

***D.5.3 – Status of ICT Policy Development –
Country Report Chile***

Grant Agreement number: 231730

Project acronym: PRO-IDEAL

Project title: PROMotion of an ICT Dialogue between Europe and America Latina

Funding Scheme: Support Action

Due date: 29/04/2011

Actual date: 29/04/2011

Document Author/s: ADI CHILE

Version: 1.0

Dissemination level: PU

Status: Final



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1 INTRODUCTION

In order to increase the future cooperation between Chile and the European Union (EU), and to strengthen the ICT dialogue with stakeholders on international S&T cooperation policies in the ICT sector, this report shows the status of ICT Policy in Chile, i.e. the national policies and strategies for ICT industry development, the public policies, the strategies at corporate or business associations level for ICT industry development, the legal framework and other public documents relevant to national ICT policies, the public and private institutional structure for the development of ICT, the ICT priorities for R&D, among others.

In Chile, two main Government funds invest in Science and Technology, CONICYT and CORFO. The first one has to do with academic research while the second one has to do with business ventures. However, international cooperation has brought a new way of funding to develop Science and Technology and ICT.

The methodology of this deliverable is based in the analysis of the national Chilean policies on ICT, in the qualified opinions of stakeholders who have supported the project and the cooperation in ICT R&D between LA and EU, and the results of PRO-IDEAL's survey that contains the ICT R&D priorities in LA.

Relevant studies have been used to make this report, for instance, the *Information and Communication Technologies in Chile Research areas and capabilities. State of the art report¹* and *Analytical report on Science and Technology cooperation between the EU, its Member States and Chile²*; both reports written by CONICYT³, as well as the D1.2 Report on priorities in LA.

¹ CONICYT, 2010, See: <http://chiep.cl/index.php/es/documentos/documentos-de-analisis/finish/20/41>

² CONICYT, 2010, See: <http://chiep.cl/index.php/es/documentos/documentos-de-analisis/finish/20/45>

³ Stakeholder in Proideal project: See: http://www.pro-ideal.eu/who_is_who_chile

2 NATIONAL POLICIES AND STRATEGIES FOR ICT INDUSTRY DEVELOPMENT

2.1 Public Policies and Strategies for ICT Development

The national system of science and technology in Chile is based on the participation of public and private entities, such as government agencies, universities, institutes and research centres. This system seeks, on the one hand, to develop research, technology, human capital formation and innovation, and the other hand, the creation of policies to support these aspects.

In 2005 It was established the National Council on Innovation for Competitiveness which seeks to propose national guidelines for innovation. This Council integrates different views to define the scientific activities, public policies and to develop an efficient national innovation system.

In 2007 the Inter ministerial Committee for innovation and competitiveness was formed and it is composed by representatives of various ministries. This body implements public innovation policies for competitiveness after listening the recommendations from the National Commission for Scientific and Technological Research (CONICYT) and the Chilean Economic Development Agency (CORFO).

Regarding the strategies for ICT development, Chile has always had a proactive attitude. In the early nineties, the Chilean Government decided to deregulate the Telecom industry with the goal to foster the development of this industry. Chile is a long country and the distance among diverse cities is big, then it is necessary to develop ICT with the goal of reaching the marginalized population. Because of this reason, during the nineties the program "Telecommunications Development Fund" was launched. After that, "Enlaces Projects" was started with the goal of connecting 350 public schools through a WAN with the goal of bringing computer applications to their students. In spite of the fact that many schools had to reduce the usage because the high cost, the program opened its scope to all public schools.

Recently, the Chilean Government is trying to organize a plan with the objective of digitalizing the country. In order to get this goal, a Digital Agenda was introduced in February 2010 which includes 34 initiatives divided in 6 action areas, including access, e-government, education and training, ICT industries, businesses and legal and regulatory framework.

2.2 Active public policies for ICT industry development as cross technology in other value chains

The new digital Agenda to the period 2010-2014 which gives a new approach in TIC, incorporate a digital vision of the Society and the State. The main goal of the Chilean state is to put a Chile into the Knowledge Society and the new paradigms by 2020.

There are two lines of public policy for the period 2010-2014 on Digital Development:

- 1) To support the modernization of the State Administration, which have to focus on service to the people, the efficiency in processes, to streamline digital platforms, the interoperability of the State and the generation of timely, transparent and easy information to be used for citizenship and the government (e-Government).

- 2) To deepen the use of ICT by companies under the paradigms of the knowledge society, working especially in education, health, entrepreneurship, innovation, job creation and improvement of competitiveness (e-Society).

A number of targets have been set up for December of 2013, given that the period of the current administration ends on March 11, 2014. These goals integrate initiatives and digital development projects, according to the lines of public policy described above.

