If a civil servant or public employee sponsors a disruptive project are they likely to be promoted or disciplined?

Is openness a high stakes issue at the middle layer? How threatened might individuals advocating for openness within this layer feel? To what degree and extent do middle level civil servants resist opening government data that was not collected with the intention of being released?

How technically competent is the middle layer?

What level of technical training is available within the civil service?

Does the civil service have plans to recruit more technical specialists?

Does an existing network/community exist that bridges the gap between the middle layer and civil society?

T M C B U

08	**Is the political top level layer ready to facilitate an Open Government initiative?**

Is the country at a particular stage in the political cycle that would make opening government data advantageous in a political sense?

Has a new government recently come to power (or is about to) that wishes to open up recent historic records or prove that it is 'clean'?

Are there any individual politicians in the party of government who prominently support open data or FOI?

Politically, who might be the winners and losers if government data is opened?

Is there a political appetite for quick wins on transparency?

To what degree and how much is the expense of opening significant amounts of government data likely to be an issue?

Could regional peer pressure have an impact on top level political will to open data (e.g. ASEAN, SADC)?

How is the top political tier likely to react to advocacy from any one of the following actors:

Tim Berners-Lee?

Barack Obama?

Commercial operators (e.g. Google)?

Entertainment industry: film stars?

ANALYSIS

T M C U

09	What level of data collection does the government undertake?

Is this data collected in a systematic and timely fashion?

Is this data stored digitally or on paper?

Is primary data is preserved as raw data?

In what format is digitised data collected and stored? Are these open or proprietary formats? Are they machine-readable?

To what extent are conversations around the digitisation of government subject to vendor capture?

Are there mechanisms in place to preserve data in a permanent way?

M C B U

10   What is the quality of data?

Is the data available as primary data, i.e. with the finest possible level of granularity, not in aggregate or modified forms?

Is the data complete? That is, there is evidence that the available data represents the whole set of exiting data and not just a part or view?

Is data made available in a timely fashion? That is, data is made available as quickly as necessary to preserve the value of the data?

Are quality audits that comply with international standards being undertaken?

T M

11   Does the country have a licensing and copyright framework?

Is government data or compilation of government data currently protected by copyright or another intellectual property like regime?

What is the type of information affected?

Does a national authority enforce it?

Is the data subject to any licences which restrict reuse? Are open licenses empowered?

Is the license of any given government information always known?

Are there any exclusive agreements? What is the amount of government information affected by them?

T M B U

12	Is there any Interoperability Framework at the Government level?

Are open standards generally used and promoted within the government level?

Is it regulated by a national act?

Is it mandatory?

Is it enforced?

What is its level of awareness in public bodies and agencies?

What is its level of deployment in agencies and public bodies?

How relevant is its multi-channel delivery strategy[65]?

T M

13	Are there Public Sector Information reuse outreach and encouragement activities?

Is information generally available at no financial charge?

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[65] http://www.w3.org/TR/egov-improving/#multi-channel

Existence of training operations aimed at public servants?

Level of PSI reuse knowledge transference (forums, etc.)?

PSI reuse encouragement activities (seminars, workshops, competitions, etc.)?

Dissemination of Good Practices (Yes/No)

Existence of a government-wide PSI awareness project and/or plan (e.g. EPSI Platform)?

OPERATIONS

T M B U

14 What is ICT Development level and evolution?

Is the use of ICT's well extended in the country? How technically literate is civil society?

Has it improved over the last several years?

Is the connectivity cost affordable? (E.g. cost of DSL line, mobile subscription, etc.)

Do ICTs have a high user rate in the private sector?

Does the Internet have a high user rate in the private sector?

T M B U

15	What is the Internet connectivity level?

How many people have a personal computer at home?

What level of Internet penetration is there across the country?

What level of Internet broadband penetration is there across the country?

Is there any restriction regarding Internet access?

If in the country internet access is limited, is there a diaspora opposition that organises online that could use open data?

T M B U

16	What level of mobile penetration is there in the country?

What level of mobile penetration is there in the country?

What is the amount of mobile phone subscribers with data access?

How are people accessing mobile data services (SMS, 3G etc.)?

T M I C B U

17	How developed are Government electronic services in the country?

Does the government have an e-Government strategy? Is it implemented?

How many government agencies have a website?

Are most government services available online?