The following table shows a resume of the targets⁴:

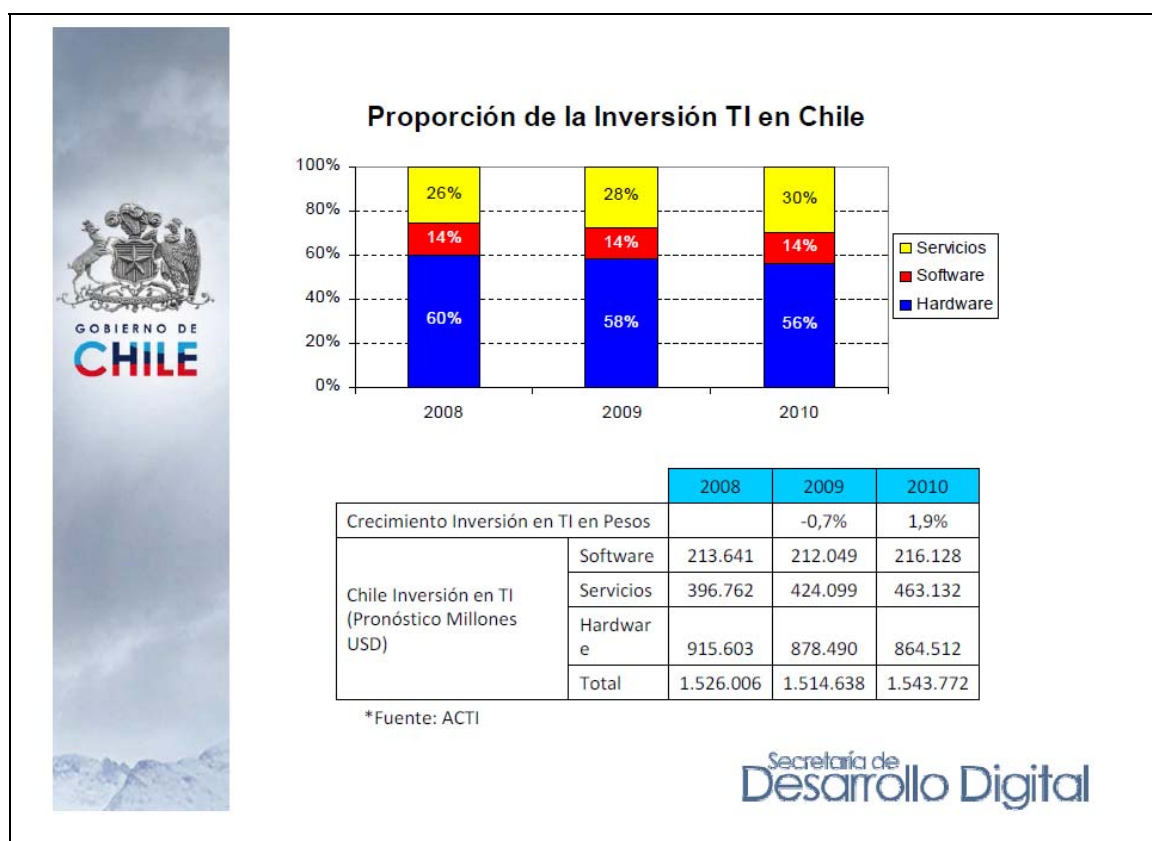
Modernization of the State Administration (e-government)	Deepening the use of ICT by the Society (e-society)
To save 100 million hours of paperwork with the State	To create 100 000 digital entrepreneurs
To streamline State ICT projects	To create conditions to increase an efficient broadband market
To implement Electronic Medical Leave for recipients FONASA	To reach 70% coverage of households and 100% of schools connected in the country.
To reach an individualized and validated record of 100% tariff benefits granted to recipients on the network FONASA public hospitals	To launch by the year 2012, education mode 1 to 1 in at least 50 schools to then assess the appropriateness of expand the use of computers in schools and local authority individuals supported under this mode of teaching
To create the national waiting list generated from local systems public health providers from 2011	To Implement a follow-up attendance based on digital identification from Bip
To reduce from 27 to 16 days in the time required to found a company through the use of ICT among other things	To create ad hoc legislation to promote teleworking, that protects the rights and obligations of workers and employers.
To reduce from 23 days to 12 days of actual time to process export of agricultural goods	To duplicate revenues remote global service linked to the ICT industry
To develop a unique key generation electronic access to State through the Civil Registry and Identification	To improve at least 4 seats in the NRI ranking connectivity and e-government
To relaunch the Virtual Police, enabling reports and records Online	To generate a new Digital Strategy 2012-2020 under focus Digital Vision Society
To develop an Open Data policy, making available at least 1 base relevant data by Ministry to December 2013	
To incorporate a system of traceability of stolen property to smartphones and notebooks in order to combat crime	

⁴ Estrategia Digital, "Digital Action Plan of the Government of Chile, 2010-2014", p. 1, See: <http://www.estrategiadigital.gob.cl/inc/downloadPublicFile.php?seccion=Documento&id=372>

2.3 Strategies at corporate or business associations level for ICT industry development

There are not clear strategies at corporate or business association's level for ICT industry development. Most ICT companies are part of the Chilean Association of Companies in ICT (ACTI⁵) or the Chilean Society for Software and Services (GECHS⁶). These companies are focused on providing particular ICT services to public and private organizations, or to citizens. While ACTI groups the big companies, GECHS meets small and medium enterprises and this means that these business associations have different goals because they represent diverse interests. Regardless this, in the present there are efforts to work for commons objectives.

The chart below⁷ describes the percentage of investment of ICT in Chile in 2008, 2009 and 2010. It can be seen that the investment in hardware had the highest percentage of expenditure in ITC in the three years in comparison with services and software. However, only services had an increase in the three years analysed.



⁵ See: www.acti.cl

⁶ See: www.gechs.cl

⁷ Estrategia Digital, "Digital development indicators in chile", See: <http://www.estrategiadigital.gob.cl/inc/downloadPublicFile.php?seccion=Documento&id=326>

2.4 Legal framework and other public documents relevant to national ICT policies

Chile has relevant regulation about ICT. The following main rules form the legal framework of national ICT policies:

1) E-SIGNATURE

Legal Name: Act 19.799 about electronic documents, electronic signature and certification services.

This Act regulates the use of electronic documents, electronic signature and certification services and the accreditation process of certification providers with the goal of guaranteeing the security in their use.

2) DATA PROTECTION

Legal Name: Data Protection Act 19.628.

This Act regulates the processing of personal data by natural, legal person or public authority.

3) CONSUMER PROTECTION.

Legal Name: Chilean Consumer Protection Act 19.496

This law is not about consumer protection on the Internet, but it contains certain rules about consumer protection in electronic contracts, particularly some issues of transparency, electronic consent and terms and conditions in electronic contracts. Also there is a rule about spam.

4) COPYRIGHT

Legal Name: Intellectual Property Act 17.736

This act provides protection and rights to the authors of literary, artistic and scientists' works. This law regulates some exception related to ICT activities and the liability of Internet Service Providers.

5) INDUSTRIAL PROPERTY

Legal Name: Industrial Property Act 19.996

This act regulates topics of patents, trademarks, Utility Models, Industrial Designs, Integrated Circuits, Geographical indications, and other issues.

6) CYBERCRIME

Legal Name: Computer Crime Act 19.223 and Criminal Code

Brief Description: The act 19.223 regulates criminal activity in which computers are a tool or a target. In turn, Crime Code establishes as a criminal activity the interception of some communications (i.e. by phone) and penalize child pornography.

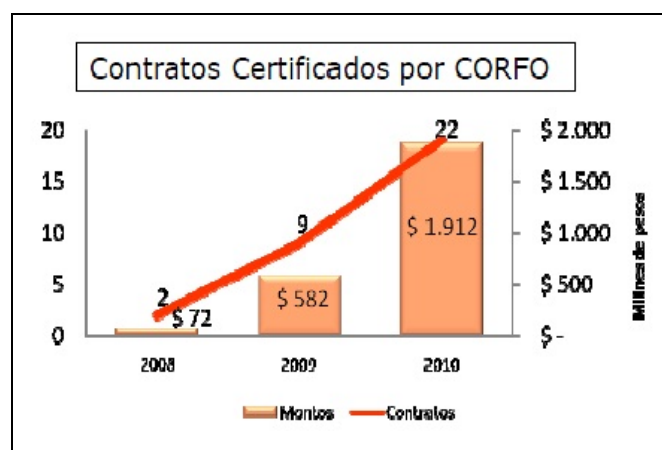
7) TAXES

In this area, it is possible to find some laws which seek to promote the investment in R&D. One of them is the Act 20.241 that gives tax benefits for private investment in research and development. Also, it is a good way to forest the competitiveness.

The following chart⁸ shows the R&D projects under the ACT 20.241. Regarding the ICT sector, the amount of money invested in the telecommunications represents the 6% of the overall percentage. However, there is not further information about other areas of ICT. Recently, it was entered to the parliament a bill that pretends to duplicate the investment in R&D by 2014⁹.

Sector	Nº Contratos	%
Agropecuario	12	36%
Minería	1	3%
Construcción	3	9%
Medio ambiente	3	9%
Otros Servicios de Telecomunicaciones	2	6%
Pesca y Acuicultura	9	27%
Productos Farmacéuticos	1	3%
Productos Químicos	1	3%
Silvicultura	1	3%
Total	33	100%

The following chart shows the certified contracts by CORFO under the act 20.241 between 2008 and 2010 in Chile. It can be clearly seen that the highest investment in R&D was in 2010 with \$1.912.000¹⁰ millions of pesos.



⁸ See: www.economia.cl/wp-content/uploads/.../Presentación-Ley-I+D-Prensa.pdf

⁹ Silva Malig Mauricio, 2011: <http://www.login.cl/cms/component/content/article/25-opiniones/2495-ampliacion-del-incentivo-tributario-a-la-investigacion-y-desarrollo-id>

¹⁰ The amount in Euros is EU \$2.819.037

3 PUBLIC & PRIVATE INSTITUTIONAL STRUCTURE FOR DEVELOPMENT OF ICT

3.1 Public and research institutions

The main public institutions involved and the regulating ICT development are:

- **Ministry of Economics**¹¹. The goal set by the current President of Chile for this Ministry is “to raise the potential GDP of the country to reach development by 2018”.
- **Undersecretary of Telecommunications**¹²: Its mission is to promote equal access to ICT, through the granting of subsidies, concessions and permits; increase the competitiveness of the market, updating the sector’s legislation and ensuring the appropriate protection of the users, supervising the telecommunication services.
- **Ministry of the General Secretary of the Presidency**¹³. This Ministry is the support organization which coordinates and schedules the Government agenda. In particular, this Ministry is responsible for the Government’s internal modernization programme.
- **Secretary of Digital Development from the Ministry of Economics**¹⁴: This organization was created in February 2007 as a response to the need for designing and executing a public policy to promote the use of ICT by citizens, private companies and government organisations.
- **Chilean Economic Development Agency (CORFO)**¹⁵: This Governmental organization promotes entrepreneurship and innovation through financing schemes and other activities.