Do those available online have a high use rate?

Is there a representative amount of government services to engage with the citizenry?

Are there major public sector ICT projects in training that could be helped by open data?

Are there any major national public service ICT projects underway? (e.g. computerisation of patient records)

T M

18	Is there a management structure that facilitates Open Government?

Does a high-level executive office for national public information policy (e.g. UK OPSI) or committee exist?

Would this high-level executive office establish and mandate government policy?

Do agencies/public bodies have a high-level person responsible for public information (e.g. a CIO)?

Does a high-level executive office or committee for access to information and transparency exist?

Would the office above establish and mandate government policy?

Do agencies/public Bodies have a high-level person responsible for access to information and transparency (e.g. a CIO)?

Does a high-level executive office or committee for Open Data exist?

Would the office above establish and mandate government policy?

Do agencies/public bodies have a high-level person responsible for Open Data (e.g. a CIO)?

REUSE

T B U D

19	What is the capacity for innovation in the country?

Is there more ICT import or export?

Does the country export a high amount of ICT produced via research?

How do companies obtain technology? Do they invest in ICT research?

What's the amount of foreign technology used by companies?

Does procurement or innovation framework allow small projects to be funded (<$50,000 in PPP terms) without a major tendering exercise?

T I U

20	What is the education and literacy level in the country?

How much public money is spent on education?

What is the adult literacy in the country?

How many qualified people are there in the country?

Are there good universities in the country?

How much public money is spent on education?

M C B U

21	Is there a potential user base that may make use of targeted data?

To what degree are citizens ready and willing to participate more actively in governance?

Is there a user base of traditional civil society groups that may make use of targeted data?

Are there specific examples of those groups using data in their advocacy/monitoring or other civic engagement activities?

Are there specific examples of take-up of data by end users that may inform open data initiatives?

Amount of PSI-related innovation and research projects funded by the government?

Amount of private companies whose business is a least partially based on reusing PSI?

Existence of programs related to PSI at universities?

T M C P U

22 How dynamic is the media sector?

Is it free?

Is it wired?

How active is the press in demanding information from the government?

Is there a wide range of media covering and various political viewpoints?

Have there been any prominent 'wins' from transparency campaigners?

Are there laws protecting journalistic privilege?

To access protection of such laws, do you have to be a qualified journalist?

M C P U

23	How easy is to reuse available data?
	Are there exemplars of open data practice at the sub-national level?
	In what ways did that data need to be made accessible in order for it to be used?
	What's the amount of data available in open standard machine-readable formats?
	Existence of an online public register of all the public sector bodies that hold PSI?
	How many agencies/public bodies have a single access point to data (e.g. data.agency.gov.*)?
	How many of the single access points are accessible to people with disabilities (at least WCAG-AA compliant website)?
	How many agencies provide open standard automated discovery services (e.g. REST Web Service or SPARQL endpoint)?

C P U D

24	Are there reuse initiatives from the civil society?
	Are "civic hackers" present?

Are there instances in-country where local civil society groups are appropriating government data already?

Are they not only collecting data, but making that data available, either with or without an analytical or service/functional layer on top of it?

If an individual obtains and then publishes on the web a set of government data either without clear authorisation or that is awkward for vested interests, are any of the following likely to happen to them:

- extra-judicially intimidated

- arrested under criminal law

- prosecuted or threatened with prosecution under civil law such as copyright or defamation

- prosecuted or threatened with prosecution under administrative law (in countries where this exists)

- denounced in the press by government sources

- face technical measures to remove the data from the internet such as pressure on the local ISP.

Is there conspicuous scope for quick wins in translating projects such as 'Fix My Street' or 'They Work for You' or Open311 into a local context.?

Is there an organised, technology-led local group, such as the Sunlight Foundation, or MySociety, in the country?

Does a PSI Association of private companies exist?

T I C U D

25 Are there donors active in the country who could be useful allies?

How significant are donor countries?

Are they providing project or budgetary support? If budgetary, what performance data do they receive in return? (E.g. for donors funding education in country, do they have access to educational achievement metrics, school locations etc. Similarly for health).

Are donors already releasing their own data openly?

Are they willing to impose an openness requirement on their grantees?

How thoroughly does the administration report on aid spending?

How has the country reacted to previous tied aid? Is there scope for positive conditionality?

Does a PSI Association of NGO's exist?