3.2 Universities

The research and development of ICT in Chile are mainly located in four major cities: Santiago, Valparaiso, Viña del Mar and Concepcion. This situation is explained by the fact that most of the Chilean population and private / public companies are also in the geographical area. Several attempts have been made to decentralize government the country, with little success so far.

Three regions (Región metropolitana, Valparaíso and Bío-Bío) concentrate 70% of total ICT researchers. There are also several regions with little or no ICT researchers. Therefore, it can be concluded that the geographical distribution of community ICT research is highly centralized in the regions mentioned.

According to the “State of the art report on Information and Communication Technologies in Chile Research areas and capabilities.”¹⁶, the research activities

¹¹ See: www.economia.cl

¹² See: www.subtel.cl

¹³ See: www.minsegpres.gob.cl

¹⁴ See: www.estrategiadigital.gob.cl

¹⁵ See: Www.corfo.cl

¹⁶ See: Annex 1 of that report titled “Research Centres by Area of Research”

conducted by Chilean researchers are in line with the ICT areas identified in the Work Programme 2011 for the ICT theme of the EU Seventh Framework Programme (FP7), as seen in the following table:

	Area 1: Pervasive and Trusted Network and Service Infrastructure	Area 2: Cognitive Systems and Robotics	Area 3: Alternative Paths to Components and Systems	Area 4: Technologies for Digital Content and Language	Area 5: ICT for Health, Ageing Well, Inclusion and Governance	Area 6: ICT for a Low Carbon Economy	Area 7: ICT for the Enterprise and Manufacturing	Area 8: ICT for Learning and Access to Cultural Resources	Area 9: Future Emerging Technologies
Universities									
Fundación ciencias para la vida					X				X
Pontificia Universidad Católica de Chile	X	X	X	X	X		X	X	
Red Universitaria Nacional (REUNA)	X							X	X
Pontificia Universidad Católica de Valparaiso	X	X		X			X		
Universidad Adolfo Ibañez	X	X		X	X	X	X		X
Universidad Austral de Chile	X	X	X	X		X	X	X	X
Universidad Católica de la Santísima Concepción	X	X	X	X				X	X
Universidad Católica de Maule	X	X	X	X	X			X	
Universidad Católica de Temuco	X	X					X		
Universidad Católica del Norte	X	X	X	X	X				X
Universidad de Concepción	X	X	X	X	X			X	X
Universidad de Chile	X	X	X	X	X	X	X	X	X
Universidad de la Frontera	X	X	X	X	X		X	X	
Universidad de La Serena	X				X			X	X
Universidad del Bío-Bío	X				X		X	X	
Universidad de Magallanes	X	X	X	X				X	
Universidad de Santiago de Chile			X		X				
Universidad de Talca	X	X	X	X	X	X	X	X	X
Universidad de Valparaiso	X	X		X				X	
Universidad Diego Portales	X	X		X	X		X		
Universidad Nacional Andrés Bello	X	X	X						X
Universidad Arturo Prat	X						X	X	
Universidad de Santiago de Chile	X	X	X	X		X	X	X	
Universidad Tarapacá de Arica	X	X		X			X	X	
Universidad Tecnológica Metropolitana	X	X			X	X		X	
Universidad Técnica Federico Santa María	X	X		X	X	X	X	X	

There are 60¹⁷ Universities in Chile, but only 24 are involved in ICT Research. This number of universities represents the 40% of the Chilean institutions. However, it is necessary to clarify that there are two research centres that are not Universities.

3.3 Main private and corporate ICT stakeholders

The following organizations work in the promotion of ICT in the country, but they do not have regulatory authority:

- **Chilean Association of Companies in ICT¹⁸** (ACTI). This organization seeks to “promote the development and application of ICT, as well as the generation of internal and external markets for national ICT products and services, fostering free competition and the creation of legislation in order to form an adequate framework for the development of activities of the Technology Industry”.
- **Digital Country Foundation¹⁹** (País Digital). This non profit foundation aims at the research, dissemination, promotion and development of various aspects of technological sciences, in its broadest conception, with the objective of consolidating a digital culture in Chile.
- **Chile Foundation²⁰** (Fundación Chile). This foundation is a private, non-profit institution and its mission is to foster human and productive resources by developing and fostering high impact technological innovations and processes, technological transfer, and technology management.
- **Chilean Society for Software and Services²¹** (GECHS). This organization includes around 70 ICT Chilean companies (mainly SME's) working on software development, outsourcing of IT solutions and ICT consulting. The main goal of GECHS is to promote and help improve ICT-based services.
- **The Computer Law Association²²**: (ADI-CHILE) This is a non-profit organization founded in Santiago de Chile in March 2000. The goal of this entity is to promote and study the development of law sciences and their interaction with Information and Communications Technologies.

¹⁷See: http://www.mineduc.cl/usuarios/sies/doc/201103101530560.instituciones_vigentes_marzo_2011.xls

¹⁸ See: www.acti.cl

¹⁹ See: www.paisdigital.org

²⁰ See: www.fundacionchile.cl

²¹ See: www.gechs.cl

²² See: www.adi.cl

With respect to ICT private companies, there are over 160²³ operating in Chile. The best known are the following:

- **SONDA:** It is a Chilean multinational company head-quartered in Santiago, is one of the most important companies in sector of Information technology in Latin America. Founded in 1974 in association with Copec. The company is present in 9 countries: Argentina, Brasil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Peru and Uruguay.
- **ADEXUS:** Chile's Adexus is a privately held systems integrator and e-commerce solutions provider with operations in Peru, Ecuador and Chile as well as the US. The company offers services in the areas of information technology and communications, networking, and Internet. In addition it provides outsourced services, such as telemarketing, customer service, and help desk; computer platforms; and support for biotechnology. Adexus was founded in 1990 and is based in Santiago, Chile.
- **Grupo GTD:** It is a holding company for telecommunications providers with a focus on large and small and medium businesses (SME), government institutions and the residential sector. Grupo GTD products and services include dedicated voice links; data and video; local telephone; digital and IP telephony; Internet service; data center; storage and national and long distance; digital television; and residential telephone, television and Internet services.
- **ENTEL:** Entel Chile, a publicly listed telecommunications company, was formerly Chile's state-run long distance monopoly. In addition to national and international long distance, the company now provides broadband and dial-up Internet, mobile telephony and local telephony services. The company also has a call center and a data center. The company has operations established in Peru through its affiliates Americatel Peru and Servicios de Call Center del Peru.
- **MOVISTAR:** Movistar Chile, a subsidiary of Spanish Telefónica, is a publicly traded telecommunications provider. It offers local, long-distance and international services; data transmission; dedicated lines; broadband and wireless fidelity (Wi-Fi); terminal equipment sales and leasing; public telephone and other value-added services. In October 2009, the company brought all its communications services together, including mobile telephony, under the brand name of Movistar.
- **VTR:** VTR is a Chilean company that provides services of Internet broadband, TV by subscription and residential telephony through cable and VoIP protocol (Telephony IP). It separately commercializes his services through a Triple format Pack (Internet + telephony + TV by subscription). At the moment, the company is confirmed by a 80% pertaining to the Global Liberty (from the United States) through VTR GlobalCom and 20% to the Corp Rec S.A. (Saieh Group Chile). It offers access to high speed Internet for residential and commercial places in Santiago and other 45 cities in Chile.

A complete list of ICT privates companies can be found in the report "Information and Communication Technologies in Chile Research areas and capabilities. State of the art report" wrote by CONICYT.

²³ CONICYT, 2010, p. 15, See:
<http://chiep.cl/index.php/es/documentos/documentos-de-analisis/finish/20/41>

4 NATIONAL POLICIES AND STRATEGIES FOR ICT RESEARCH & DEVELOPMENT

a) The role of Universities

The majority of the research in ICT in Chile is carried out by the universities. There are not research centres financed by the Chilean State regarding this subject. The industry has only a few small research laboratories of ICT.

The main research areas²⁴ include the following subjects:

Traditional Fields	Emerging fields
Software Engineering	Bioinformatics
Management Information Systems	Web Research
Data and Knowledge Engineering	Social Networks
Data Structures	Collaborative Systems
Algorithms Analysis	Mobile Systems
Information Retrieval	
Human-Computer Interaction	
Computer Languages	
Computer Graphics	
Large-scale Computation	
Computer Networks	
Distributed Systems	
Communications	
Educational Informatics	
Robotics	
Numerical Computation	
Speech Recognition	
Pattern Recognition	
Artificial Intelligence	

These research areas are synchronized with the sectors of economic development defined by the National Innovation Strategy²⁵ which are agribusiness, aquaculture, mining, global services and tourism. Although R&D is not focusing specifically on ICT, they do have important ICT components.

²⁴ CONICYT, 2010, Information and Communication Technologies in Chile Research areas and capabilities. State of the art report, p. 18, See: <http://chiep.cl/index.php/es/documentos/documentos-de-analisis/finish/20/41>

²⁵ See: <http://www.CONICYT.cl/573/article-35981.html>

b.- Funding schemes for ICT

As stated above, there are two main ways through the funds of the Chilean Government to invest in Science and Technology: CONICYT and CORFO.

CONICYT's programmes and funding schemes are divided into two separate lines, namely the promotion and strengthening of the national scientific and technological foundation, and the formation and training of advanced human capital:

1.- Scientific and Technological Foundation:

- National Fund for Scientific and Technological Development (FONDECYT): It is the country's main public fund aimed at supporting and strengthening individual basic research.
- Fund for Financing Research Centres of Excellence (FONDAP): This funding scheme supports the establishment or strengthening of centres in research areas which are relevant for the country and where basic national science has reached a high development level.
- Fund for the Promotion of Scientific and Technological Development (FONDEF): This funding scheme aims at promoting a relationship among research institutions and companies for the development of applied research projects, precompetitive development and technology transfer.
- Astronomy Programme: It seeks to support and strengthen the development of astronomy in Chile by providing grants in this field, managing observation time at telescopes in the north of the country, and managing doctoral and post-doctoral scholarships in astronomy among others.
- National Fund for Research and Development in Health (FONIS): Its mission is to create greater technological and scientific development, which in turn will allow better public health decisions to be made in the country at both policy level and clinical and management level.
- Associative Research Programme (PIA): This programme aims to promote the articulation and partnership between different groups of researchers and other national and/or international groups from the academy and/or the private and public sectors.
- Regional Programme for Scientific and Technological Development: This scheme supports units of scientific and technological development located in the different regions of the country to promote decentralized research.

2.- Training of Human Capital

- Advanced Human Capital Formation Programme: This programme focuses its actions on supporting and strengthening the formation of advanced human capital in every area of knowledge, both in Chile and abroad.
- Attraction and Insertion of Advanced Human Capital Programme: Its purpose is to increase the scientific, technological and academic capabilities of Chilean institutions devoted to science and technology, by means of attracting international researchers and by inserting highly qualified professionals in academia and productive sectors.

Regarding innovation, CORFO promotes technology innovation for companies, technological transference and dissemination, pre-competitive innovation, public-oriented innovation, and innovating entrepreneurship among others. CORFO has the following programs:

- Technology Internships: Subsidy that supports the formation of professionals or technical staff of Chilean companies in technological centres or foreign companies, so that they can acquire and later they can transfer knowledge, practices and skills that allow to develop innovations in Chile.
- Development of technical Capacities of Human Capital in relevant sectors: Subsidy that supports the Design and Pilot Plan of Programs of Training destined to diminish gaps of training, detected in technical staff and professionals belonging to sectors prioritized by the regional councils under the budget of Regional FIC.
- Technological missions: It is a subsidy that supports the achievement of trips of Chilean companies, principally abroad, to access and later to disseminate, to transfer and to adapt in Chile, knowledge, practices and skills of production that facilitate the innovations development.
- Specialized consultancy: It is a subsidy that supports the experts' hiring of international level, national or foreign, whose knowledge and capacities are not available in the country, to solve specific problems which solution is of immediate application, with the target to increase the competitiveness of the companies candidates.
- Program of Technological Diffusion: It is a subsidy that supports programs designed to address requirements of knowledge and technical solutions for target groups of companies and individual entrepreneurs to improve their productivity through the introduction of new products and processes, supported by a technological entity. These programs can incorporate a prospecting phase that precedes the phase of dissemination.
- Technological nodes: Subsidy that supports the action of entities dedicated to promoting the technological and productive innovation of SMEs companies, considered beneficiaries by means of access to new knowledge and practices.

c) Tax Incentives

In Chile, Law No. 20,241 of January 19, 2008 regulates the tax incentives for private investment research and development what is a tool that aims to increase private investment in research and development and to strengthen ties between universities or research centers and companies. This law allows companies to obtain a tax credit equal to 35% of total payments for research and development contracts signed with research centers enrolled in the Register Research Center and certified by CORFO. This law remains in force until December 31, 2017.

5 ICT PRIORITIES FOR R&D

5.1 *Priorities at National Level*

According to “Analytical report on Science and Technology cooperation between the EU, its Member States and Chile²⁶” wrote by CONICYT, the Liaison Office under CONICYT prepared a document with input from the National Contact Points for the Fifth Meeting of the Steering Committee of S & T cooperation Agreement between Chile and the European Union which took place in November 2010 in Santiago de Chile.

This document refers to the research topics that are the Priority to the Chilean Government in the context of the specific areas of FP7:

- ICT Information and Communication Technology,
- ICT for mobility,
- software development and,
- ICT for SMEs.
- Although there is not a priority, the importance of open source was also highlighted.

It is also important to mention that the Chilean government has recently developed a plan to make of Chile a digital nation. A consortium of government agencies, academic institutions and companies of the private sector was formed to discuss a vision for Chile. A Digital Program was introduced in February 2010 with a plan a total of 34 initiatives across 6 areas of action, including:

- access,
- eGovernment,
- education and training,
- ICT industries,
- companies and
- legal and regulatory frame.

In addition, during the last 2-3 years, the Chilean government has begun to promote ICT for a low carbon economy.

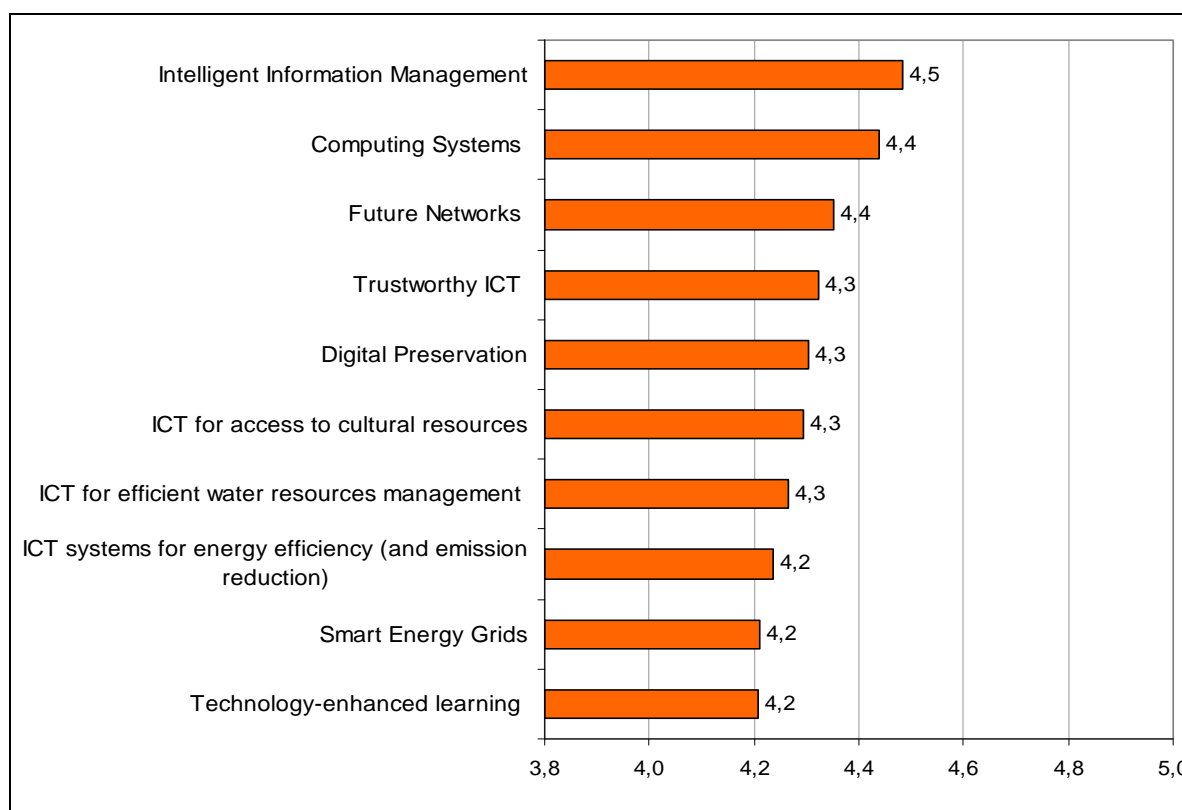
²⁶ CONICYT, “Analytical report on Science and Technology cooperation between the EU, its Member States and Chile”, p. 17, See: <http://chiep.cl/index.php/es/documentos/documentos-de-analisis/finish/20/45>

5.2 Priorities for International Cooperation with Europe

The survey²⁷, conducted by the PRO-IDEAL consortium in June 2010 detected that the national priorities seems to be in line with the EC FP7-ICT programme, identifying that the top ten ICT priorities in LA refer to education and learning, communication networks, information management, computing systems, energy, cultural resources, governance and health. Nevertheless, there are five ICT priority areas identified by the study, for potential cooperation on which the PRO-IDEAL countries have been focused:

- Internet of Services, Software and Virtualisation
- Nanoelectronics Technology
- Technology-Enhanced Learning
- ICT for Patient Safety
- ICT for Governance and Policy Modelling

The following graph refers to the Top Ten ICT priorities in Chile, according to the PRO-IDEAL survey:



International cooperation has an important dynamism, where new bilateral agreements have been signed and almost 500 Chilean researchers have participated in joint research projects with European counterparts under the bilateral and multilateral agreements signed by Chile.

The Chilean ICT community has important links with the EU through various programs. An example of bi-lateral cooperation is supported by the DAAD (German Academic Exchange Service). Multi-lateral cooperation occurs through CYTED

²⁷ PRO-IDEAL- Report on ICT Research Priorities in Latin America. September 2010

(Ibero-American Science and Technology for Development), STIC-AmSud (with the support of the French government), and the European Union today by the European Union's Seventh Framework Programme (FP7).

With respect of the Framework Programmes, almost 150 Chilean institutions have participated in joint projects. Finally, academic cooperation among universities, which has not been included in this report, also stands for a large number of student exchanges.

The “Analytical report on Science and Technology cooperation between the EU, its Member States and Chile ²⁸” reveals that the assessment of the S&T cooperation between Chile and the EU is very positive.

Regarding *FP7-Cooperation programme*, it includes ten thematic areas, being ICT one of them. In this area there six current ICT projects which are COMOESTAS, ACTION-Grid, SALA+, PRO-IDEAL, PRO-IDEAL PLUS and FORESTA.

With respect to *Capacities*, Red Universitaria Nacional (REUNA) is part of two e-infrastructure projects, EVALSO and GISELA.

Finally, in *Researchers' Mobility*, Chile has several participants in this area, but there are only four ICT projects in this area which are part of the IRSES sub-field. These projects are iMaPla, EPIKH, Net2 (Universidad Católica) and Net2 (Universidad de Chile).

In general, the priorities for international cooperation with Europe are aligned to the European Union priorities. In addition, ICT for SMEs is a Chilean priority.

The lack of involvement of enterprises and especially SMEs is a key finding in the analysis of the S&T cooperation between the EU and Chile. Five private enterprises participated in FP6, a number which decreased to three in FP7, constituting only 5% of the total number of Chilean participants throughout the last two Framework Programmes²⁹.

²⁸ CONICYT, “Analytical report on Science and Technology cooperation between the EU, its Member States and Chile”, p. 62, See: <http://chiep.cl/index.php/es/documentos/documentos-de-analisis/finish/20/45>

²⁹ CONICYT, “Analytical report on Science and Technology cooperation between the EU, its Member States and Chile”, p. 70, See: <http://chiep.cl/index.php/es/documentos/documentos-de-analisis/finish/20/45>

6 CONCLUSIONS

Public Policies and Strategies for ICT Development

- The national system of science and technology in Chile is based on the participation of public and private entities, such as government agencies, universities, institutes and research centers.
- A Digital Agenda was introduced in February 2010 which includes 34 initiatives divided in 6 action areas, which include: access, e-government, education and training, ICT industries, businesses and legal and regulatory framework.
- The Digital Plan designed by the Chilean State will affect positively in the participation of ICT industry.

Active public policies for ICT industry development as cross technology in other value chains

Public policy aims:

- To support the modernization of the State Administration (e-Government).
- To deepen the use of ICT by Companies under the paradigms of the knowledge society (e-Society).

Strategies at corporate or business associations level for ICT industry development

There are not clear strategies at corporate or business associations level for ICT industry development. ACTI and GECHS are organizations that represent diverse interests with different goals.

Legal framework and other public documents relevant to national ICT policies

There are at least 7 different acts which regulate e-signature, data protection, consumer protection, copyright, industrial property, cybercrime and taxes. However, an important regulation is the Act 20.241 that gives tax benefits for private investment in research and development.

Public and research institutions

The main public institutions involved and regulating ICT development are the Ministry of Economics, the Undersecretary of Telecommunications, the Ministry of the General Secretary of the Presidency, the Secretary of Digital Development from the Ministry of Economics and the Chilean Economic Development Agency

Universities

Regarding this point, the geographical distribution of the ICT research community is highly centralized in three regions (Región metropolitana, Valparaíso and Bío-Bío). Only the 40% of Chilean universities are involved in ICT Research. However, these Universities are the relevant actors in the development of ICT research in Chile.

Main private and corporate ICT stakeholders

The following organizations work in the promotion of ICT in the country: Chilean Association of Companies in ICT (ACTI), Digital Country Foundation (Pais digital), Chile Foundation (Fundación Chile), Chilean Society for Software and Services (GECHS) and The Computer Law Association (ADI-CHILE).

The best known ICT private companies are Sonda, Adexus, Grupo GTD, Entel, Movistar and VTR. However, there are over 160 ICT companies in Chile.

National policies and strategies for ICT research & development

The majority of the research on ICT in Chile is carried out in the universities. There are not research centers financed by the Chilean State regarding this subject. The industry has only a few small research laboratories of ICT.

There are two main investment funds of the Chilean Government in Science and Technology: CONICYT and CORFO.

The tax legislation is a tool that contributes to raise the participation of private sector in ICT R&D. The current bill in the Chilean Parliament will help to get more monetary resources from the private companies.

Priorities at National Level

The main Chilean ICT priorities are ICT for mobility, software development and ICT for SMEs.

Software development is the way how SMEs seeks to develop the ICT industry in Chile.

Priorities for International Cooperation with Europe

The international cooperation in ICT research has experienced an important dynamism in the last decade. Regarding European Union Cooperation the number of participants is similar between the Sixth and Seventh Framework Programme.

There is a small percentages of SMEs participants in Seventh Framework Programme and it is necessary to seek and to develop measures that allow to increase the numbers of SMEs in European Union Projects.

There are similarities between the Chilean priorities in ICT and the challenges of the Seventh Framework Programme.

7 REFERENCES

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- See: www.economia.cl/wp-content/uploads/.../Presentación-Ley-I+D-Prensa.pdf
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- See: <http://www.CONICYT.cl/573/article-35981.html>
- Inmark, “Report on ICT Research Priorities in Latin America. Results from PRO-IDEAL PLUS Survey”.

7.2 List of Institutions and Companies Interviewed

- National Commission for Scientific and Technological Research, Astrid Waltermann.
- Chilean Society for Software and Services (GECHS), Luis Stein
- Secretary of digital development, Daniel Urbina
- Universidad Técnica Federico Santa María <http://www.utfsm.cl/>
- Universidad Católica del Norte www.ucn.cl
- Conservador de Propiedad Intelectual, Claudio Ossa http://www.dibam.cl/derechos_intelectuales/
- Universidad Tecnológica Metropolitana
- REUNA www.reuna.cl
- Universidad de Santiago, Eduardo Schoeder, www.usach.cl